



UNC

COLLEGE OF ARTS AND SCIENCES
Public Policy

FOOD INSECURITY IN CHILDREN AGES BIRTH TO FIVE

**An Analysis of Childhood
Food Insecurity in Wake,
Durham and Orange
Counties**

CHILD CARE
SERVICES



Association

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Acknowledgments

Our team of Capstone students would like to extend our deepest gratitude to Dr. Evan Johnson, for his wisdom and advice throughout the project. Additionally, we would like to thank Dr. Maureen Berner, of the UNC School of Government, for her assistance in connecting our team with the most updated data practices and literature on food insecurity, and for serving us delicious banana bread. We extend our thanks to our friends at the Odum Institute, who helped tremendously with the data collection and mapping. Lastly, we appreciate the hard work of Dr. Anna Krome-Lukens, who tirelessly coordinated the Capstone program.

About the Authors

The following report was created by four senior undergraduate students in the Department of Public Policy at the University of North Carolina at Chapel Hill, Zoie Albrecht, Coleman Evans, Uriah Ford, Kayla Williamson, and Lauren Talley, as a component of their Senior Capstone requirement. The dedicated team worked with the Child Care Services Association to investigate food insecurity in children ages birth to five in the North Carolina Triangle region.

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Executive Summary

As the Child Care Services Association looks to grow and keep up with the demand of their Meal Services Program, there is a need for better data on food insecurity among children birth to five in the Triangle as well as an understanding of the causes and effects of food insecurity on early learners. This report outlines the concept and realities of food insecurity, the findings and methodology of mapping food insecurity in the Triangle, and the implications these results have for CCSA.

Through a detailed literature review and a qualitative analysis of local leaders who work to alleviate food insecurity, this team was able to identify eight driving factors of food insecurity ranging from low wages, systemic racism, and poor physical and mental health of parents. The report also details cognitive, behavioral, and academic effects of young learners experiencing food insecurity.

To better understand where food insecurity is concentrated, this report details census tracts within the NC Triangle which face the highest prevalence of food insecurity among early learners. The maps utilize proxy variables to create a set of indicators for measuring food insecurity, including high food expenditures, persistent poverty, and a greater than average proportion of children under five.

Ultimately, the report contextualizes what the implications of these findings are for CCSA and their Meal Services Program. Additionally, the team presents recommendations for CCSA's Durham kitchen, and ways the space can be utilized by the community and for the purpose of continuing to support young learners experiencing food insecurity.



Behind The Report

CCSA Background

The Child Care Services Association (CCSA) is a non-profit research and advocacy organization. The organization seeks to ensure that all children have access to high-quality child care. CCSA fulfills their mission by providing “free referral services to families seeking child care, financial assistance to families who cannot afford quality child care, technical assistance to child care businesses, and educational scholarships and salary supplements to child care professionals through the T.E.A.C.H. Early Childhood® and Child Care WAGE\$® Projects” (Child Care Services Association, 2019). CCSA has a number of funding streams, notably, the North Carolina Division of Child Development and Early Education.

Beginning in the late 1980s, the Child Care Services Association launched the Meal Services Program, which provides nutritious meals to children enrolled in participating child care services. In doing so, CCSA acknowledged that food insecurity operates in a feedback loop with other adverse circumstances and early childhood education outcomes; children who experience homelessness or food insecurity are more vulnerable to developmental and social-emotional delays.

Problem Definition

The Child Care Services Association has solicited help from UNC Public Policy Capstone students to research food insecurity in young children ages birth to five years old, in Durham, Orange, and Wake Counties. Through quantitative and qualitative research, as well as through a robust literature review, our team will provide CCSA with the latest information pertaining to food insecurity in children from birth to age five. This will help to inform CCSA about how and in what capacities the association could expand their Meal Services Program.

Methodology

Although food insecurity is an extensively researched topic, detailed community-level data on birth to five food insecurity is nonexistent. Traditionally, when researchers focus on measuring food insecurity, the data is collected at the national, state and county levels. From this data, researchers are able to determine the overall levels of food insecurity for the total population, the adult population, and the 0-18 population. Thus, due to the limited scope of these



traditional data collection methods, there is an overwhelming gap in knowledge regarding food insecurity rates for children ages birth to five.

Understanding there is a lack of localized data on food insecurity for children ages birth to five, our research team decided to conduct both primary and secondary data analysis to gain a more cohesive picture of early childhood food insecurity in Wake, Durham, and Orange counties. Specifically, to better understand the scope of birth to five food insecurity in the Triangle, our team compiled an extensive literature review, hosted interviews with local foodservice leaders, and, through secondary data analysis, created a GIS map highlighting census tract locations in the North Carolina Triangle with the highest rates of birth to five food insecurity.



Part One:

Food Insecurity as a Concept

In order to fully understand the realities of food insecurity in the Triangle, our team decided to begin by exploring food insecurity, as a concept. More specifically, we turned to existing literature in the hopes that such a review would yield insight into the root causes and effects of food insecurity for young learners. In addition to the literature review, we conducted interviews with local leaders to better understand the topic. As hoped, the review and interviews provided our team with a robust understanding of how food insecurity emerges in individuals and families, as well as how food insecurity affects child development and educational outcomes. This knowledge was important to obtain, before embarking on food insecurity as it relates to young children in the Triangle, for it connects our work to a larger conversation and provides insights that can be applied to the local context. In this section, we present the findings of our investigation into food insecurity as a general concept: how it emerges and the effects of it.

Root Causes of Food Insecurity

There are many root causes of food insecurity in children ages birth to five. Through primary interviews with community leaders, who work to alleviate food insecurity, as well as exploring causes through a literature review, our team identified eight driving factors of food insecurity within the Durham, Orange, and Wake Counties.

Low Minimum Wage

Many interview respondents cited low or stagnant wages as a driver of food insecurity (Interview: Simmons, CAFN, Horowitz). Unlike other necessities such as housing or electricity, food is a flexible budgetary item. Low wages reduce the purchasing power of a family's budget and, thus, contribute to food insecurity. Add in the extra constraint for families with children under five who also must budget for childcare, their purchasing power for food diminishes even further.



Ease of Access to Unhealthy Foods

In conjunction with low wages, families with financial stresses are pushed to purchase meals that are inexpensive and quickly-accessible (Interview: Lavergne). Food insecurity is not just about being able to put food on the table, but it is also about the quality of the food being served.

Systemic Racism

Persistent, intergenerational poverty concentrates food insecurity in communities of color who have faced long-term barriers to affordable housing, employment, and equitable and effective schools, among other things (Interview: DeMarco). These barriers create and widen the racial wealth gap between white communities and communities of color, which is worsened by the lack of responsive government infrastructure (Interview: DeMarco).

Lack of Affordable Housing:

Affordable housing was cited by half of interviewees as a driving factor of food insecurity in the Triangle. According to the Census Bureau, the median rent for Orange County is \$1,026 per month, \$996 per month in Durham County, and \$1,043 per month in Wake County. For reference, the median rent in North Carolina is \$844 per month, which is significantly lower than the aforementioned three counties (United States Census Bureau, 2018).

In her interview, Kristin Lavergne, the Community Services Director for the Interfaith Food Council, pointed to highlighted affordable housing policies by local governments, but noted that there are different tiers of what's affordable to whom. Affordability is relative. For example, there is a difference between what is affordable to a police officer or teacher, than what is affordable to someone working for the minimum wage.

Citizenship Status:

Citizenship status is an additional driving factor of food insecurity (Interviews: Horowitz, CAFN). According to the interview with CAFN, families where one or both parents are undocumented can be fearful that filling out forms for free or reduced lunch or requesting food assistance could jeopardize their immigration status or lead to deportation.

Transportation:

Getting to grocery stores proves to be another factor for families (Interviews: Soldavini, Horowitz). Parents who are transportation dependent or have low access to cars face additional time and access barriers in getting to grocery stores and/or organizations which work to combat food insecurity. Inconsistent bus routes or routes with limited access on the weekends add



additional time and stress for families trying to utilize public transportation to get to purchase food.

Poor Physical and Mental Health of Parents:

A major finding in the literature review was that poor physical and mental health of parents can contribute to food insecurity. It is important to note that physical and mental health problems are concentrated in low-income communities, which worsens food insecurity due to the time, money, and energy needed to treat health issues.

Low Access to Healthy Foods:

In contrast to the ease of access to unhealthy foods, families face barriers in not just the affordability of healthy foods but in a lack of knowledge about how to prepare and cook them (Interview: Lavergne).

A Note on the Root Causes of Food Insecurity

With the help of insight from the interviews with local leaders, we have come to understand that food insecurity must be understood through a social justice lens. Many of the root causes of food insecurity –low minimum wage, ease of access to unhealthy foods, systemic racism, lack of affordable housing, citizenship status, transportation, poor physical and mental health of parents, and low access to healthy foods– are interconnected and, when analyzed as a whole, call for a deeper level of analysis. Food insecurity emerges not as a result of adverse circumstances faced by an individual or family, but instead is a product of cycles of oppression which systemically and routinely disadvantage communities of color and communities facing persistent poverty. For example, the locations of food deserts are not random, nor is the ease of access to unhealthy foods. Instead, both realities serve as root causes of food insecurity, and occur primarily in low-wealth communities. This understanding carries implications for CCSA's Meal Services Program. It calls for everyone in the food insecurity landscape to understand the issue as one of social justice, rather than as an isolated issue.



The Effects of Food Insecurity

Cognitive

Food insecure children experience a number of cognitive detriments. Poor cognitive functioning makes it more difficult for students to develop the mental processing skills necessary to succeed in school (Kimbrow and Denny 2015). Additionally, physical and mental development, from lack of nutrients, contributes to poor academic outcomes for elementary school aged children (Kersten et. al 2018). These findings offer some insight into the impact that food insecurity in children birth to five would have on cognitive outcomes. In fact, if anything, children ages birth to five may experience these cognitive difficulties more intensely than their older peers, because early childhood development is foundational to later academic success (Cook et. al 2005).

Developmental processes are exacerbated by hunger, which is distinctly different than food insecurity. When children do not have the nutrients they need to fully develop, there is a physiological reaction. Hunger creates physical health issues, which weaken children's immune systems, making them more susceptible to and unable to fight illness. It is important to note that hunger operates in line with other adverse circumstances, such as a poverty (Bean 2010). For example, financial struggles due to high medical costs could lead to greater poverty, and lower purchasing power for food.

Behavioral

The fear of not having enough food leads to the development and maintenance of toxic stress; such stress is typically experienced by parents and is passed onto children. "Toxic stress" leads to the development of behavioral problems. Students subjected to "toxic stress," or stress induced by not knowing where the next meal is coming from, exhibit greater irritability, and weakened interpersonal and social skills. This reality has a tangible effects on a child's ability to focus, and take in and retain information (Aiga 2015).

Academic

The cognitive and behavioral impacts of food insecurity cause consequences for students' academic success. Students who struggle to develop interpersonal skills, exhibit irritability, and experience poor physical health, will have a harder time retaining information and attending school (Gunderson and Ziliak 2016). For example, the poor physical health outcomes caused by hunger can also lead to missing school, which will have meaningful impacts on academic outcomes. Children with parents suffering with mental health struggles



are more likely to be insecure than other children, controlling for other effects of poverty (Jackson 2000).

In addition to the cognitive effects of food insecurity, the behavioral effects of food insecurity often lead to students being disparately subjected to disciplinary action in school (Kersten et. al 2018). Much of early elementary school education focuses on teaching students to abide by a rigid set of behavioral rules, or a “hidden curriculum,” to socialize students to adhere by commonly-held behavioral norms (Lareau 2011). In this vein, one purpose of schooling is to encourage compliance by such rules. Deviance is punished as a character flaw. It is important to note that the “hidden curriculum” is typically not responsive to students with adverse circumstances, such as differences in cultural backgrounds, socioeconomic status, or facing food insecurity (Hobbs 2018). In the system which glorifies compliance to the behavioral system, deviance is punished. As such, it is difficult to disentangle the presence of behavioral issues, such as those which could emerge from food insecurity, from disobedience. This is important to note in the context of school climate in discipline, for the presence of behavioral issues, often considered disobedience, lead to disciplinary action.

In early childhood education, as early as pre-school suspension is a possible consequence for not adhering to the rules of behavior (Noltemeyer et. al 2015). This presents a potentially dangerous pattern for those considered deviant. Often these children are removed from the classroom. Especially at a young age, being removed from the classroom disrupts the learning experience, often in irreparable ways. Thus, the toxic fear of this level of food insecurity leads to worse academic outcomes. While the physiological effects of Food Insecurity impede the uptake of information, the behavioral effects lead to students being removed from the classroom. Taken together, these present a challenge for academic achievement and specifically disadvantage minority students and students that come from households with low socioeconomic statuses.



Part Two:

Realities of Food Insecurity in the NC Triangle

After understanding food insecurity as a broad concept, we sought to better understand the issue specific to the Triangle area and to young children. So, to achieve this understanding, we created interactive maps, using quantitative data collected by the American Community Survey. These maps combine a myriad of variables to capture where in the Triangle food insecurity is concentrated. We hope that in presenting the findings of this research, we will give the Child Care Services Association the language to talk about their Meal Services Program and advocate for its' importance. Below, we present an explanation of how the maps were created and what they reveal.

Current Data on Food Insecurity

Localized quantitative data on food insecurity in children ages birth to five do not exist. Historically, data on food insecurity in the United States comes from the national food security survey, a survey conducted as an annual supplement to the monthly Current Population Survey (CPS). In December of each year, after completing the labor force interview, about 40,000 households respond to the food security questions and other questions regarding food spending (Food Security in the U.S., 2019). The households interviewed in the CPS are selected to be representative of all civilian households at State and national levels.

What makes this form of data collection remarkably precise, is that the survey explicitly asks families questions regarding their perceptions of food security and hunger. As families are explicitly asked questions regarding food spending and perceived food security, outcomes are more precise than data analysis that relies on a set of proxy variables to estimate food security. However, while findings from the annual food security survey are precise, the data only depicts overall rates of food insecurity at the national, state and district levels. As data from



this survey is limited by large units of analysis, researchers have a limited understanding of *where* food insecurity is most severe in local communities. Findings from this survey are also limited as they outline only total population, adult population and birth to eighteen population levels of food insecurity. As birth to five food insecurity is not a main focus of the study, precise data on early childhood food insecurity does not exist.

As localized community-level data on rates food insecurity—let alone birth to five food insecurity—does not exist, our research team was required to use a set of proxy variables to estimate the overall levels of food insecurity in children ages birth to five at the census tract level. In order to select a set of proxy variables, our team relied on a set of preexisting secondary data sources. As data for our analysis is limited to secondary data sources, we came to conclusion that our unit of analysis must be census tract level. Although census tracts are a larger unit of analysis than neighborhoods or households, data analysis at this level still allows us to adequately display community variations in food insecurity rates.

Secondary Data Analysis & Map Creation

In compiling a set of proxy variables to measure food insecurity in children ages birth to five in the NC Triangle, our research team carefully selected a set of indicators that quantify the main root causes of food insecurity. From both interviews with local leaders and our literature review, we understand that systemic racism, income level, poverty status, food spending levels, living in a food desert, and unemployment are major driving factors behind food insecurity, that can be captured quantitatively. Our team selected five dichotomous variables for the data analysis:

1. BEA Distressed Community Status (1= yes, 0= no)
2. Persistent Poverty Status (1= yes, 0= no)
3. Low Access Status (1= yes, 0= no)
4. Higher than average percentage of the population between the ages of 0 and 4 (1= yes, 0= no)
5. Higher than 30% of per capita income spent on food (1= yes, 0= no)

For each of the above variables, each census tract was coded with either a one or a zero. If a location was coded as a one for a specific variable, this indicates that variable is present in said census tract. Once each census tract was coded with either a zero or one for each variable, we calculated each census tract's overall food insecurity score. As there are five variables, a census tract could have a food insecurity score anywhere between 0 and 5. Locations with a total score



of 5 are considered most food insecure where else locations with a total score of 0 have the least concerning levels of birth to five food insecurity.

Once all census tracts were coded for each variable and their food insecurity scores were totaled, we used Geographic Information System (GIS) technology to display each census tract's overall food insecurity score on a map.

Additionally, to highlight areas where CCSA should expand its Meal Services Program, we overlaid locations of child care centers currently paired with the Meal Services Program. In overlaying current centers using the Meal Services Program, we were able to see locations in Wake, Durham and Orange counties where the program should expand.

Justification of Indicators

Persistent Poverty Tract Status

To operationalize systemic racism and long term economic distress, our research team used data from the Community Development Financial Institution Fund (CDFI) measuring *persistent* poverty. According to the CDFI Fund, a census tract is considered to have persistent poverty if at least 20 percent of the population has been living in poverty for the last 30 years. Our rationale for using this variable is that it captures long term economic adversity and intergenerational poverty.

While the causes of persistent poverty are systemic and complex, according to researchers at the Urban Institute, persistent intergenerational poverty impacts minority communities at a disproportionate rate. Furthermore, persistent poverty is also more likely to exist in communities where minorities are the overwhelming majority. Understanding the heavy intersection between persistent poverty and minority communities, we deemed this variable to be an adequate quantitative representation of system racism.

BEA Distressed Communities Status

To operationalize high levels of community poverty and unemployment, our research team used data collected by the U.S. Department of the Treasury measuring BEA Distressed Communities. A BEA Distressed Community is defined as a community where at least 30 percent of residents have incomes that are less than the national poverty level and where the unemployment rate is at least 1.5 times the national unemployment rate.



Low Access Status:

To determine whether or not a census tract has a high proportion of individuals living in food deserts, our research team used data from the Food Access Research Atlas. The Food Access Research Atlas is a project of the Economic Research Service, the economic information and research division of the U.S. Department of Agriculture. The Atlas contains data about food access and the locations of food deserts.

For the sake of our research project, a census tract is considered “low access” if 500 persons and/or at least 33 percent of the census tract's population live more than one mile from a supermarket or large grocery store (10 miles, in the case of non-metropolitan census tracts). We used this specific cutoff as it is the same cutoff used by the U.S. Department of Agriculture to determine eligibility for HFFI funds.

High Child Status:

In order to determine where children between the ages birth to four are most impacted by food insecurity, our research team chose to create a dichotomous variable displaying whether a census tract had a higher than average proportion of the population between the ages of zero and four. In Durham, Wake and Orange counties, the average proportion of the population between the ages zero and four was around 6%. Knowing this, we chose to denote census tract locations as “high child” tracts if the birth to four population proportion was higher than 6%. By creating this variable, we are able to see where the majority of young children live. Thus, this variable helps us determine where food insecurity most impacts children.

High Food Expenditure Status

From our literature review, we understand if a family spends a high percentage of their income on food they are at higher risk of becoming food insecure. While families have some discretion regarding their overall food spending levels, all families must eat, thus there is a base amount of money that must go towards food. According to researchers, food spending patterns at the low end of the economic scale, as well as the high end of the economic scale reflect “Engel’s Law.” According to Engel’s Law, households spend more money on food as their incomes rise, but a smaller share of their overall income, while poorer households spend less money on food but their spending accounts for a greater share of their income (Tuttle & Kuhns, 2016). Understanding how low income households spend a higher share of their total income on food, our research team wanted to create a variable to operationalize this effect. To do so, we decided if a family spent over 30% of their per capita income on food than were considered to have “high food expenditures.”



To create this cutoff value, our research team took into consideration national food spending trends over the last 30 years. According to the USDA, over the past two and a half decades, U.S. households in the lowest income quintile (the poorest 20 percent of households) spent between 28.8 and 42.6 percent of their annual before-tax income on food, compared with 6.5 to 9.2 percent spent by households in the highest income quintile (Tuttle & Kuhns, 2016). As families in the lowest income quintile are likely to spend between 28 and 43 percent of their income on food, we decided food expenditures exceeding 30% of per capita income would accurately display severity in food spending levels.

A

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Using the findings generated through our secondary data analysis, we are able to see the geographic locations in Wake, Durham and Orange counties where birth to five food insecurity is most severe. According to our analysis there are:

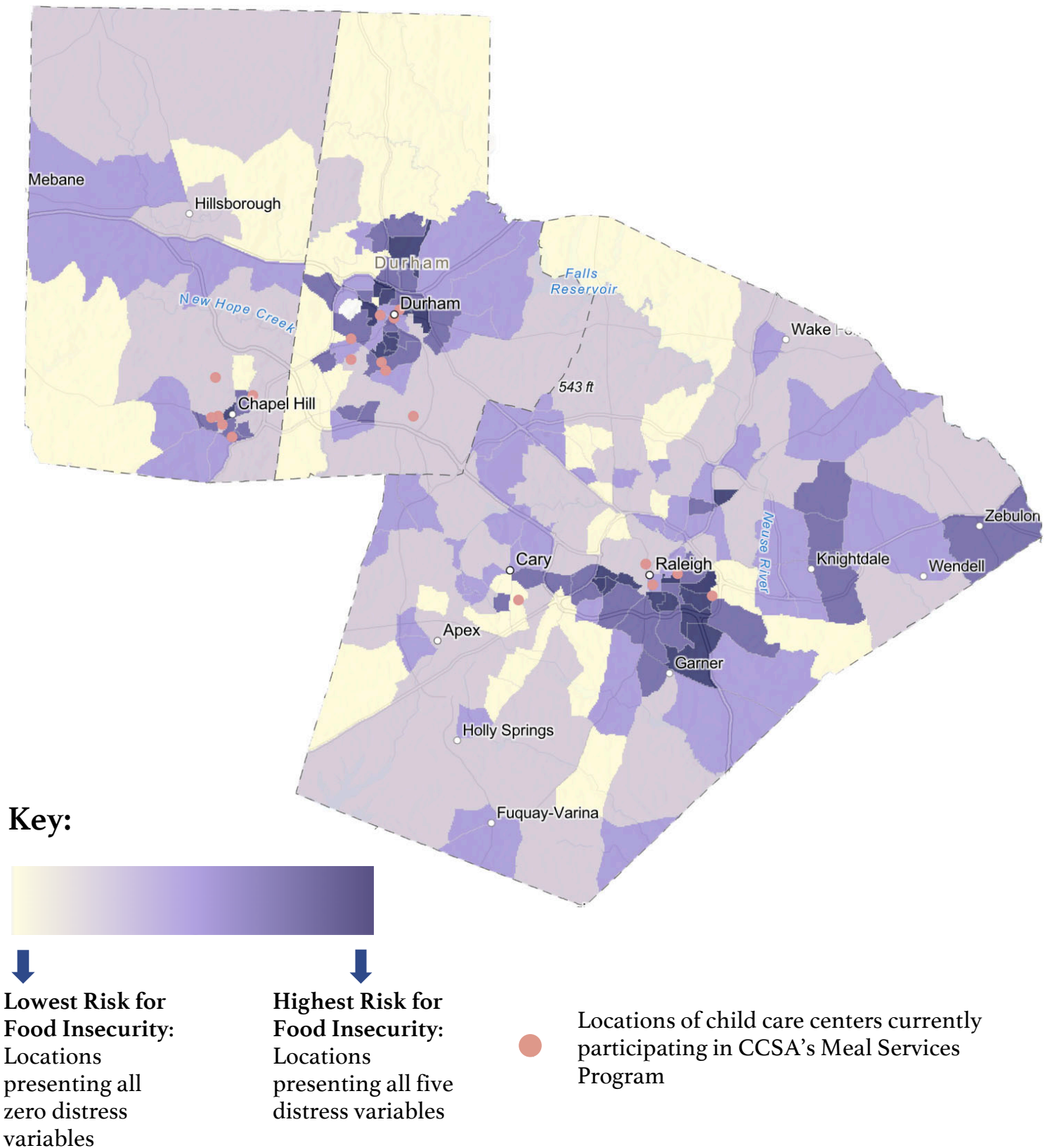
- 6 census tract locations displaying all 5 indicators (2.18%)
- 12 census tract locations displaying 4 indicators (4.36%)
- 27 census tract locations displaying 3 indicators (9.92%)
- 80 census tract locations displaying 2 indicators (23.1%)
- 123 census tract locations displaying 1 indicator (44.7%)
- 27 census tract locations displaying 0 indicators (9.92%)

The census tract locations that were positive for all five of the indicators are:

- 37063000500: Durham County
- 37063000301: Durham County
- 37063001002: Durham County
- 37183050600: Wake County
- 37183052408: Wake County
- 37183052001: Wake County



Prevalence of Food Insecurity in Children Ages Birth to Five in The NC Triangle



A Deeper Look into Census Tract 37063000500

Census Tract, 37063000500 is located directly south of Duke University's East Campus. As of 2017, the location's per capita income was \$15,611 and median household income was \$29,542. Of the residents living in the census tract, over 49% are African American, the median age is 27.3 years and over 80% are unmarried. With both a low per capita income and median household income, over 43.1% of the residents in the census tract are living below the federal poverty line. In terms of educational attainment, 73.8% of the population has a high school diploma and only 38.8% of the population have a bachelor's degree or higher. In regards to home ownership, 78% of residents rent from landlords opposed to own their own home. These facts about the population in census tract 37063000500 allows us to better understand the circumstances which produce concentrated food insecurity.

Link to Online Digital GIS Map:

<https://arcg.is/nKLHj>



Part Three

Implications for CCSA

We hope that CCSA can use the findings from the literature review, interviews, and interactive maps to better expand their Meal Services Program and better use their Durham Kitchen Space. Understanding why food insecurity matters for early learners and where it is concentrated in the Triangle will inform how and where to expand the Program.

Strategic Outreach for CCSA

The Meal Services Program, in its current state, is doing a great job of providing meals to children who attend qualifying day care services. But, by expanding the Meal Services Program, CCSA will be able to reach more children in need of healthy meals. The program should aim to reach and target more areas that need this vital service with the use of “Strategic Outreach”.

CCSA should reach out to child care centers in areas of concentrated food insecurity, directly. In doing so, CCSA could ensure that areas with the most need are being served by the Program. Reaching out to the programs directly will spread the word about CCSA and the services they process, potentially lead to the enrollment of a new center into the Meal Services Program, or help the center to better understand the criteria necessary to be eligible for the Meals Services Program.

Durham Kitchen Recommendations

CCSA currently operates an industrial grade kitchen in Durham. Since the Meal Services Program only utilized the kitchen space Monday through Friday, from early mornings to early afternoons, there is an opportunity to maximize the utility of the space.



Parent-kid Cooking Classes

As discussed, one of the driving factors of food insecurity is not just the lack of affordability of healthy foods, but also the lack of knowledge and time on how to prepare and cook healthy foods. Through parent-kid cooking classes, CCSA can help tackle this driving factor by building a healthy foundational knowledge for kids and families about how to cook.

Logistically, this program could take on different forms with varying levels of CCSA involvement. CCSA could partner with other community organizations, who have the curriculum and capacity to teach this class, or CCSA could develop the infrastructure themselves to recruit for, host, and teach the class.

Kids Chopped

Kids Chopped, based after the popular TV show *Chopped*, could be a fun finale for the parent-kid cooking class, or could operate as its own entity. In the Kids Chopped idea, each parent and child can create a dish they learned to make together through the class or create one of their own family favorite recipes. This event certainly has the possibility to turn into a community-wide event and a way for CCSA to talk about the work they are doing within the community. In that vein, CCSA could invite prominent community members to judge the meals.

Start-Up Kitchen Space

A number of communities in North Carolina have created start-up or “incubator” kitchen spaces as a way for caterers or food product ventures to grow. For a small fee, businesses can rent out CCSA’s industrial space. This idea would provide CCSA with extra revenue, as well as the additional value to the community of allowing other organizations to grow.

CCSA already has the basic infrastructure to implement this recommendation as they are currently renting the space to two tenants. In the Durham kitchen, we think CCSA can grow beyond just two tenants. Midway Community Kitchen in Chapel Hill and the Cookery in Durham are great examples of a start-up kitchen spaces and indicate that there is a need for industrial kitchen rental spaces in the Triangle.

Field Trips and Summer Camps

CCSA could utilize their kitchen space as a place for field trips — both for childcare programs and traditional elementary schools — as a way to teach kids about the importance of healthy eating and how to prepare healthy foods. CCSA could look to partner with local summer camps to provide activities around healthy eating and living a healthy lifestyle.



Appendix: A

Findings from Interviews

Our team conducted primary interviews with community leaders and organizations that work to alleviate food insecurity in the Triangle. We reached out to over 55 organizations and were able to schedule interviews with nine. The interviewees shared their insights on not only the services their organization provides for their community, but also their perceptions of driving factors and effects of food insecurity, specifically in the Triangle area. Through these interviews, we were able to get a much more localized sense of food insecurity.



Allison Cheyney De Marco

Advanced Research Scientist
Frank Porter Graham Child Development Institute



Allison Cheyney De Marco:

Allison Cheyney DeMarco is an Advanced Research Scientist at the Frank Porter Graham Child Development Institute (FPG). Her research focuses on racial equity, poverty, neighborhood effects, work and family, and well-being for residents of rural communities. Dr. De Marco studies the economic impacts of social interventions in rural communities. In addition to being a researcher at FPG, Dr. De Marco is an Adjunct Professor at the UNC School of Social Work and a community advocate.

About the Frank Porter Graham Child Development Institute:

The Frank Porter Graham Child Development Institute (FPG) is a nationally-renowned research and advocacy organization. The research focuses on all-things child development and growth. For more than 53 years, FPG research, implementation, technical assistance, and outreach have shaped how the nation cares for and educates children (FPG). Today, FPG is one of the nation's oldest and largest multidisciplinary centers devoted to the study of children and their families. About 275 researchers, technical assistance specialists, staff, and students work on more than 60 projects related to developmental disabilities, early care and education, physical, social, and emotional health, and racial, ethnic, linguistic, cultural, and socioeconomic diversity (FPG).

Key Takeaways:

- Many local direct service organizations have, historically, not been thoughtful about targeting their efforts to best serve and empower the communities they assist. While it is evident that many organizations do great work to support those who are facing food insecurity and are hungry, there is room for growth. For example, some local meal service programs fail to serve culturally-responsive food, which naturally overlooks some families. Even more, some organizations have failed to acknowledge the imbalances of power between the communities being served and those community members who are serving; it is important to equip volunteers or community members with the outlook and language that is most productive, sensitive, and helpful, for those being served are in an intensely vulnerable place. Additionally, many meal services programs create immense food waste, which creates negative externalities for the communities being served.
- Systemic racism is a root cause of food insecurity, in the North Carolina Triangle. When I asked Dr. De Marco what her perceptions were about the root causes of food insecurity,



her immediate response was systemic racism. The communities facing food insecurity are not random. Instead, they have been subjected to generational inequities. They have faced barriers to affordable housing, employment, and equitable and effective schools. Systemic racism creates a racial wealth gap between white communities and communities of color. This issue is made worse by bringing people into the system who are not responsive to the needs of these communities.

Analysis:

My interview with Dr. De Marco was my first. She was tremendously helpful in framing the way that I think about food insecurity and the role of local organizations in combating it. She encouraged me to approach the topic through a social justice lens. She equipped me with the language I should be using and encouraged me to re-orient the questions I was asking to be more about access and equity, rather than the mechanics of programs. *In the charity approach to human need, how can we incorporate community empowerment and justice? What curricula decide who can participate in X program? What types of foods are being served by X organization?* She was well-versed in both the research and the realities of food insecurity in Orange County.





Kristin Lavergne:

Kristin Lavergne has worked for the Inter-Faith Council for 25 years and currently serves as their Community Services Director. The IFC provides three main services in relation to food insecurity: the community kitchen, the community services program, and a food pantry.

About the Inter-Faith Council:

The IFC started in 1963, and over half a century later is working “to confront the causes and respond to the effects of poverty in our community.” Their community kitchen serves lunch every day of the week and dinner Monday through Friday, equating to 60,000 meals every year. Additionally, their food pantry provides 1,300 bags of groceries every month. The community kitchen is free to anyone, and the food pantry requires that persons live or work in Chapel Hill or Carrboro but there is no income requirement.

Over the past couple of years, the IFC has started to look towards the long-term as well as understanding food insecurity from an advocacy and structural perspective. Beyond the fact that a bag of groceries gets someone through the week, they want to address hunger and food insecurity from an equity and long term lens?

Key Takeaways:

- The root causes of food insecurity are multifaceted and cannot be alleviated by just one program or organization. Lavergne cited living wage, affordable housing, and fixed income such as Social Security as being driving factors for food insecurity in Orange County.
- Healthy meals are a challenge for low-income parents. Parents of young kids are busy, and it is often easier to prepare frozen foods or order from the dollar menu at a fast food restaurant. There is a barrier of not just time and money when making healthy meals but also a lack of knowledge concerning preparing and cooking these meals.

Analysis:

Lavergne concluded her interview by stressing the importance of structural change for combating food insecurity. She said food pantries and community kitchens can only do so much and often provide a surface level alleviation of hunger and food insecurity.



Debbie Horwitz

Co-Founder of PORCH-Chapel Hill



Debbie Horwitz:

Debbie Horwitz is one of the original founders of the Chapel Hill hunger relief program, PORCH. In 2009, Christine Cotton, Susan Romaine and Debbie co-founded PORCH following the 2008 economic recession. When founded, PORCH was designed to be a brief hunger relief intervention to meet an acute, short-term community need. However, once the program began its full partnership with Chapel Hill-Carrboro City Schools, the founders recognized the community's significant need for a long-term hunger relief program.

About PORCH:

Today, PORCH is a community-wide hunger relief program that serves over 420 diverse families in the Chapel Hill/Carrboro area. The food PORCH distributes comes from monthly mass food drives in 160 neighborhoods throughout the Chapel Hill-Carrboro area. Of the food that is collected, about half goes directly to families in the Chapel Hill-Carrboro City Schools and the other half goes to food pantries in the area. The fact that PORCH intentionally provides families with fresh produce makes it unique. Currently, the program provides families with a monthly food basket designed to last 10 days. Within these baskets, families receive over 40 lbs of fresh produce, including chicken, milk, eggs, and veggies and other non-perishable items.

Of the families served by PORCH, 35% are refugees, 40% are Latino, and the rest are primarily African American. Of the Latino families served, it is projected that more than 40-50% are undocumented. As PORCH serves primarily minority families, the organization places a strong emphasis on making sure the families feel safe and accepted at food distribution locations. To make this happen, the program primarily disperses food in community schools and ensures that there is a native speaker at each location site. In an effort to make the dispersed food more culturally responsive, PORCH sends annual feedback surveys to families regarding food preferences and feedback. Recently, in an effort to make food more accessible to Asian families, PORCH established a partnership with a local Burmese refugee community garden, Transplanting Traditions.



Key Takeaways:

- Programs like PORCH are not able to address the root cause of food insecurity. According to Debbie Horwitz, in the Chapel Hill-Carrboro area, the main drivers of food insecurity are language barriers, lack of full time employment, citizenship status, low minimum wages, lack of affordable housing, poor transportation, being a single parent, and health issues.
- Being responsive to diverse family needs is crucial, but a challenging. As PORCH relies heavily on donated food, it is a challenge to ensure that the food being donated meets the specific needs of the families being served. To combat this challenge, PORCH uses monetary donations to buy fresh produce for families. In buying food directly, there is more discretion on the types of items being purchased.

Analysis:

According to Debbie Horwitz, everyone who works for PORCH or helps the organization run is a volunteer. In light of the inherent privilege that comes with working full time for free, there is a significant disconnect between PORCH's leadership team and the group of individuals being served by the program. Ultimately, the only way to make a program truly responsive to a community's diverse needs is to have a leadership team that reflects the population of individuals being served. While PORCH does work to make the families they work with feel safe and accepted, the program still has further to go before until they are able to claim true cultural responsiveness.



Jessica Soldavini

Jessica Soldavini, MPH, RD, LDN, is a PhD student in the Department of Nutrition at UNC-Chapel Hill and the Coordinator for “Cooking Matters” at No Kid Hungry NC. She has worked at No Kid Hungry for several years, and her focus is to connect kids in need with nutritious food and teach their families how to cook healthy, affordable meals.

Background of Organization

No Kid Hungry strives to connect kids to effective but under-utilized federal nutrition programs like school breakfast, summer meals, and afterschool meals. As a part of the organization Share Our Strength, No Kid Hungry also works to engage the public in order to make ending child hunger a national priority. No Kid Hungry NC serves all of North Carolina, working with several state agencies and entities in order to reach all 100 counties and also every North Carolina School district. No Kid Hungry is partnered with other organizations such as the Food Fitness Opportunity Research Collaborative, The Dairy Alliance, NC Public Health: Health and Human Services, and the UNC Center for Health Promotion and Disease Prevention. No Kid hungry finds ways to connect children directly to these life-changing programs.

Key Takeaways

- Underutilization of federally funded programs can be seen throughout the state. Only about 55% of students who are eligible for free or reduced-price lunch utilize the School Breakfast Program.
- Difficulty in accessing these programs is a recurring theme. Jessica felt that, even in Chapel hill, there were difficulties that people faced when trying to access affordable, healthy foods.
- Identifying food insecurity is not easy. One cannot look at another person and immediately know that they are facing food insecurity. There is not a clear cut blueprint for what food insecurity looks like.

Analysis

Although No Kid Hungry does not work to help solve the direct root causes of food insecurity, the organization does provide a very impactful service. The work that Jessica does has helped kids get meals during the summer and learn to prepare their own healthy meals at home. She mentioned that she believes that there could be more communication between groups that are working towards the same goals, in order to alleviate any competition between the groups. After the interview, I felt that connecting children directly to valuable resources was a good start at alleviating food insecurity. One must still consider the potential issue of transportation and a potential lack of knowledge by the child's parents. The interview did bring up a new way of thinking about food insecurity. It is not always the case that someone does not have the money for food. It is sometimes that the person has the opportunity for food in their reach, but they may not know about it.



Amanda Salami

AmeriCorps VISTA Member

Wake County Government: Summer Food Programs



Amanda Salami:

Amanda Salami is an AmeriCorps VISTA Member who is employed by Wake County Government. Her main focus area is the Wake County Government's Summer Meals Program. Amanda Salami is in her first year serving in AmeriCorps.

About Wake County Government's Summer Meals Program:

Summer Food Program sites are located across Wake County to provide a no-cost meal to any child aged 18 and under, from June 17–August 7. Each site offers unique activities and programs to children who are in attendance. Breakfast, lunch or dinner is available. (Wake County Gov). The Summer Meals Program partners with local restaurants and meal services organizations to prepare the food. In the past, they have worked with Zaxbys, Wake County Public Schools, Bus Market, etc. The sites from which meals are served are open throughout the summer in 3-hour increments. They conduct the majority of their advertising through Wake County Public Schools. Though the meals can only be served to children, some sites have programs targeting toward the parents, such as how to change a tire and how to sew. Last year, the Summer Meals Program served 251,000 meals.

Key Takeaways:

- The approaches to combat food insecurity and hunger need to be different for urban and rural communities. Amanda Salami shared that the Summer Meals Program is intentional in targeting their approaches to the communities they serve. In rural communities, transportation is a much larger issue than in urban areas; so, in rural communities, the Summer Meals Program does their best to go to the food insecure communities, rather than inviting them to common places, such as in urban areas. More tangibly, this means that in rural communities, the Summer Meals Program takes place in county buildings. Conversely, in urban areas, the Summer Meals Program takes place in churches and nonprofits.
- Creative solutions are required to combat food insecurity. In order to attract families to partake in the Summer Meals Program, Wake County Government often has to advertise that it is games or "play day," rather than it is a free meal. When a family sees a "Free Summer Camp!" they are more likely to come, than if they see "Free Meal." Then, through the "Free Summer Camp!," Wake County Government covertly offers meals.



Analysis:

The Summer Meals Program is incredibly robust and high-functioning. They are knowledgeable about the realities of food insecurity and the communities they serve. Wake County Government has a great partnership with the Wake County Public Schools, which makes their Summer Meals Program all the more effective.

The most interesting thing that Amanda Salami shared, from my perspective, was how they draw families into the program. Prior to my conversation with Amanda, I was under the impression that advertising a free meal was the best way to connect with families. Instead, what Amanda Salami shared was that they have to advertise free camps or experiences, to draw families in. Though she did not have an absolute analysis as to why this was, she hypothesized that advertising meals, themselves, leads parents to wonder “What’s the catch?” This hesitation will deter them from partaking in the Summer Meals Program.



Lynn Policastro:

Lynn Policastro is a program coordinator for Wake County Smart Start, focusing on their healthy eating and lifestyle initiatives. Lynn works with a number of programs including the Natural Learning Initiative, which is a partnership with NC State to create natural outdoor learning spaces, as well as the Shape and See Project, which supports healthy and active lifestyles in young children. Lynn also works to develop “Farm to Childcare” partnerships where childcare centers buy produce from local farmers.

About Smart Start:

Wake County Smart Start works to ensure that every child birth to five has access to high-quality childcare. WCSS alongside 10 partner organizations administer 22 programs aimed at ensuring every child is healthy and developmentally ready for school, are supported by a strong early childhood program, and are in a safe and supportive home. WCSS chooses childcare programs to partner with based on centers with high subsidy rates and making sure their partner centers are evenly distributed across the county.

Key Takeaways:

- If kids are hungry, they can't focus. Hunger affects kids academically, socially, and behaviorally. Kids have trouble focusing, sitting still, and following rules when they are hungry, and this leads to labels which follow them through high school.
- Some childcare centers have a hard time latching onto health programs. Healthy eating and healthy lifestyle initiatives can be a challenge for child care centers who have few resources, time, and money.
- It is important to make programs accessible to teachers. It is critical that childcare centers to understand that it is not just kids who are at risk for being food insecure, it is also their staffers. Programs should make their resources accessible to families and teachers, and childcare centers should consciously think about how they can support their teachers who are food insecure.

Analysis:

The biggest implication for CCSA through Policastro's interview is the emphasis on farm to childcare and supporting childcare teachers who also are at risk for experiencing food insecurity. CCSA could work to maximize their Meal Services Program beyond the children to include childcare staffers. Additionally, working to incorporate local produce into the ingredients of their meals could be beneficial to the children and the local economy.



The Capital Area Food Network (CAFN)



Interviewees:

The Capital Area Food Network is a food council composed of volunteers and organizations working together to support their local food infrastructure in Wake County. The interview with CAFN included four of their members: Alan Gilbert (Wake County Food Security VISTA - Development and Strategy Associate for CAFN), Bill Shroyer (Wake County Long-Range Planning), Lynn Policastro (Wake County Smart Start), and Michael Burger (Tri-Area Ministry Food Pantry).

About CAFN:

CAFN formed in 2015, working with the Wake County Board of Commissioners to develop a food security plan. The organization originally grew out of the Raleigh Wake Urban Agriculture Working Group, which was a coalition working to integrate urban agriculture into Raleigh's zoning codes. CAFN currently consists of 22 organization partners. CAFN is organized into different circles of food insecurity, working in areas such as food recovery, economic development, racial equity, and communications.

Key Takeaways:

- There's more to food insecurity than the inability to afford food. CAFN conducted a food pantry survey with nearly 100 food aid organizations from February to April of 2018. The root causes most commonly cited in the survey for food insecurity were a lack of affordable housing, living wage, and health insurance.
- Citizenship-status plays a role in further driving food insecurity. Some Wake County residents are scared to fill out forms for WIC, free or reduced lunch, and other government assistance for fear that it could lead to deportation.

Analysis:

Some of the interviewees from CAFN brought up the importance of racial inequalities, lack of affordable housing, and low wages as root causes of food insecurity, which were all common driving factors we saw in other interviews. Additionally, the CAFN interviews showed the benefits of collaboration among community members and the increased impact a coalition can have on addressing food insecurity.



Amber Simmons

Amber Simmons is the Child Hunger Programs Manager at the Inter-Faith Food Shuttle. She is part of the team that organizes the facilitates the child hunger programs put on by the organization, such as the backpack buddies program, pantry program, garden program, nutrition educational program, culinary education program, farm program, and more. She has

About The Inter-Faith Food Shuttle:

The Food Shuttle saves 5.5 million pounds of healthy food from being thrown away and re-routes it to these people in need. Almost 35% of what they distribute is fresh produce. This food comes from retail food donations, the Food Shuttle Farm, volunteer food drives, and field gleaning. We feed people through programs such as BackPack Buddies, Mobile Markets, Grocery Bags for Seniors, School Pantries, the Mobile Tastiness Machine, and by partnering with almost 100 local agencies in neighborhoods throughout the service area to reach people at their point of need. (InterFaith Food Shuttle)

The following are a sample of the programs the Inter-Faith Food Shuttle operates. This is not a complete list.

- **Backpack Buddies Program** - School social workers, counselors, and teachers request a certain number of backpacks for students to take home with them on the weekends. The backpacks are filled with non-perishable items.
- **Pantry Program** – Twenty-eight schools in the Triangle area have pantries available for parents and families to visit. The pantries provide families with choice in what they can take. Families use the pantries to supply meals to the weekends, dinners, etc.
- **Garden Program** - The garden program teaches families how to cultivate and maintain a garden in their backyards.
- **Nutrition Educational Programs** – The Nutritional Educational Programs seek to teach individuals how to cook healthy, and on a budget. The program operates in different sites and hosts cooking classes.
- **Culinary Education Program** - The culinary education program works to prepare people for careers in culinary fields. The culinary department of the Inter-Faith Food Shuttle works with individuals to teach them different culinary skills and etiquette, in order to make them hireable. The goal is to get individuals hired into restaurants or otherwise. As

an aside, 3 individuals who have gone through the culinary education program have been hired by the Inter-Faith Food Shuttle!

Key Takeaways:

- The Inter-Faith Food Shuttle is intentional in providing direct services and empowering the community. Through the Backpack Buddies program, for example, they provide meals to food insecure communities. Additionally, through the garden program, the nutrition educational program, and the culinary education program, the Inter-Faith Food Shuttle attempts to empower the community to provide and prepare healthy goods for themselves, on a budget.
- Amber Simmons cited low incomes and housing insecurity to be the primary root causes of food insecurity. She elaborated that families who have lower incomes often are forced to choose between paying an energy bill and buying groceries for their families. This choice is zero-sum. Even more, she has observed many students who participate in the Backpack Buddies program to be homeless or living in temporary housing (hotels, homeless, etc.).



Appendix: B

Literature Review

Definition of Food Insecurity

A widely accepted definition of food insecurity is “the lack of consistent access to the foods necessary for an active lifestyle” (Kersten et al. 2018). This official definition of food insecurity was developed in 1995, for the Current Population Survey, in response to the claims that the definition of hunger was not specific enough in meaningful ways. In fact, the creation of a new way to measure food insecurity introduced the idea that people on the margins of hunger also struggle to be healthy (Radimer 2002).

Though the two are often conflated, food insecurity and hunger differ. On one hand, hunger refers to the physiological sensation of not having enough food (Aiga 2015). Food insecurity (F.I.) encompasses more than simply this experience. Without the understanding that food insecurity includes the people who worry for the next meal, the interventions to combat hunger were falling short of addressing some of the key issues. F.I. is a measure developed by the federal government to better understand poverty and to assist those without access to food (Kersten et al. 2018). Through the stress that F.I. puts on parents and indirectly their children, food it can lead to its own negative cognitive effects, as well as so-called behavioral effects.

Another important aspect of F.I. is that it is a Social Determinant of Health (Kersten et al. 2018). This means that it is an issue which impacts entire communities (Kersten et al. 2018). It is a systemic issue which has implications for the health of individuals. Therefore, the policy implications of how to address the issue carry particular importance for health outcomes.

There are a few ways that the definition of food insecurity is categorized—some categories speak to the severity and others speak to the type of food insecurity experienced. First of all, in terms of severity, households are considered food secure, marginally secure, insecure, or extremely insecure (Radimer 2002). However, research focused on experience shows that the top category is vastly different from the others (Jackson 2000). Secondly, it is categorized by how it operates in a household. For a household with children, the first phase is concern over having enough food, the second is consuming low quality food, the third is a parent skipping meals and the fourth is a child skipping meals (Jackson 2000).



Scope and Distribution of Food Insecurity in the U.S.

Today, F.I. is measured using intricate survey questionnaires conducted by the USDA. The findings from the most recent year the survey was conducted show that food insecurity is an issue for a notable portion of the American population, and that it is more prevalent among households with children. In 2016, 12.3%, or 15.5 million households in America were food insecure. 16.5% or 6.3 million households with children were food insecure (Kersten et. al 2018). An important consideration is the lived experiences in the lives of people struggling to gain food security. The distribution of food insecurity shows that this is an issue that particularly affects children. 21.4 % of all children in America were food insecure in 2013 (Gunderson and Ziliak 2016)

Poverty as an Underestimated Risk Factor for Food Insecurity

The USDA measures the risk factors for being food insecure. The top largest risk factors were being in a low income household, which increased the risk factor by 31.60%, being a single woman with children, which increased risk by 31.60, and being in a black non-Hispanic household, which raised the risk factor by 22.50%. The national average food insecurity rate in 2016, when the Current Population Survey Food Security Supplement was taken, was 12.3. (Kersten et al. 2018). This shows that poverty is a predictor of food insecurity. Further, this effect is made larger for single mothers and black households with children (Kersten et. al 2018). This survey did not show the extent to which high levels of poverty among black households, among single mothers, and among black single mothers explain the effect of being in a black household or in the home of a single mother on food insecurity. However, a study of poverty rates in rural areas shows that the children of single mothers and young black children both face poverty rates of 50% (Bean et al 2010). Black children and children of single mothers face poverty at overwhelmingly high rates (Bean et. al 2010). This means that the USDA's findings about the potential risk factors for poverty does not fully capture the extent to which poverty mediates the effect of living in a black headed household or in the home of a single mother. That is, because both groups experience poverty at higher rates than their counterparts, poverty may explain the link between these two risk factors and poverty. Neither the USDA's report nor the survey on rural poverty interact the variables for being in black headed household and a single mother headed household.

Further research would have to be done on the effects of this for food insecurity. However, other research that shows that the interaction of these variables deepens the effect of poverty (Jackson 2000) would suggest that the combination of the two risk factors exacerbates poverty. Therefore, the effect of poverty as a risk factor as described in the report likely does not capture the full effect of poverty as a risk for food insecurity.



Further proof that poverty is the central predictor of food insecurity is the fact that food insecurity increased during the great recession from 2007-2008 (Gunderson and Zilak 2016). During this time, unemployment, and subsequently, poverty increased. Longitudinal measurements which begin at least a decade before the recession and continue into the present show that the issue of F.I. increases where poverty increases (Gunderson and Zilak 2016; Coleman-Jensen et. al 2013).

How Poverty Specifically Functions in Terms of F.I.

It is often believed that two of the main driving factors behind food insecurity are access to food and ability to pay for food. In fact, in recent years, much has been made of the presence of food deserts and the contribution that they make to food insecurity (Walker 2010). Several researchers have pointed out that private transportation is a luxury that makes access to fresh food notably easier than it is without private transportation (Coleman 2010; Ma et. al 2008). Additionally, several public transportation proposals revolve around the idea of providing access to fresh foods (Walker 2010). However, further examination into the issue reveals that food insecurity exists at a high density by the household level, not by the community level. (Kersten 2018). This detail is one often overlooked in traditional considerations of F.I. In fact, even food secure communities are communities comprised of several food insecure households. This determination is not made by examining individuals. Further, densely populated urban areas with vast public transportation systems, still have households facing food insecurity. (Kersten et al 2018), even when nutritious food is accessible in terms of location and transportation. The fact that the presence of food does not alleviate food insecurity shows that a lack of accessibility is not what gives food deserts their power. Poverty is what gives food deserts their power. Food deserts do not initiate the issue, instead, they only exacerbate it.

Affordability of nutritious foods

One of the most prominent conversations in current literature over food insecurity is the issue of food deserts (Radimer 2002; Aiga 2015; Kersten 2018). Food deserts, which can occur in rural or urban areas, are places where people do not have reliable access to healthy food (Widener 2018). This phrase describes places where affordable, reliable public transportation is not readily available and stores with fresh foods are not within walking distance to the surrounding residential areas (Widener 2018). This metaphor of a desert is used to explain how food insecurity happens. The intuition is that people in concentrated poverty tend to live in food deserts and that food deserts restrict access to produce. Therefore, people turn to the fast food that is in walking distance, and experience the negative consequences for health of eating a fast food diet.



This framing of F.I. however may place too much emphasis on the idea of accessibility to food. In this view, distance from healthy food would mediate the relationship between poverty and food insecurity. The housing circumstances caused by poverty would lead to a lack of access to food, and thus, Poverty would cause food insecurity only to the extent that it causes people to live in food deserts. However, this relationship is not fully explained by being located in a food desert (Widener 2018). The poverty could likely have a causal relationship with food insecurity through several mechanisms beyond a lack of transportation or grocery stores (Widener 2018).

Further, this idea ignores the fact that the reach of F.I. goes beyond those who face poverty based on the national poverty line. (Kersten et. al 2018). Because this is an objective measure of poverty, it does not capture the many reasons people may not have reliable access to food (Kersten et. al 2018). Finally, those at the margins are often not included in the problem definition, yet have experiences closer to those on the lower bound than on the upper bound.

The problem of food insecurity, which is motivated primarily by poverty, is mediated by both income and health circumstances. Unsurprisingly, income is a reliable predictor of poverty in the sense that struggles with income are reliably connected to poverty (Radimer 2002) Parental income, which is influenced by employment status is often the most important deciding factor leading to food insecurity in children. For example, unemployment, underemployment, and the lack of a livable wage are all contributors to poverty (Radimer 2002), and therefore, food insecurity.

Additionally, the mental and physical health circumstances of a parent contribute to the food insecurity outcomes for children. Being in poor physical or mental health makes it difficult for parent to consistently attain the food their children need (Coleman-Jensen et. al 2013). Even if the food is available within a close range. Similar to the way in which income mediates the relationship between poverty and food insecurity, parental health mediates the relationship as well. The struggles that parents face with their health when in poverty impede food security, and thus partially help to explain the specific ways in which poverty motivates food insecurity. Finally, one way that health issues influence this problem is through the volume of time money and energy that addressing health issues requires. There is both a higher likelihood for negative physical and mental health circumstances in poverty, and a correlation between parent health status and childhood food insecurity.

As a whole, these analyses show that food insecurity is neither caused nor sustained by the presence of food deserts. While the concept of food deserts offers insight into how health issues related to food are exacerbated, it is not the singular concept in the discussion of food insecurity. In fact, densely populated provide the perfect counter-narrative. When food is accessible, but not affordable, it is clear that one of the chief issues is affordability. Without the ability to pay for food, the accessibility of the food doesn't matter. This finding is particularly policy relevant



because in the last decade, there have been several calls for the financial investment of public funds into transportation and the introduction of grocery stores into food deserts (Widener 2018). While these solutions do meet an immediate need, they leave the true cause of the problem unresolved.

Income and Employment

With the understanding that the affordability of food is the most important consideration in food insecurity, we can focus on the factors that prohibit people from being able to afford healthy food. In terms of childhood F.I., this begins with the income of the parent. (Kersten et. al 2018). There are several motivators behind low income, but the key ones are unemployment, underemployment, low wages within employment, and mental and physical health struggles (Ma et. al 2008).

Impacts on Children

Two of the main recurring effects of food insecurity from previous literature difficulties focusing in class as well developing interpersonal skills (Cook et. al 2014). Focus was determined through teacher surveys with several questions that covertly measured teachers' perceptions of students' ability to stay on task. It also measured perceptions of student contribution to the classroom environment, that is, whether or not they distracted other students as well. Cross-sectional studies of elementary-school children reveal that children experiencing food insecurity are consistently rated by their teachers having consistent difficulty completing tasks and communicating engagement with the class material (Cook et. al 2004).

Though these results were not localized to study a particular grade, the results were similar across all grades studied. Thus, this leads to the reasonable expectation that any variation in characteristics between the grades didn't have any effect on the outcomes. As a result, even though the individual effects are not given, we can assume that the effect for the whole is representative of part. However, this research does not encompass effects for children ages birth to five. We can glean general trends and learn meaningful information about food insecurity as a whole. However, if there are specific traits particular to that age group, further research is necessary to investigate it.

Additionally, these students were rated as having trouble interacting with other children (Cook et. al 2004). Because hunger is an aspect of food insecurity, this is compatible with the fact that two of the largest physiological effects of hunger are trouble focusing and irritability. Previous research has revealed that the main driving factors behind food insecurity are poverty and poor mental and physical health (Cook et. al 2004). Yet, poor health, poverty and food insecurity all interact with one another in meaningful ways. For example, F.I. has negative health, which can



have adverse effects on employment, thus income, and lead to further poverty—which itself drives food insecurity (Cook et. al 2004).

There are multiple levels of food insecurity and different effects may be felt at different levels. One of these levels is fear over having enough food, followed by lower quality of food, followed by parents not eating enough food and children not eating enough food. This feedback loop of poverty also mediates the relationship between food insecurity and academic outcomes. The poor physical health outcomes caused by hunger can also lead to missing school, which will have meaningful impacts on academic outcomes. The next level before parent's compromise on the food of their children, is typically to compromise on their own food consumption (Kersten et. al 2018). This leads to negative effects for children by decreasing the mental and physical health of parents. Children with parents suffering with mental health struggles are more likely to be insecure than other children, controlling for other effects of poverty. Additionally, employment is a major mechanism leading to food insecurity (Ma et. al 2008). Decreasing the health outcomes of parents jeopardizes their employment, which hinders the food security of the child.

Because the lack of fresh foods is a hindrance to child health, this level of food insecurity has some of the same expressions in terms of effects as hunger does. It, like hunger can cause cognitive struggles, developmental issues, and, perhaps most notably, poor physical health. Too often, nutrient-weak food is used only to keep people from hunger, therefore, it can underrepresent the effects of food insecurity, because on the surface, it shows to mitigate the issue of hunger. Yet, the physical effects are similar to those experienced when someone is hungry (Aiger 2013).

Finally, the highest level of food insecurity described is the fear that parents face that they will not be able to provide food for their children (Kersten et. al 2018). This leads parents to live in a constant state of fear. This fear can easily morph into “toxic fear” which can be passed onto their children (Kersten et. al 2018). This is the type of effect that leads to negative behavioral outcomes, and often poor academic outcomes.

Further, this hidden curriculum is set in a particular context. It is typically not responsive to differences in cultural backgrounds or socioeconomic status, for example. In this model that glorifies compliance to the behavioral system, deviance is punished whether it displays poor behavior or not. As such, it is difficult to disentangle the presence of behavioral issues from the perception of behavioral issues. This distinction does not matter because the result is largely the same. Whether there is destructive behavior or simply non-compliance, behavioral issues lead to disciplinary action.



In early childhood education, as early as pre-school suspension is a possible consequence for not adhering to the rules of behavior. This presents a potentially dangerous pattern for those considered deviant. Often these children are removed from the classroom. Especially at a young age, being removed from the classroom disrupts the learning experience, often in irreparable ways. Thus, the toxic fear of this level of food insecurity leads to worse academic outcomes. However, this relationship is mediated behavioral issues

It is widely reported that children of color are disciplined at higher rates, in different ways than white children in school. In fact, black and Latino boys are sent out of the classroom for disciplinary reasons almost twice as often as white boys are disciplined in this way (Notelmeyer 2015). Researchers have attributed this discrepancy to the implicit bias towards Black and Latino children. This is based, partially on ingrained societal beliefs about black and Latino men in America, being portrayed as inherently aggressive. This is upheld by portrayals in the news, and explains one aspect of discrepancies seen in the criminal justice system. This operates in the schooling context by contributing to a disproportionate number of disciplinary actions and expulsions for Black and Latino boys.

Another way that this implicit bias operates is through the privileging of concerted cultivation in parenting over the achievement of natural growth. Researcher Annette Lareu finds that the experiences of children in the middle class often follow the pattern of concerted cultivation, through which parents are actively engaged in the front lines of their children's education (Lareu 2003). This is manifest through working with their kids outside of the classroom on academic endeavors, engaging them in extracurricular activities, and finally, and most notably, advocating on behalf of their children to teachers and school administration. On the other hand, parents in poverty often raise their children in light of the achievement of natural growth. In this method, not only do parents adopt a more hands-off approach to the minutia of their children's educational experience, they inherently leave the teaching role to the teachers.

Cognitive Effects

Poor cognitive functioning makes the processing needed in school more difficult. Poor development from lack of nutrients also contributes to poor academic outcomes for elementary school aged children (Kersten et. al 2018) These findings for school aged children offer some insight into the impact that food insecurity in children birth to five would have on cognitive outcomes. There is no evidence to suggest that the effects for infants and toddlers function differently. In fact, if anything, the age of children makes these impacts more salient in their lives. This is because early childhood development is foundational to academic success.

Development processes are also exacerbated by hunger. When children do not have the nutrients they need to fully develop, they have a physiological reaction. Finally, the hunger that

children in this third step face causes issues for physical health. This leads to a lowered immune system, making them more susceptible to illness and not able to fight these illnesses. This has a feedback effect on hunger. Financial struggles due to medical costs could lead to greater poverty. Poverty motivates people to sacrifice quality food in order to get some food at all. In this way, poverty is a mechanism which motivates food insecurity. Because food insecurity leads to adverse health outcomes, food insecurity is a mechanism for maintaining a seemingly inescapable feedback loop of poverty.

Behavioral Effects

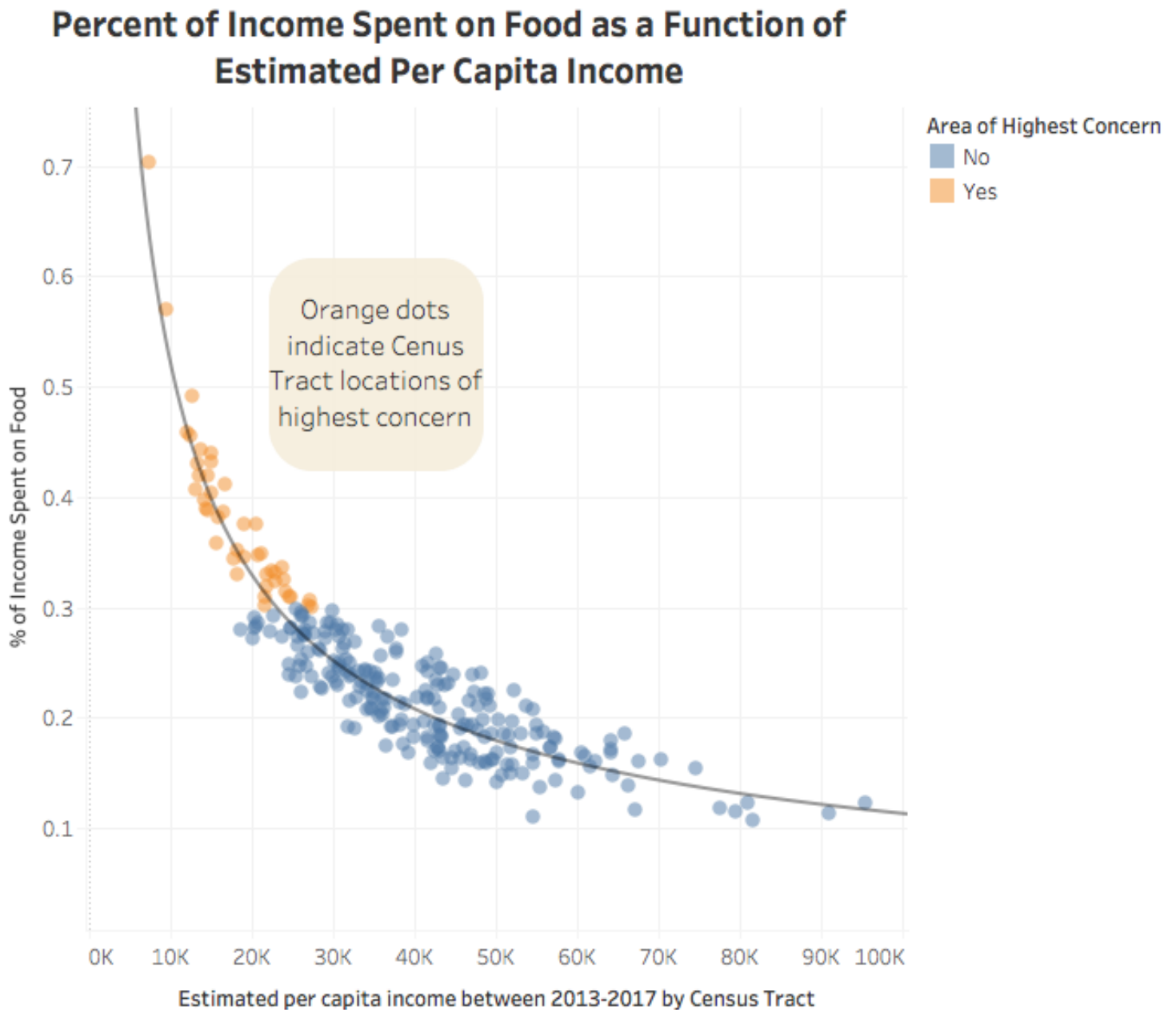
Some of the lasting effects of toxic fear include greater irritability and weakened interpersonal social skills (Aiger 2013). On one hand, this could have tangible effects on children's ability to focus, take in and retain information. On the other hand, this could have the arguably larger effect of changing perceptions of behavior, which can still have difficult academic outcomes.

To put the alleged behavioral effects of toxic fear into context, it's important to understand the socialization of children in schools. Much of early elementary school education revolves around a hidden curriculum. This is a rigid set of rules of behavior, catered to the preferences of the teacher in creating the most ease. In these scenarios, the object of schooling is to encourage compliance. Deviance is punished as a character flaw. Taken together, these behavioral and cognitive affects, unsurprisingly have ramifications for academic success (Kersten et. al 2018).



Appendix: C

Figures



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