Unpacking Poverty and Its Impact on Student Success: Food Insecurity

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Presented at the Inaugural Colloquium on Unpacking Poverty and Its Impact on Student Success, organized by the Pathways from Poverty Consortium
Baltimore, MD | December 12, 2014

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When Food is a Problem

- **Food insecurity:** Limited or uncertain access to adequate food (USDA)
  - **Low food security**: Reduced quality, variety, or desirability of diet
  - **Very low food security**: Multiple indications of disrupted eating patterns and reduced food intake
- **Food hardship:** There have been times in the past 12 months when an individual did not have enough money to buy food that they or their family needed. (FRAC)
- **Hunger**: Craving or urgent need for food or specific nutrients (Oxford Dictionary, 2013)

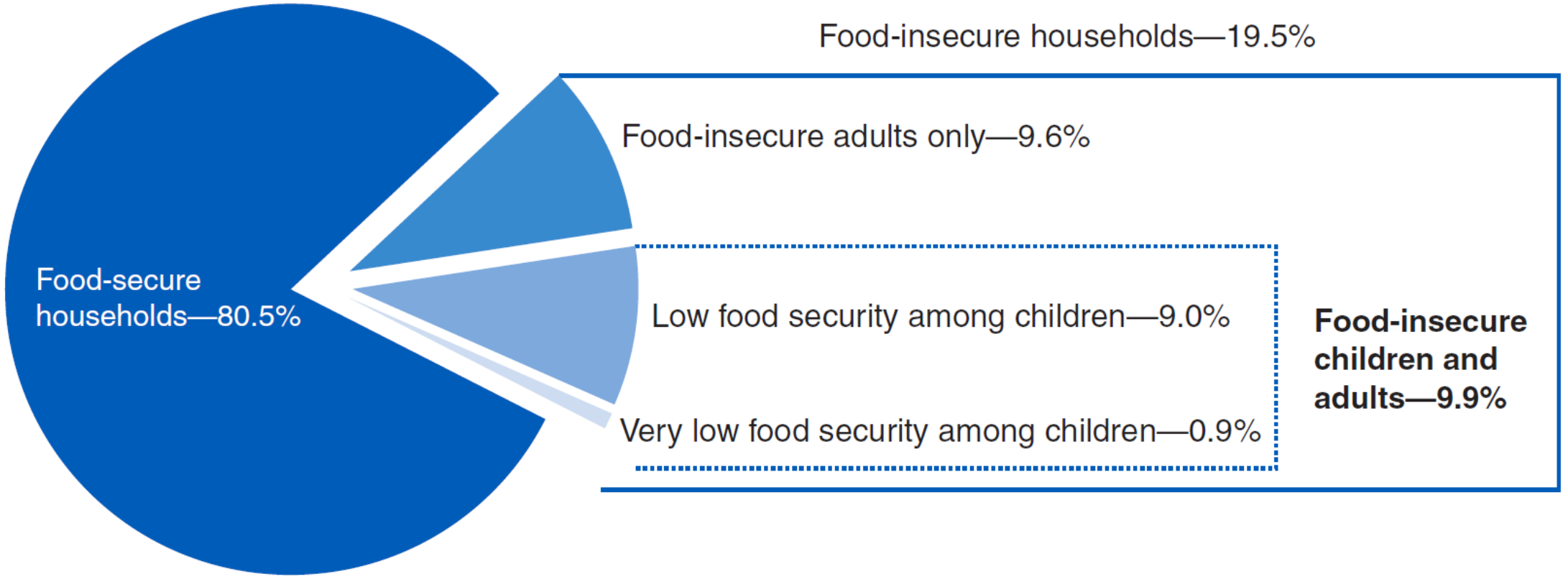
Coleman-Jensen, Gregory, Singh , 2013; http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx

National Food Insecurity Estimates

- 49 million people in the United States are living in food-insecure households, nearly 16 million of whom are children
- 26 percent of Black and 23.7 percent of Hispanic households were food insecure
- 10.1 percent of Black households and 6.7 percent of Hispanic households were *very low* food secure
- Food insecurity is more common in large cities and rural areas

Coleman-Jensen, Gregory, Singh, 2014

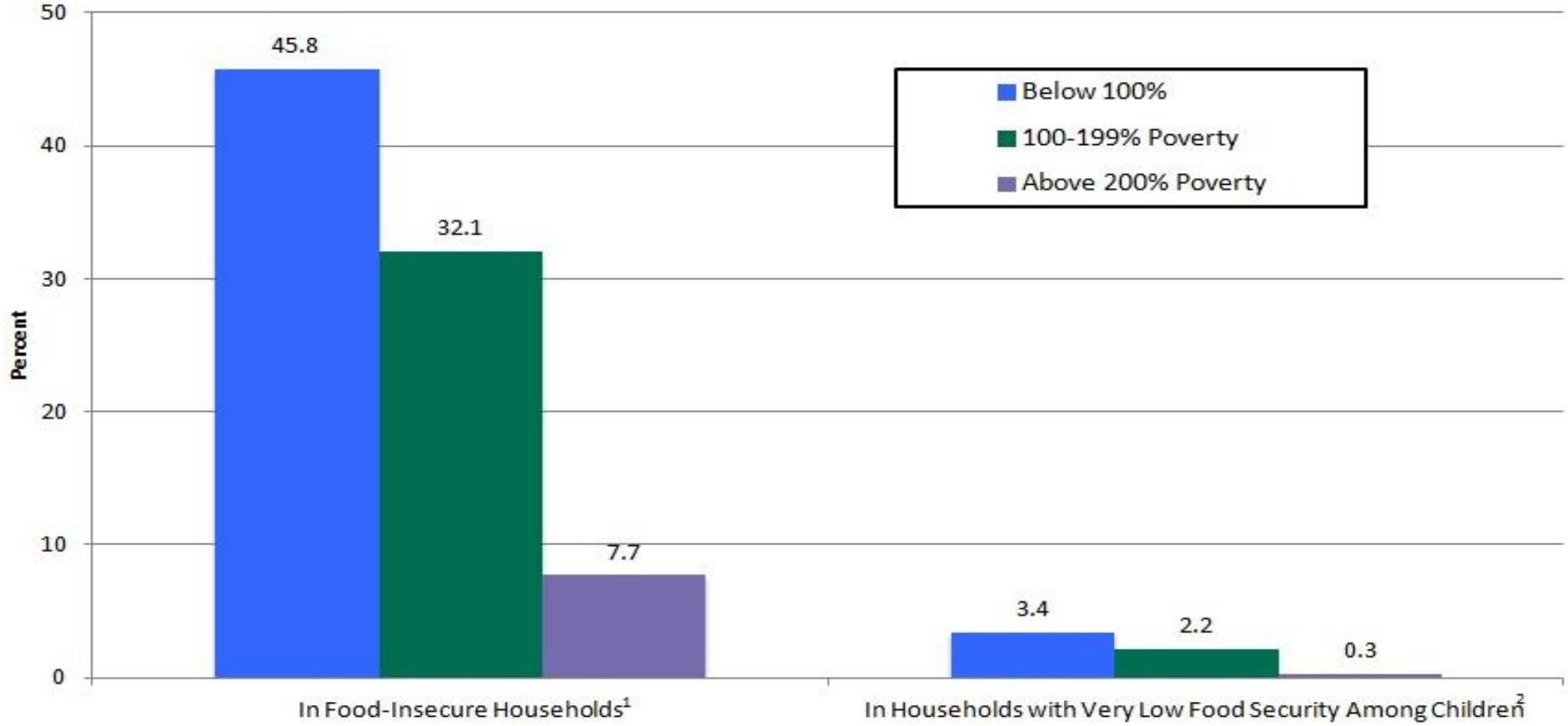
U.S. Households with Children by Food Security Status of Adults and Children: 2013



SOURCE: Coleman-Jensen, Gregory, & Singh, 2014

Figure 4

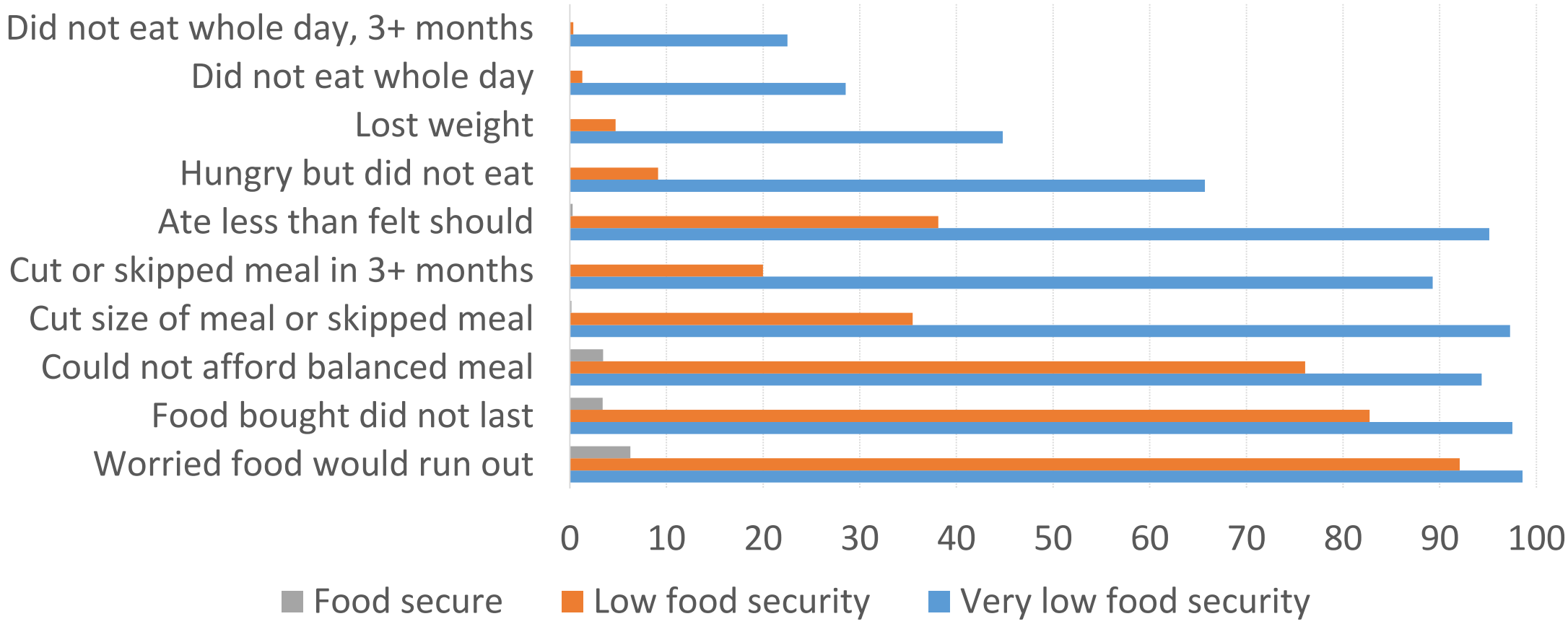
Percentage of Children in Food-Insecure Households, by Poverty Status, 2012



[1]Either adults or children or both were food insecure. At times they were unable to acquire adequate food for active, healthy living for all household members because they had insufficient money and other resources for food.
[2]In these households, eating patterns of one or more children were disrupted and their food intake was reduced below a level considered adequate by their caregiver. Prior to 2006, the category "with very low food security among children" was labeled "food insecure with hunger among children." USDA introduced the new label based on recommendations by the Committee on National Statistics.
Source: Federal Interagency Forum on Child and Family Statistics. (2014). America's children in brief: Key national indicators of well-being, 2014. Washington, DC: U.S. Government Printing Office. Table ECON 3.

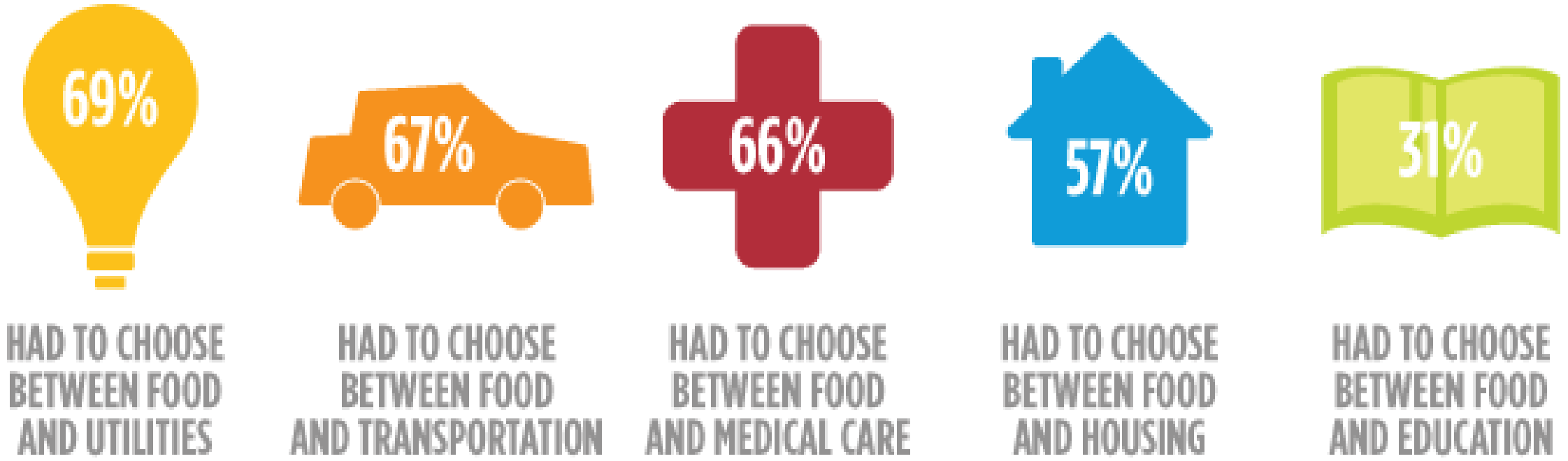
Child Trends DATABANK

Percentage of Households Reporting Indicators of Adult food insecurity, by food security status: 2013



SOURCE: http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx

Choices: Food or…?

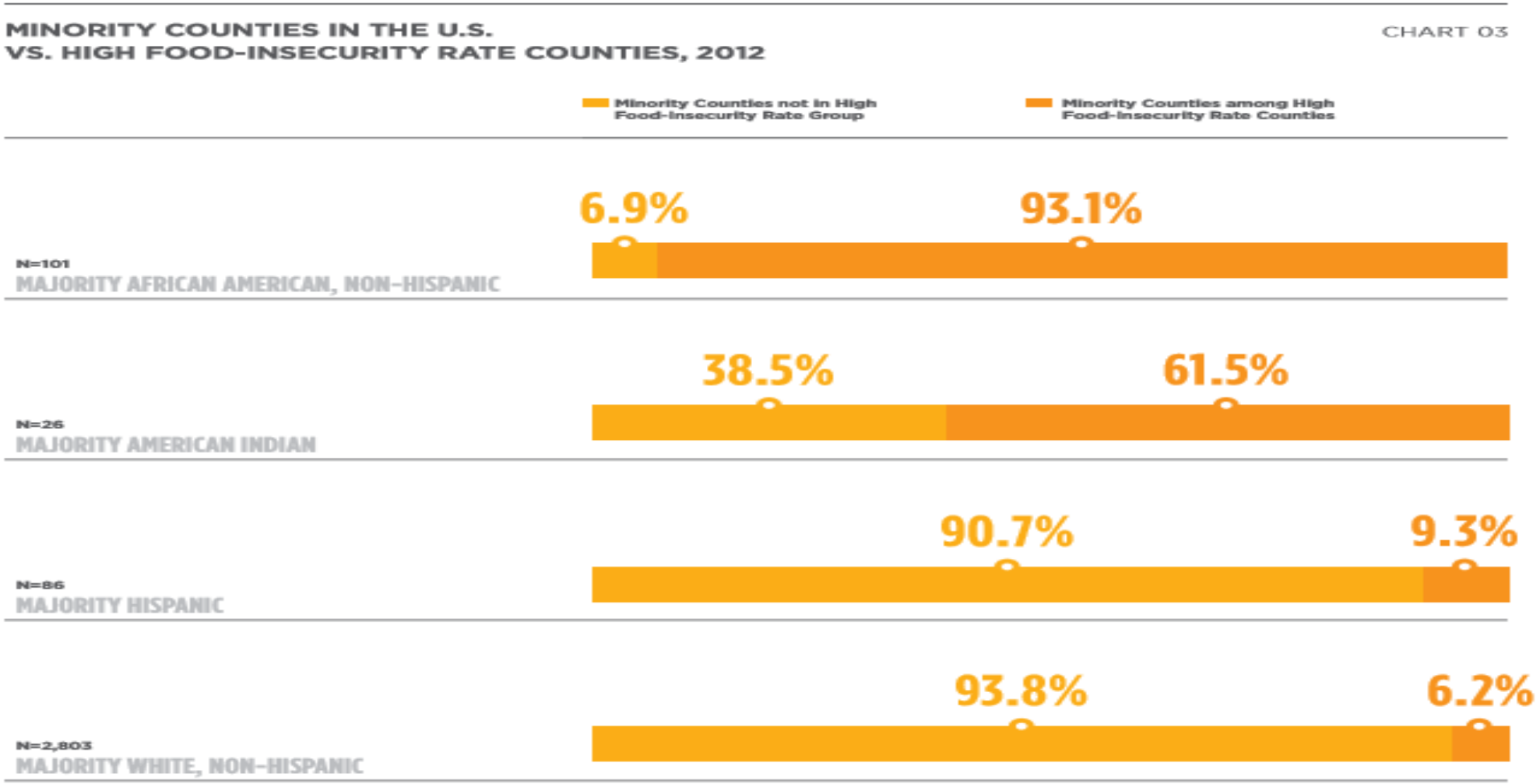


Source: http://www.feedingamerica.org/hunger-in-america/our-research/the-hunger-study/key-findings.html
Survey data from clients in the Feeding America Network

Families Coping Strategies

Source: http://www.feedingamerica.org/hunger-in-america/our-research/the-hunger-study/key-findings.html
Survey data from clients in the Feeding America Network

Minority Counties that are Food Insecure



Food Insecurity and Education

- Food insecurity at kindergarten predicted impaired
  - Academic performance in reading and mathematics
  - Decline in social skills for boys
  - Greater weight and BMI gains for girls
- 6- 11 year old food –insufficient children had
  - Lower math scores
  - Were more likely to have repeated a grade
  - Have seen a psychologist
  - Difficulty getting along with other students
  - Learn less during the school year
  - Difficulties with self-control

Jyoti, Frongillo & Jones, 2005; Alaimo, Olson, & Frongillo, 2001; Winicki & Jemison, 2003; Howard, 2011

Food Insecurity and Wellness

- 4- to 36-month-old children from low-income households with food insecurity more likely than those from low-income households with food security to be at “developmental risk”
- Children are more likely to experience poor health if they experience food insecurity as toddlers
- Poor and food insecure children are especially vulnerable to obesity
- Children from households with food insecurity have lower dietary levels of protein, vitamin A, magnesium, phosphorous, and zinc

Kirkpatrick & Tarsuk, 2008; Cook et al., 2004; Rose-Jacobs et al, 2008

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The Where, Who, How Much of Food Insecurity

- **Estimates**
  - **State**: USDA, FRAC, Feeding America
  - **MSAs (100 largest):** FRAC
  - **Congressional districts**: FRAC, Feeding America
  - **County**: Feeding America
  - **School**: ECLS-K:1999 and ECLS-K-2011

Icons8.com

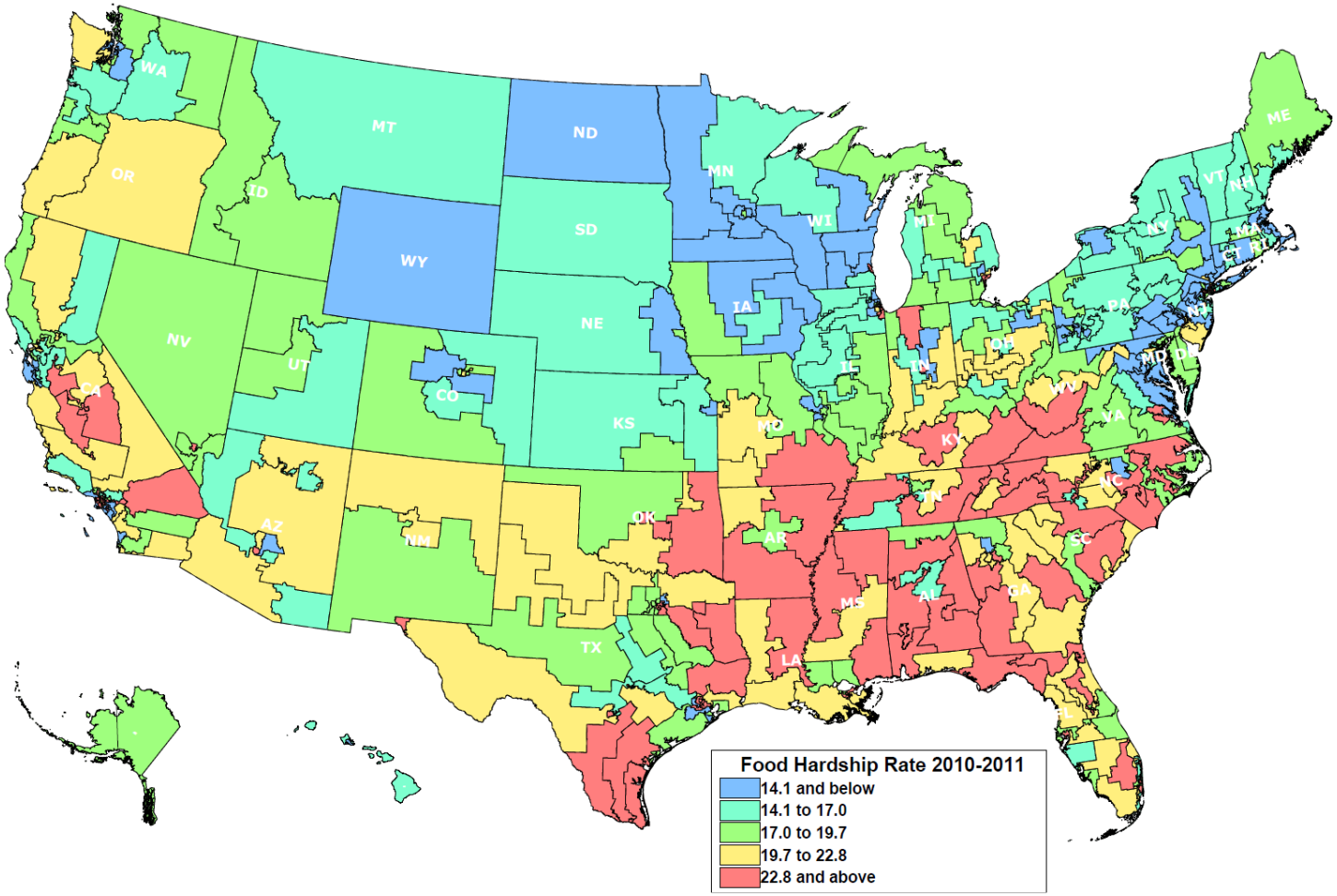
- **Data sources**
  - **USDA**: 9-year averages from the Current Population Survey (2003-11)
  - **FRAC**: Gallup-Healthways Survey (2008-10, 2008-12)
  - **Feeding America**: Synthetic estimates for 2012—state-level model applied at lower levels
  - **ECLS-K**: Base year nationally representative of kindergarten schools

How Much Food Insecurity?

Estimate	Food insecurity rate in households w/ children			
	Years	Median	Range	%>20%
State				
USDA	2003-11	17	11-24	20
FRAC	2008-12	23	14-32	82
Feeding America	2012	22	11-29	72
100 largest MSAs (FRAC)	2008-12	23	14-32	78
Congressional districts				
FRAC	2008-10	24	6-36	25
Feeding America	2012	—	11-38	—
Counties (Feeding America)	2010	—	4-41	—
Public schools (ECLS)	1999	9	0-48	13

Coleman-Jensen, McFall, & Nord, 2013; Feeding America, 2014; FRAC, 2013b, FRAC, 2011.

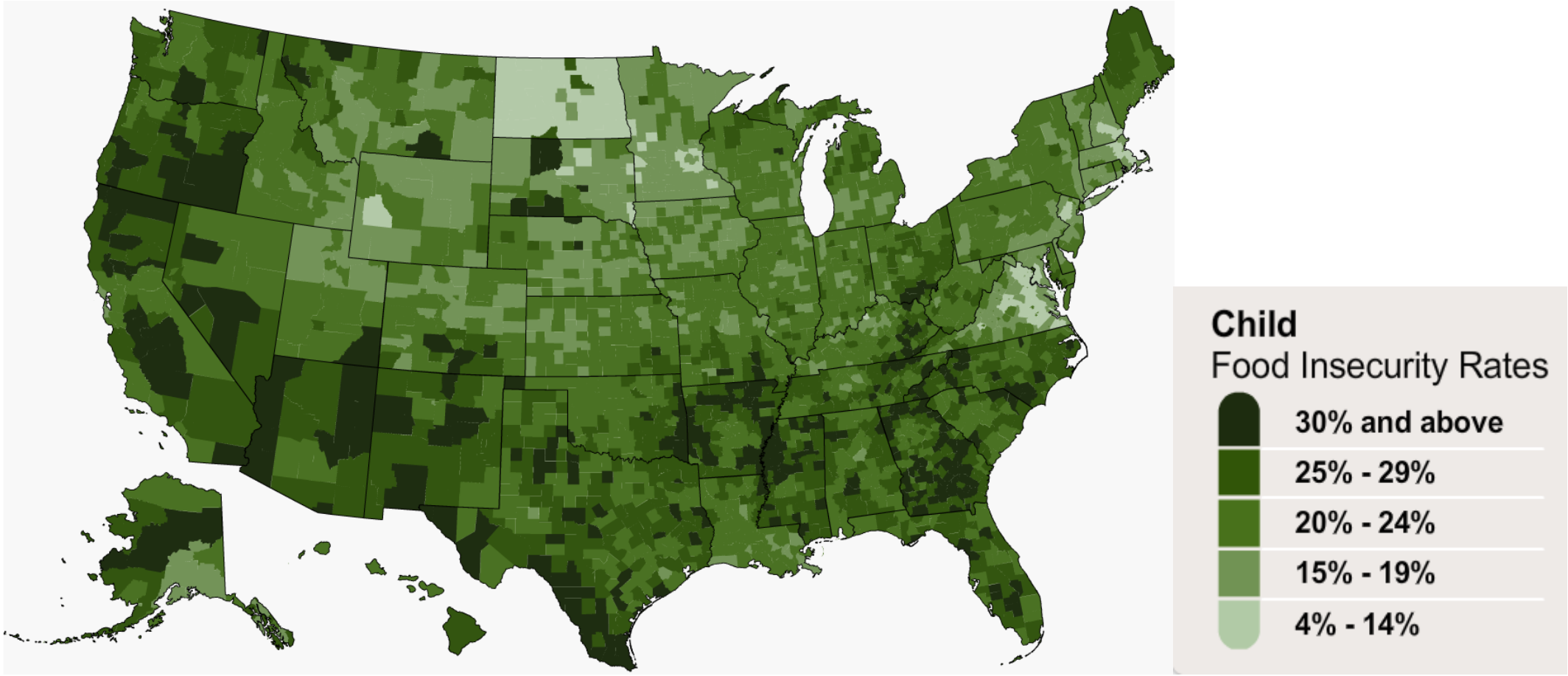
Food Hardship Rate by Congressional District: 2010-11



NOTE: Food hardship is the percentage of people surveyed by the Gallup organization that answered yes to the question, “Have there been times in the past 12 months when you did not have enough money to buy food that you or your family needed?”

SOURCE: FRAC

Child Food Insecurity Rates by County: 2012



SOURCE: Feeding America's Map the Meal Gap study.

Household Food Insecurity Among Kindergartners: ECLS-K:1999

- Among public schools serving kindergarteners in 1998-99, with respect to kindergarten students:
  - The **average** school-level food insecurity rate among kindergarteners was **10 percent**
  - It **ranged** from **0 to 48** percent

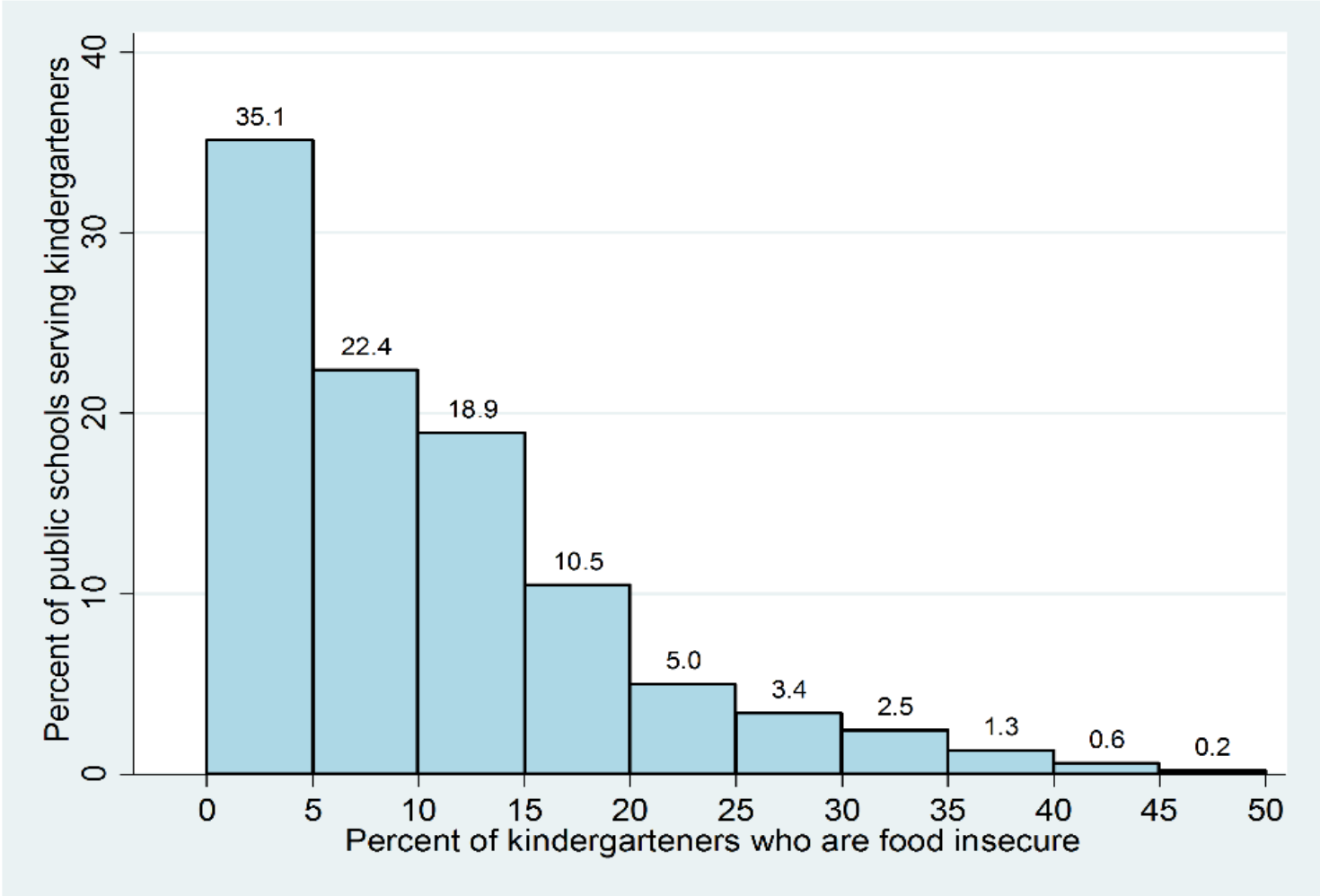
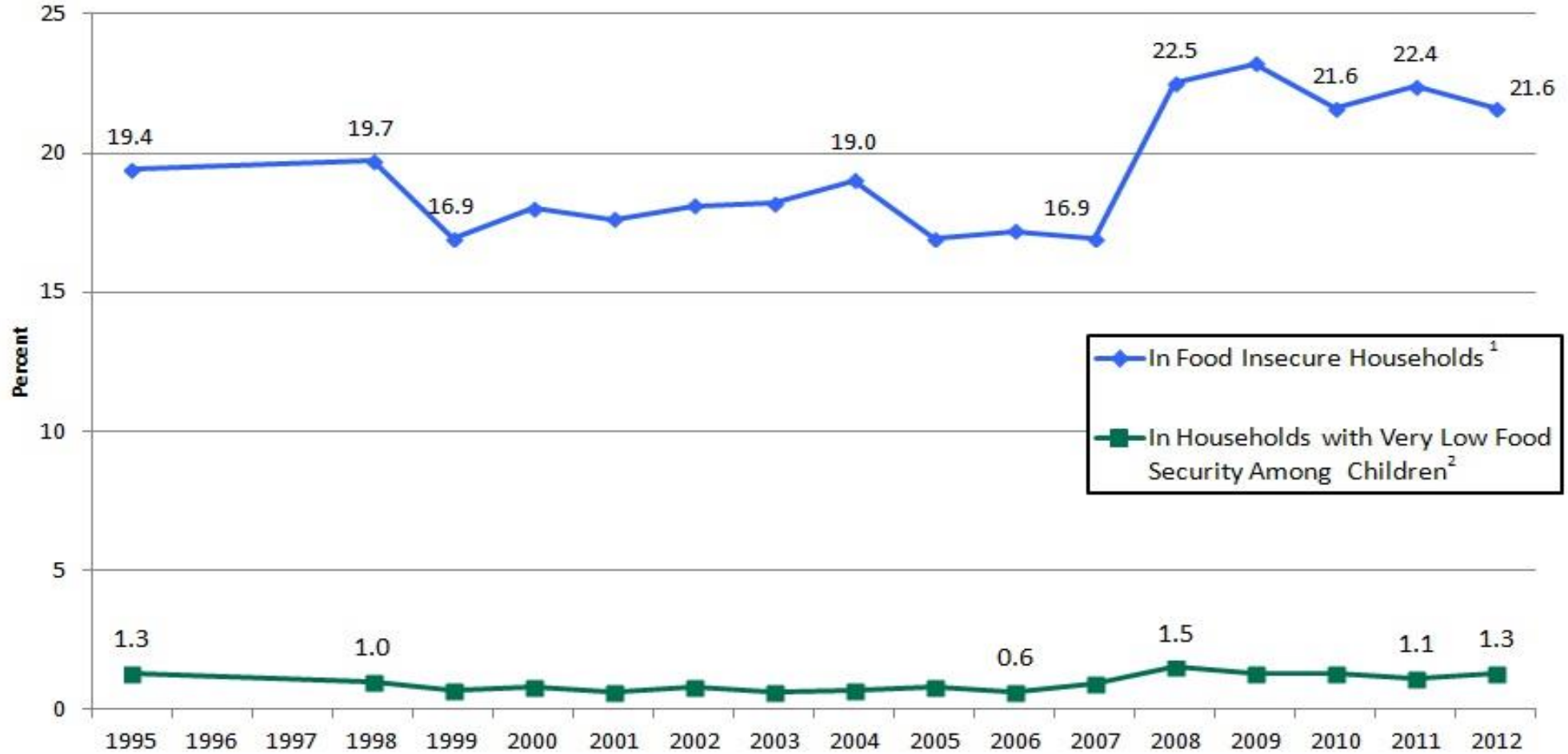


Figure 1

Percentage of Children (0-17) in Food-Insecure Households, Selected Years, 1995-2012



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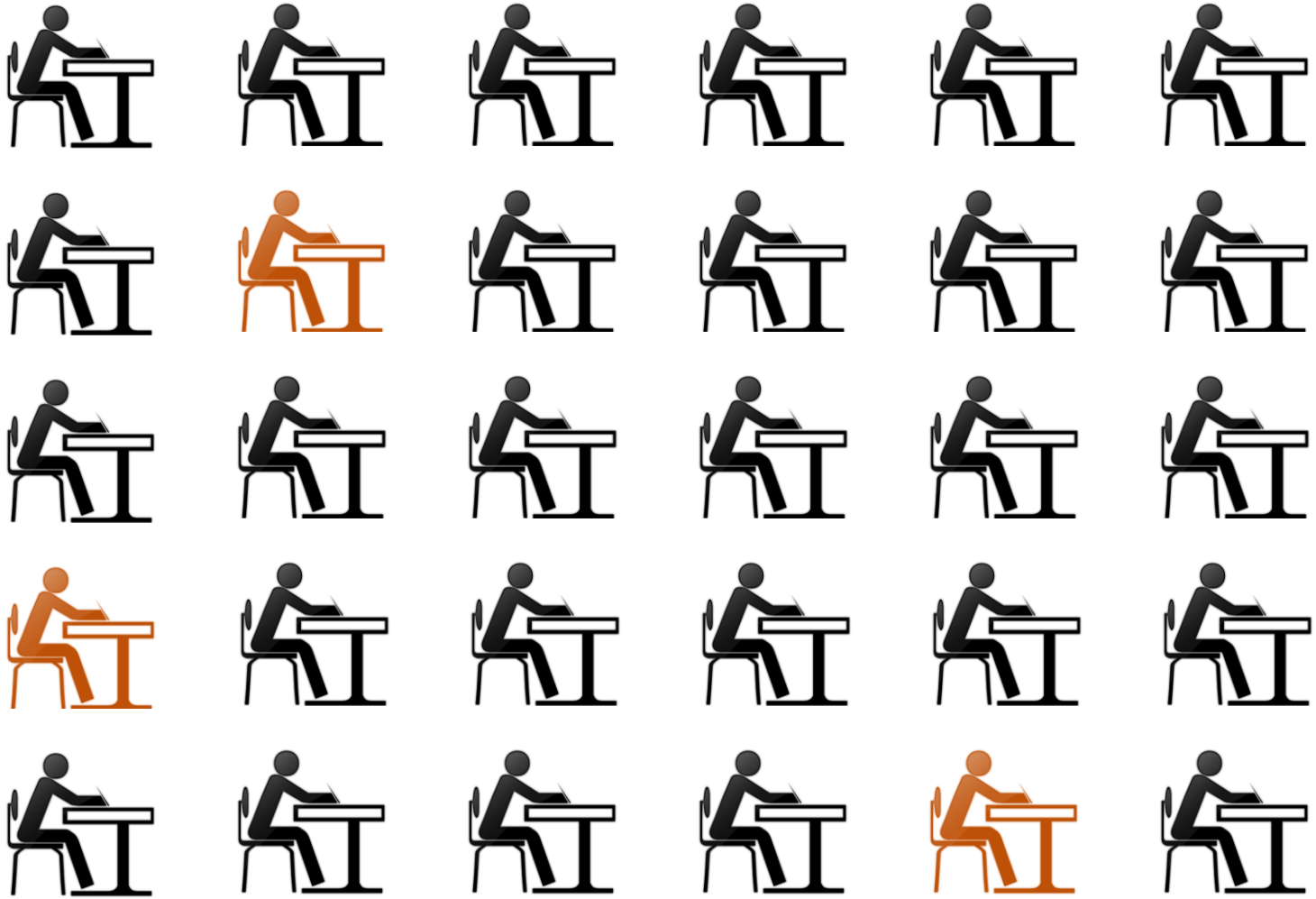
[2]In these households, eating patterns of one or more children were disrupted and their food intake was reduced below a level considered adequate by their caregiver. Prior to 2006, the category "with very low food security among children" was labeled "food insecure with hunger among children." USDA introduced the new label based on recommendations by the Committee on National Statistics.

Source: Data for 1995, 1999, 2001-2012 Federal Interagency Forum on Child and Family Statistics. (2012). America's children in brief: Key national indicators of well-being, 2012. Washington, DC: U.S. Government Printing Office. Table ECON3. Data for 1998 and 2000: Coleman-Jensen, A., Nord, M., Andrews, M., and Carlson, S. (2012). Household food security in the United States in 2011. United States Department of Agriculture. Economic Research Service. Tables: 1B and S-3.

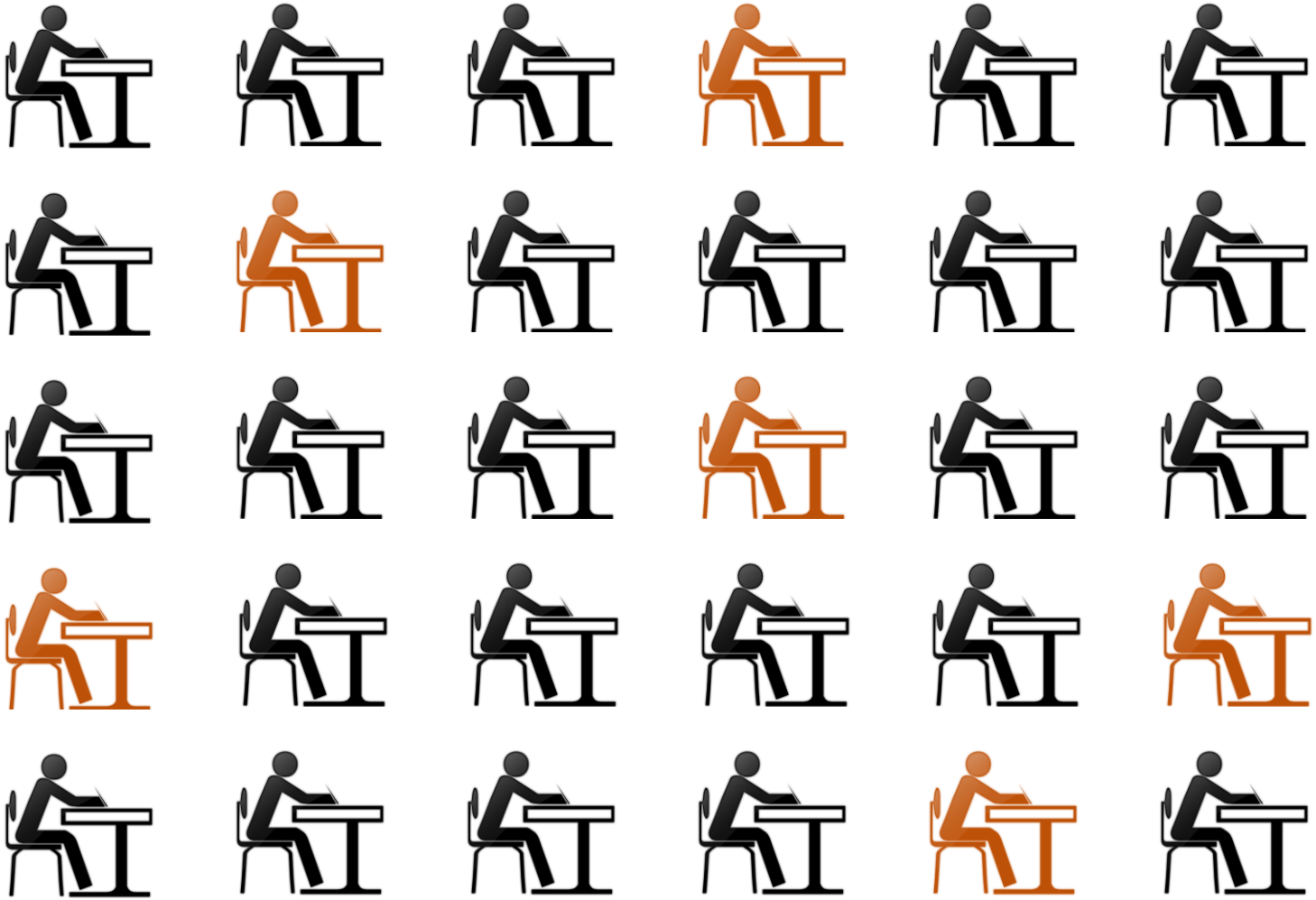
Child Trends DATABANK

Imagine a Classroom of 30 Students



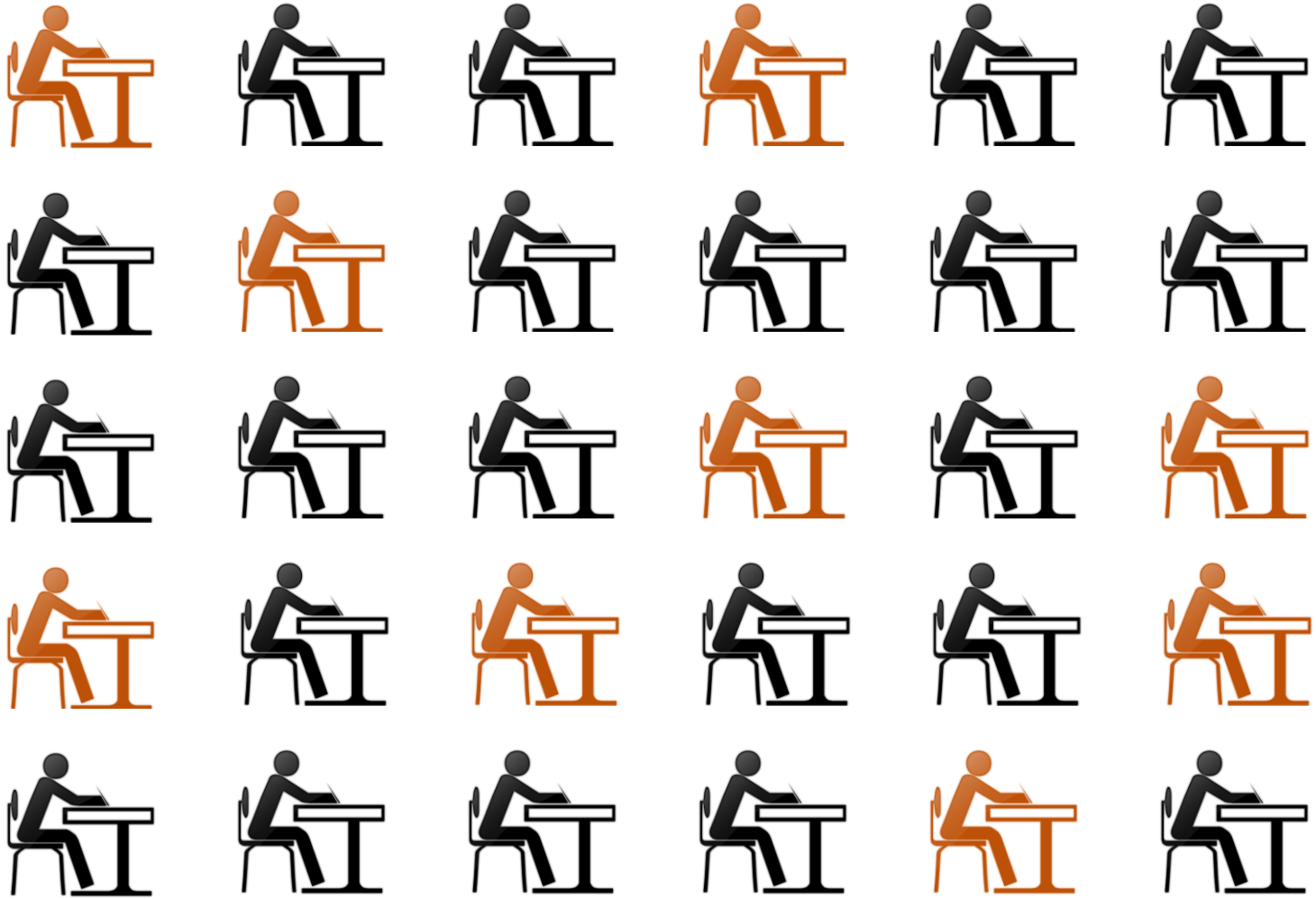
- A **10 percent** food insecurity rate means **3 in 30 students** live in food insecure households.
- **Forty-two percent** of schools (about **20,000**) had a food insecurity rate at or above 10 percent.

Imagine a Classroom of 30 Students



- A **20 percent** food insecurity rate means **6 in 30 students** live in food insecure households.
- **Thirteen percent** of schools (about **6,100**) had a food insecurity rate at or above 20 percent.

Imagine a Classroom of 30 Students



- A **30 percent** food insecurity rate means **9 in 30 students** live in food insecure households.
- **Five percent** of schools (about **2,200**) had a food insecurity rate at or above 30 percent.

Number of Food Insecure Students by Food Insecurity Rate and School Size

School	Size	Household food insecurity rate		
		Average, 10 Percent	High, 20 Percent	Very high, 30 Percent
Elementary	400	40	80	120
Middle	800	80	160	240
High	1200	120	240	360

What is the Learning Tax of Food Insecurity?

- Jyoti, Frongillo, & Jones (2005) found that **becoming food insecure** between kindergarten and third grade led to **decreased reading gains**.
- The effect size for this finding was roughly **0.20 standard deviations** of the overall change in reading scores from kindergarten to grade 3.
- This translates to **losing roughly 70 days of learning**, relative to the average learning that takes place in reading across grades K-3.
- The **magnitude** of this effect is similar to that of the Tennessee STAR class size reduction policy (0.24 s.d.)—but in the **opposite** direction

NOTE: Days of learning calculation based on results from Hill, Bloom, Black, and Lipsey (2008). Tennessee STAR effect was was 0.24 standard deviations in reading from K-3. That effect includes improvement in learning over course of kindergarten, while food insecurity effect does not.

Estimated School-Level Effects of Food Insecurity on Reading Performance

School-level effect size	Household food insecurity rate		
	Average, 10 Percent	High, 20 Percent	Very high, 30 Percent
SDs	0.01	0.03	0.04
Percentile loss	0.4	1.2	1.6
Learning days	5	10	15

Assumptions: Effect size of food insecure in Kindergarten or grade 3 on reading gains from K to grade 3 is 0.08 SD as per Jyoti, Frongillo, & Jones (2005) (Note that this is a bit under half the effect of students who become food insecure from K-3). Percentage of students food insecure in either Kindergarten or grade 3 is assumed to be 1.7 times the Kindergarten rate for each level of food insecurity (based on the average).

Existing Programs That Are Underutilized

- **Only half** of food insecure households with children eligible for **SNAP** (food stamps) were actually enrolled in the last 30 days.
- On an average day, **10.6 million students** eligible for free- or reduced-price **breakfast** go without it.
- Just **1 in 9 students** who received free- or reduced-price meals during the school year receive them in **summer**.

Coleman-Jensen, McFall, & Nord, 2013. Coleman-Jensen, Gregory, & Singh, 2014a. Feeding America, 2014b.

Potential Solutions: Low Hanging Fruit

- Increase uptake of funded public programs that are not fully utilized
  - SNAP works. Increase outreach. Sign up parents via school?
  - Boost FARMS participation (e.g., direct certification, universal breakfast, breakfast in the classroom)
  - Have summer food programs located at schools over the summer
- Consider school breakfast as an example:
  - 27 states require school breakfast for some schools, 5 states require school breakfast for all, & 4 states offer no-cost breakfast to reduced-price students
  - 12 top large districts had free and reduced breakfast:lunch ratios of 66 and up
    - Each offered breakfast free to many or all students
    - Each had breakfast in the classroom programs in 33 percent of schools or more

NASBE, 2014. FRAC, 2013c.

Potential Solutions: Changing Practice/Perceptions

- Need to act on finding that impact of food insecurity on student success is often indirect via family stress (Parents are going hungry to feed their kids first)
- Need varies by place even within high poverty communities: Survey families to target solutions to the right schools and students
- In the most impacted schools use schools as location to increase food resources to the family not just the student
  - Partner with emergency kitchens and food banks
  - Implement backpack programs and school pantries

Potential Solutions: Place-Based

- Need to recognize and respond to intensity of need in wide swath of high poverty rural counties in the South, Southwest, and Inland Pacific Regions
- Regional solutions are needed

Concluding Thoughts

- Food insecurity is an economic stressor on the entire family, not only on students
- Food insecurity rates vary—variability increases as unit of analysis decreases (i.e., more variability at school level than state level)
- Not only are urban areas confronted with food insecurity, but rural counties of the south are highly impacted
- Families who are faced with food insecurity have to make different choices and develop different coping mechanisms to secure food
- Food insecurity has an impact on students' academic performance, wellness and interpersonal relationships
- Viable solutions exist

Unpacking Poverty-Food Insecurity

Impact	Variability	Solvability
Individual Level- Highly significant for impacted students **School Level**- Modestly significant for impacted schools (i.e. 20% or more food insecure)	**Substantial Variability**- Subsets of schools with substantial food insecurity Subsets of children with very low food insecurity **Variation by locale**-more and less impacted areas of nation	**Solvable-** Able to target and solutions exist **Challenges** are in getting resources to where need is, at scale required, and implementing the solutions effectively in schools facing high levels of stress and scarcity

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