

Food Insecurity and its Impacts on Maternal and Child Health

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**CALIFORNIA
MATERNAL AND
CHILD HEALTH
LEADERSHIP
TRAINING NETWORK**

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Outline

1. About me.
2. What is food insecurity?
3. Measuring food insecurity.
4. Food insecurity: Who and how many?
5. Food insecurity and maternal/child health.
6. Important knowledge gaps.
7. Brief summary of programs and policies to reduce food insecurity.
8. Closing thoughts.

About me



ASSOCIATE PROFESSOR &
DIRECTOR OF THE PHD PROGRAM
- **BOSTON UNIVERSITY SCHOOL
OF SOCIAL WORK**



M.A. IN CHILD DEVELOPMENT AND
PUBLIC POLICY - **TUFTS
UNIVERSITY**



PHD IN SOCIAL POLICY ANALYSIS –
**COLUMBIA UNIVERSITY SCHOOL
OF SOCIAL WORK**

Social work research distinguished by:

- Attention to vulnerable populations.
- Rooted in values of social work profession.

Social work research runs the gamut from:

- Clinical intervention research
- Community-based participatory research
- **Social welfare policy analysis**

Social Work: A quick background

My work

- **Overarching focus:** the well-being of children and families.
- **Particular emphasis:** (1) food insecurity/ food & nutrition assistance. (2) fathers and father involvement.
- **Drawing from:** (1) understanding of the welfare state; (2) appreciation for complex ways contexts affect people; (3) importance of family demography and related social trends; (4) 15+ years experience as a quantitative methodologist.

A close-up photograph of a young boy with light brown hair and eyes. He is holding a large, dark-colored bowl with a light blue interior rim up to his face, looking over the edge. His expression is one of concern or worry. The background is a plain, light-colored wall.

What is food insecurity?



Food Security: Access to enough food for an active, healthy life for all household members.



Food insecurity: Uncertainty of having or inability to acquire enough food to meet the needs of all their members ***because of insufficient money or other resources*** for food.



Very low food security: Eating patterns of some household members are disrupted at times during the year, with self-reported food intake below levels considered adequate.

**From the
USDA⁽¹⁾**

Food Insecurity⁽²⁾

Uncertainty of having or inability to acquire enough food to meet the needs of all household members because of insufficient money or other resources for food.

Hunger⁽²⁾

An individual-level **physiological condition** that may result from food insecurity. Hunger "should refer to a potential consequence of food insecurity that, because of prolonged, involuntary lack of food, results in discomfort, illness, weakness, or pain that goes beyond the usual uneasy sensation."⁽²⁾

Food Insufficiency⁽³⁾

Households sometimes or often did not have enough to eat.

Food Insecurity ≠ Hunger

- So... while some families who experience *very low food security* may also experience *hunger*, the two are not the same.

- **WHY?**

Measurement

- National Academy of Sciences panel on food insecurity measurement.⁽⁴⁾
 - Accurate portrayal for policymakers and the public.

Millions go hungry as America reels from pandemic's effects

Community groups say widespread unemployment has driven surge in hunger - and the holiday week presents another challenge

54 million Americans are going hungry. Here's how you can make sure you eat



By [Lauren Lee](#), CNN

Updated 2:59 PM ET, Thu November 12, 2020

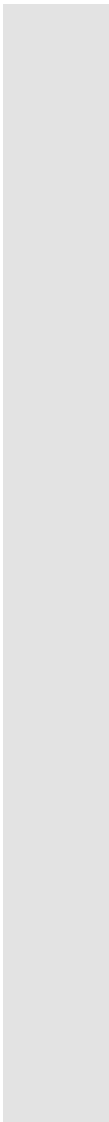
Biden Effort to Combat Hunger Marks 'a Profound Change'

As millions of Americans lack enough to eat, the administration is rapidly increasing aid — with an eye toward a permanent safety net expansion.



*key insight

Food Insecurity is best understood as a form of material hardship and not as a measure of hunger.



The background image shows several burlap sacks filled with different types of food grains and legumes. The sacks are arranged in a cluster, with some overlapping. The contents include light brown grains (possibly wheat or barley), yellow grains (possibly corn or millet), dark brown beans, white rice, and yellow soybeans. The lighting is soft, highlighting the textures of the grains and the coarse fabric of the sacks.

Measuring Food Insecurity



25yrs

- For the past 25 years, the USDA's **Food Security Module** has been the gold standard for measuring food insecurity.
- Designed to capture⁽⁵⁾:
 - Anxiety that the household food budget may be insufficient;
 - The experience of running out of food, b/c of money;
 - Perceptions that food was inadequate in quality or quantity;
 - Adjustments to normal food use;
 - Instances of reduced food intake by adults in the household, or consequences of reduced intake.
 - Instances of reduced food intake, or consequences of reduced intake, for children in the household.
- And, to distinguish among various levels of severity throughout the full potential range of severity.⁽⁵⁾

USDA's Food Security Module 10 Adult-Referenced Questions⁽⁶⁾

1. We worried whether our food would run out before we got money to buy more. Was that **often, sometimes**, or never true?
2. The food that we bought just didn't last and we didn't have money to get more. Was that **often, sometimes**, or never true?
3. We couldn't afford to eat balanced meals. Was that **often, sometimes**, or never true?
4. Did you or other adults in the household ever cut the size of your meals or skip meals because there wasn't enough money for food? (**Yes/No**)
5. (If yes to question 4) How often did this happen—**almost every month, some months but not every month**, or in only 1 or 2 months?
6. Did you ever eat less than you felt you should because there wasn't enough money for food? (**Yes/No**)
7. Were you ever hungry, but didn't eat, because there wasn't enough money for food? (**Yes/No**)
8. Did you lose weight because there wasn't enough money for food? (**Yes/No**)
9. Did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food? (**Yes/No**)
10. (If yes to question 9) How often did this happen—**almost every month, some months but not every month**, or in only 1 or 2 months?

USDA's Food Security Module 10 Adult-Referenced Questions⁽⁶⁾

1. We worried whether our food would run out before we got **money** to buy more. Was that **often, sometimes**, or never true?
2. The food that we bought just didn't last and we didn't have **money** to get more. Was that **often, sometimes**, or never true?
3. We couldn't **afford** to eat balanced meals. Was that **often, sometimes**, or never true?
4. Did you or other adults in the household ever cut the size of your meals or skip meals because there wasn't enough **money** for food? (Yes/No)
5. (If yes to question 4) How often did this happen—**almost every month, some months but not every month**, or in only 1 or 2 months?
6. Did you ever eat less than you felt you should because there wasn't enough **money** for food? (Yes/No)
7. Were you ever hungry, but didn't eat, because there wasn't enough **money** for food? (Yes/No)
8. Did you lose weight because there wasn't enough **money** for food? (Yes/No)
9. Did you or other adults in your household ever not eat for a whole day because there wasn't enough **money** for food? (Yes/No)
10. (If yes to question 9) How often did this happen—**almost every month, some months but not every month**, or in only 1 or 2 months?

Increasing Severity

USDA's Food Security Module 8 Child-Referenced Questions⁽⁶⁾

11. We relied on only a few kinds of low-cost food to feed our children because we were running out of money to buy food. Was that **often, sometimes**, or never true?
12. We couldn't feed our children a balanced meal, because we couldn't afford that. Was that **often, sometimes**, or never true?
13. The children were not eating enough because we just couldn't afford enough food. Was that **often, sometimes**, or never true?
14. Did you ever cut the size of any of the children's meals because there wasn't enough money for food? (**Yes/No**)
15. Were the children ever hungry but you just couldn't afford more food? (**Yes/No**)
16. Did any of the children ever skip a meal because there wasn't enough money for food? (**Yes/No**)
17. (If yes to question 16) How often did this happen—almost **every month, some months but not every month**, or in only 1 or 2 months?
18. Did any of the children ever not eat for a whole day because there wasn't enough money for food? (**Yes/No**)

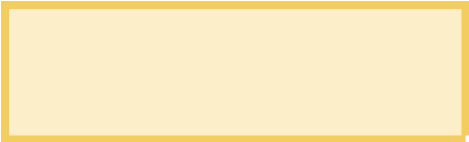
Increasing Severity

Identifying Food Insecure Households⁽⁷⁾

	ADULT-ONLY HOUSEHOLDS	HOUSEHOLDS WITH CHILDREN	CHILDREN
Which Questions?	10 adult items	full 18 items	8 child items
Food Secure	0 responses	0 responses	0 responses
Marginal Food Security	1-2 responses	1-2 responses	1 response
Low Food Security	3-5 responses	3-7 responses	2-4 responses
Very Low Food Security	6-10 responses	8-18 responses	5-8 responses

Identifying Food Insecure Households⁽⁷⁾

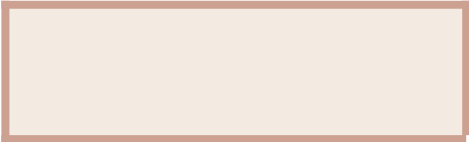
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Food Secure Households

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Food Insecure Households

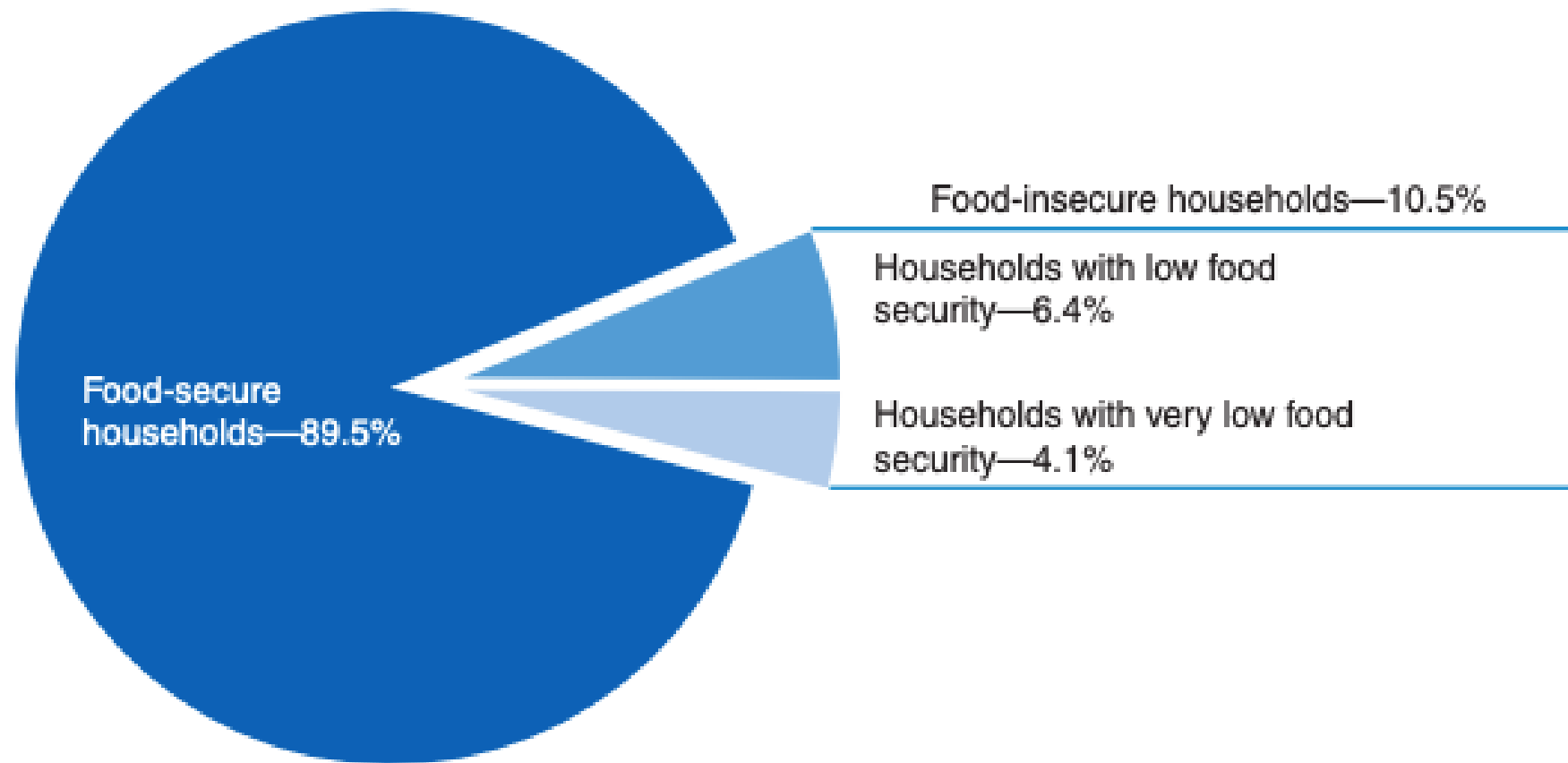
- The source for national data is the Food Security Supplement to the Census/BLS **Current Population Survey**⁽⁸⁾
 - Roughly 50,000 households each month.
- Many other surveys and public health surveillance systems have also begun to include the FSM.⁽⁹⁾

How are Data
on Food
Insecurity
Collected?

A top-down photograph of a dark, textured bowl filled with several bright orange fruits, likely oranges or tangerines. Several green leaves are scattered among the fruit, some resting on top and others hanging over the edge. The background is dark and out of focus.

Food Insecurity: Who and How Many?

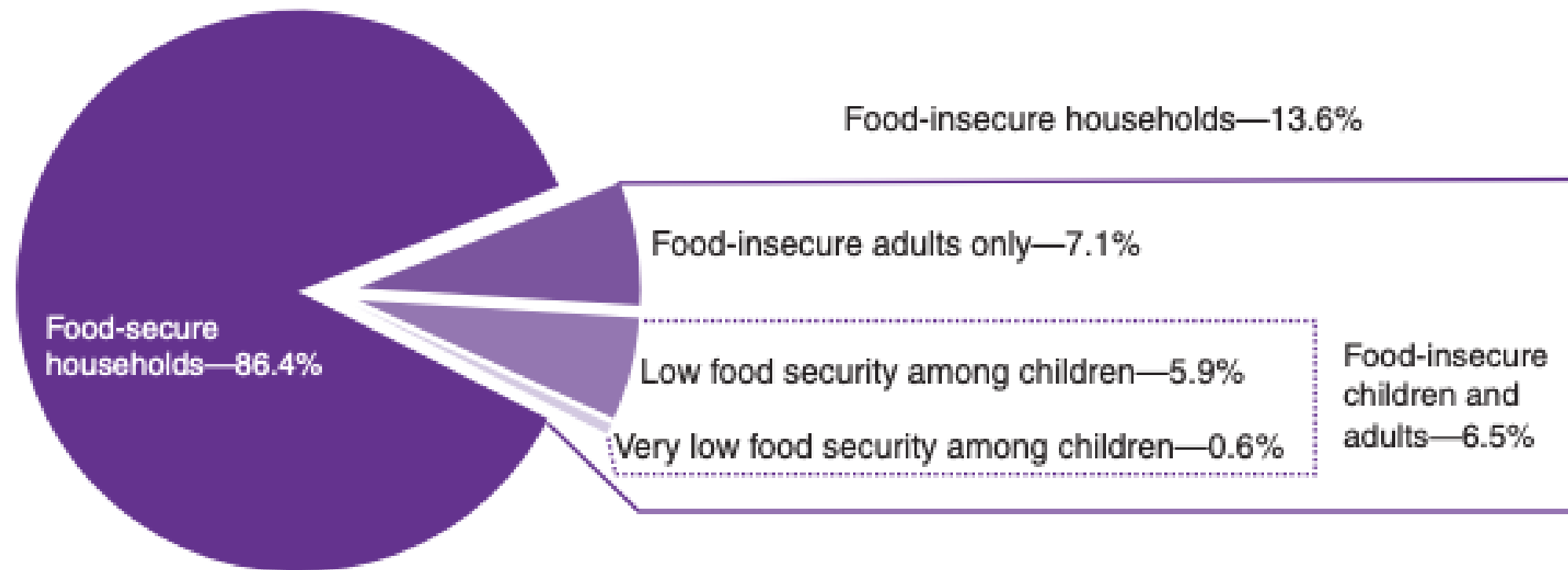
Figure 1
U.S. households by food security status, 2019



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2019 Current Population Survey Food Security Supplement.

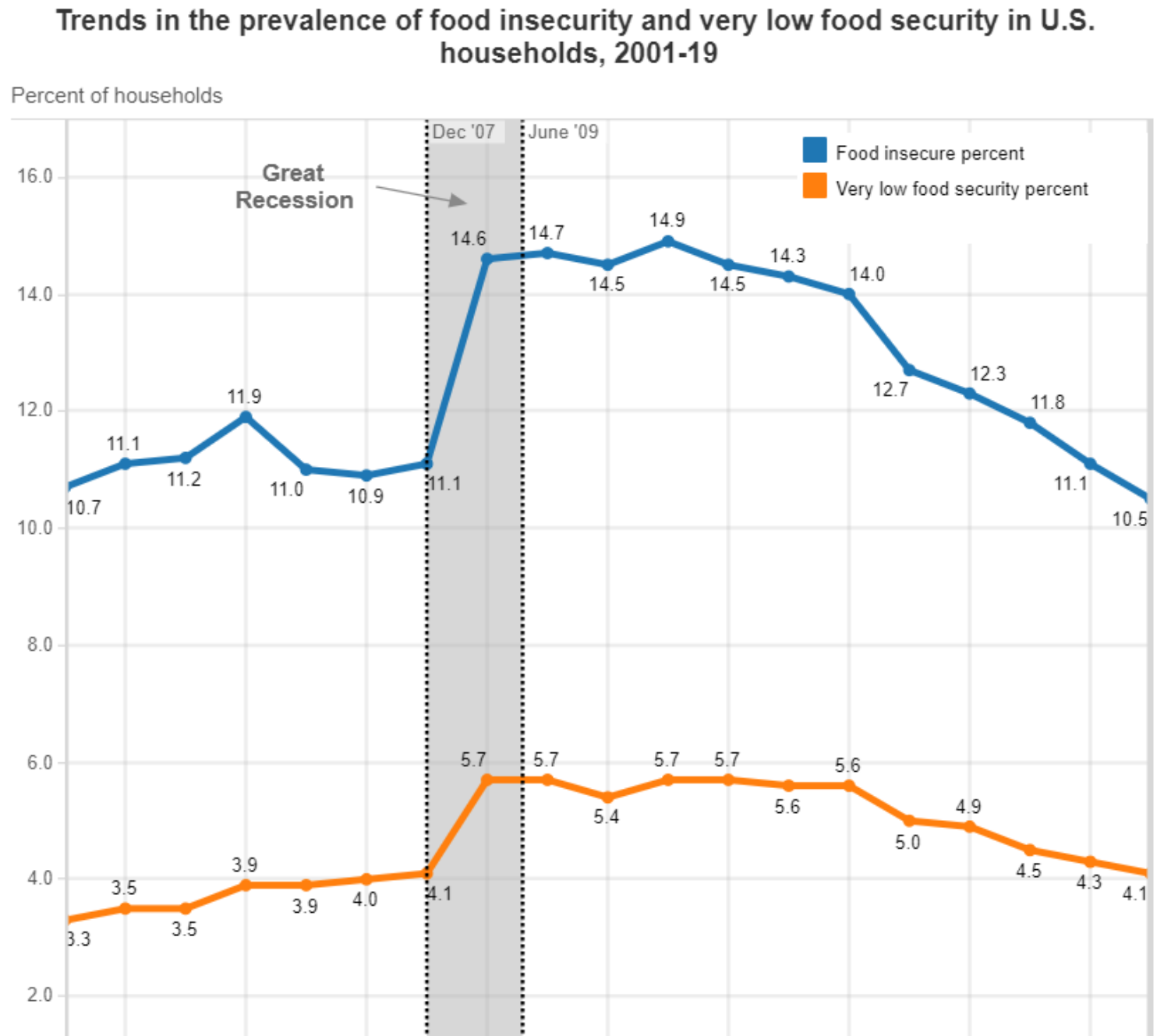
Figure 2

U.S. households with children by food security status of adults and children, 2019

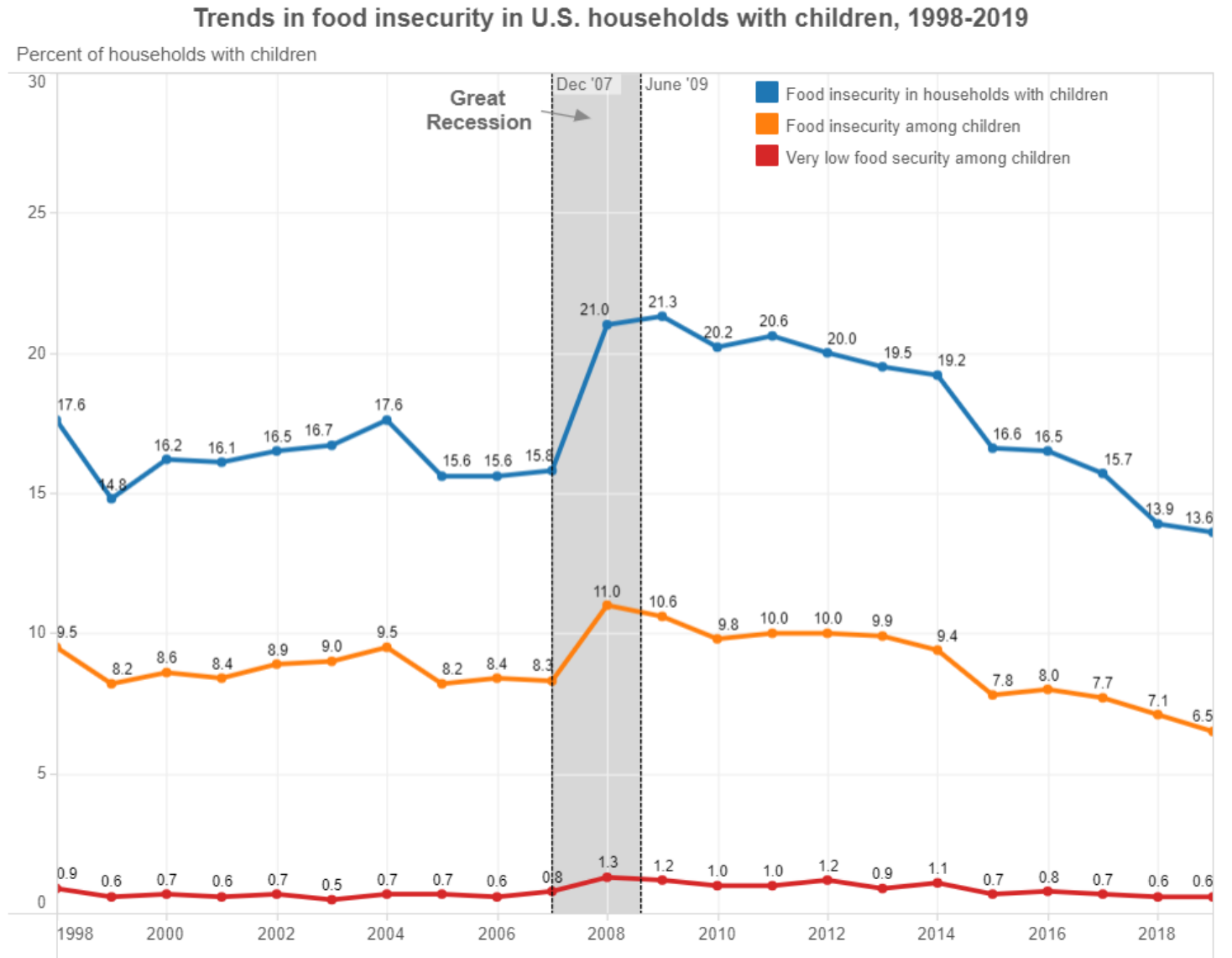


Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2019 Current Population Survey Food Security Supplement

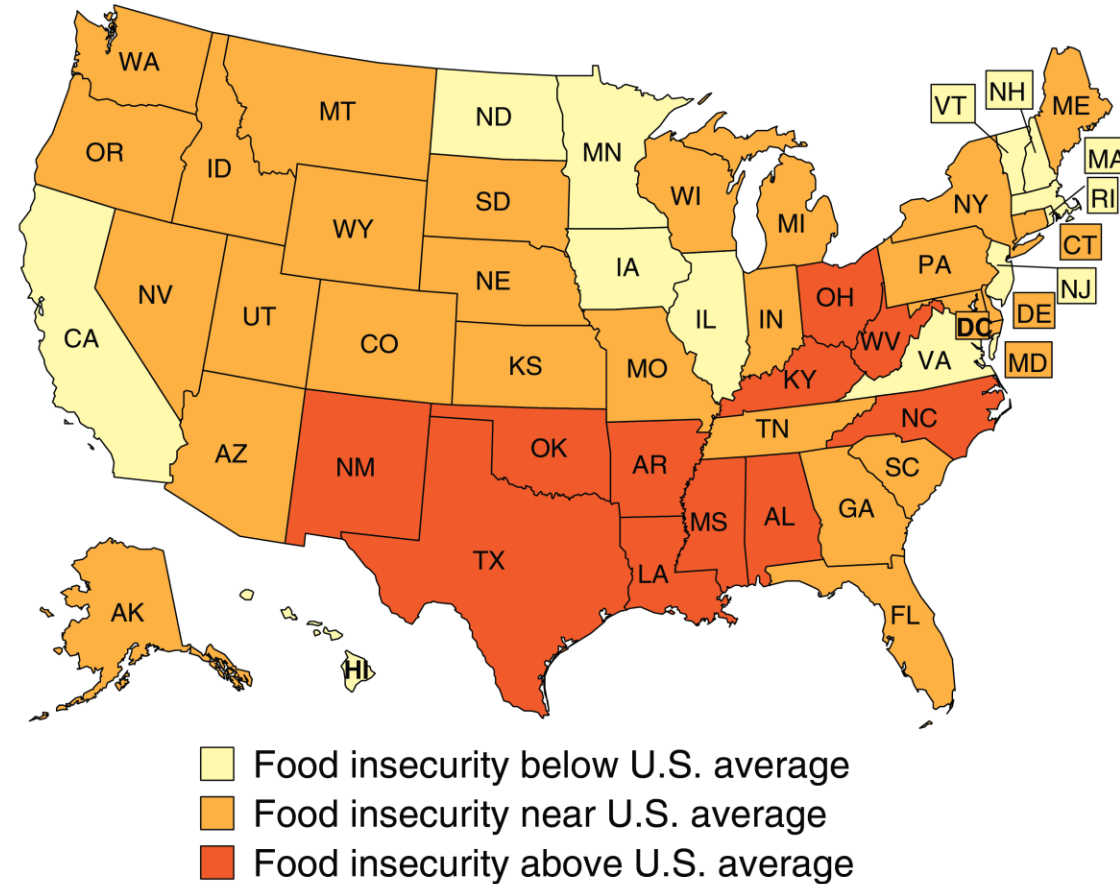
Food Insecurity Rates Over Time – All Households⁽¹⁰⁾



Food Insecurity Rates Over Time – Households with Children⁽¹⁰⁾

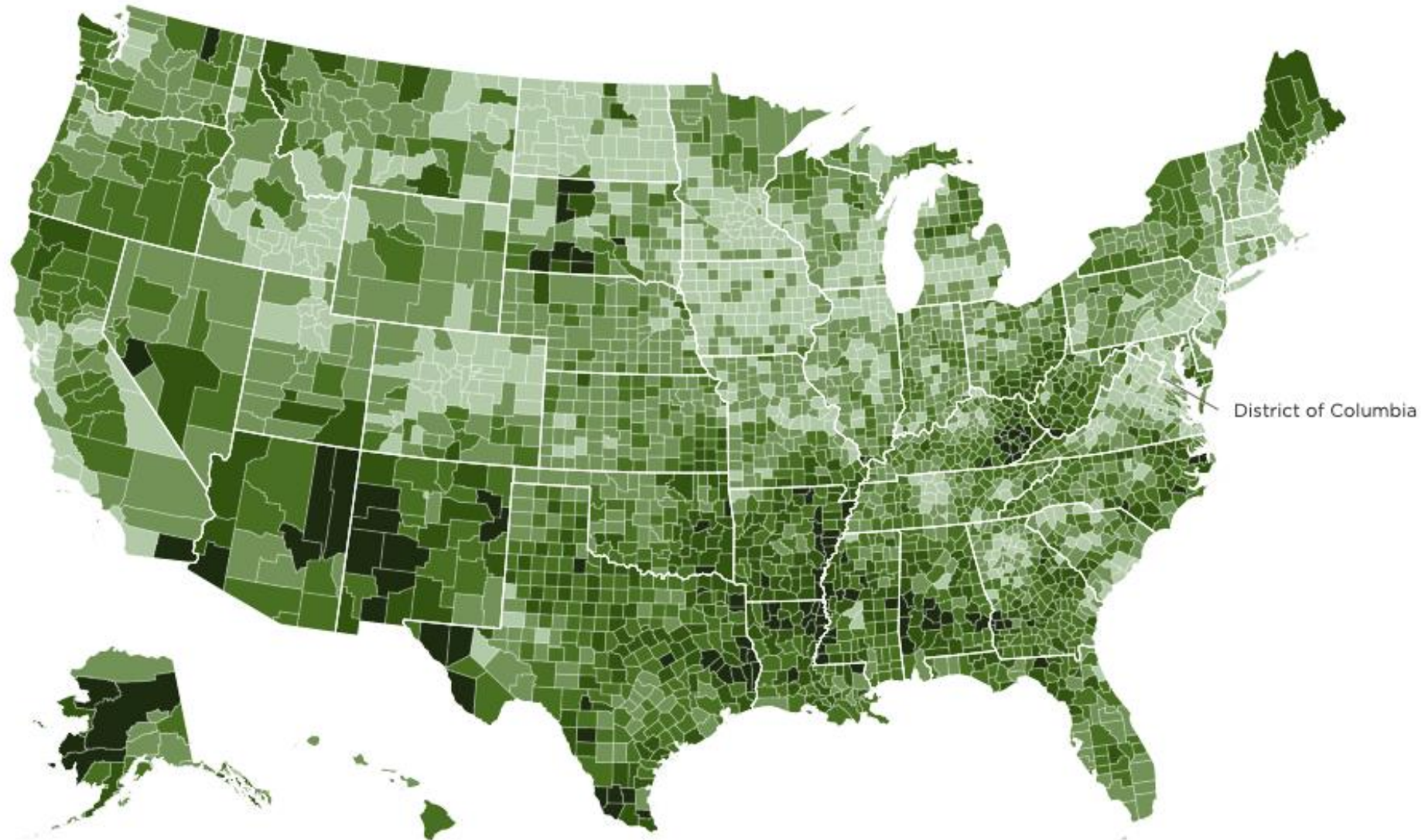


Prevalence of food insecurity, average 2017-19



Source: USDA, Economic Research Service using data from the December 2017, 2018, and 2019 Current Population Survey Food Security Supplements.

County Child Food Insecurity Rates - 2019



Food Insecurity Rates

4-14%

15-19%

20-24%

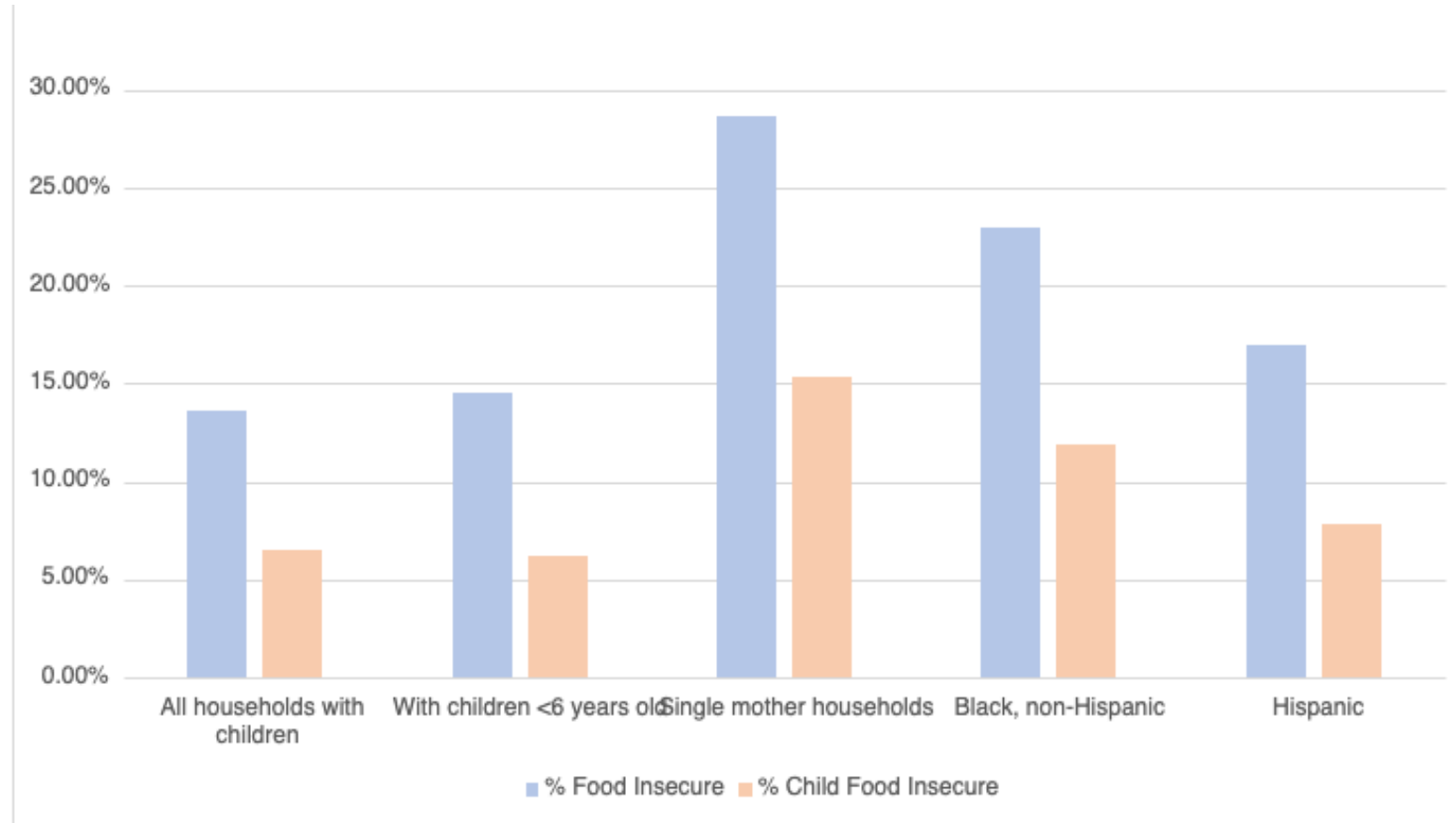
25-29%

30% +



Rates of Food Insecurity (2019)

- by selected characteristics.
- 2019 data⁽⁶⁾.



Prevalence of food insecurity by household education, employment, and disability status, 2019

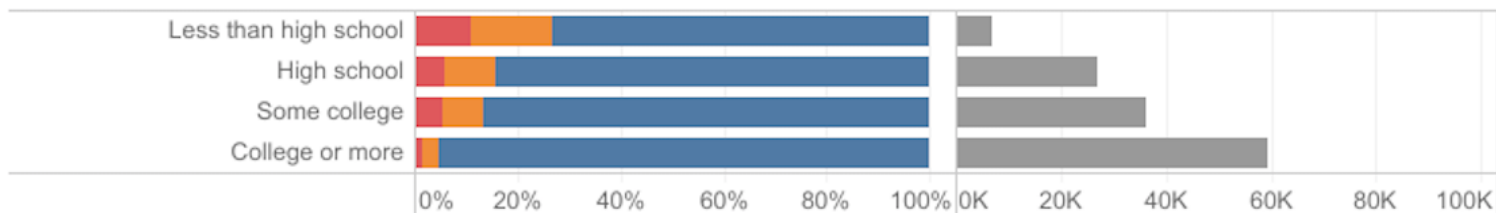
Very low food secure Low food secure Food secure

Education status

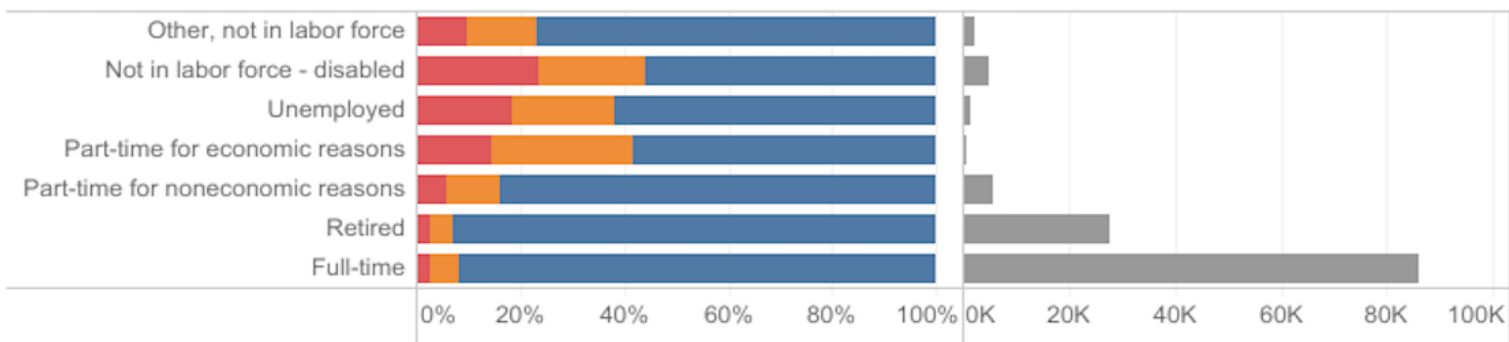


Percent of households

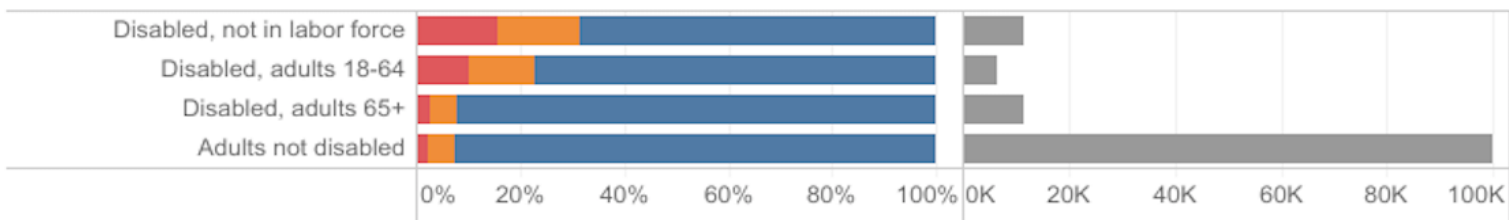
Total number of households (in 1,000s)



Employment status

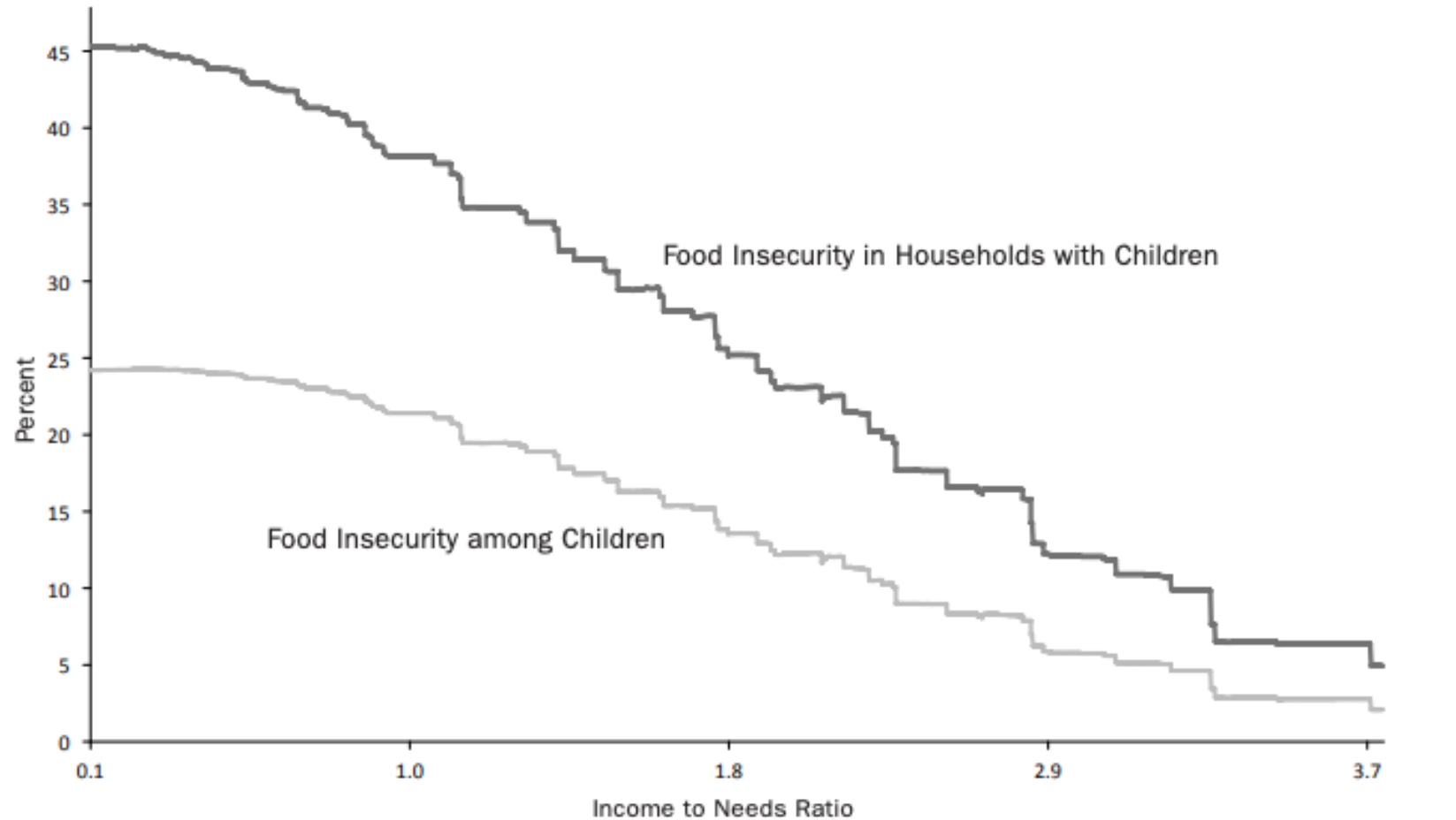


Disability status



Income and Food Insecurity⁽¹²⁾

Figure 3. Relationship Between Food Insecurity among Children and Income, 2012

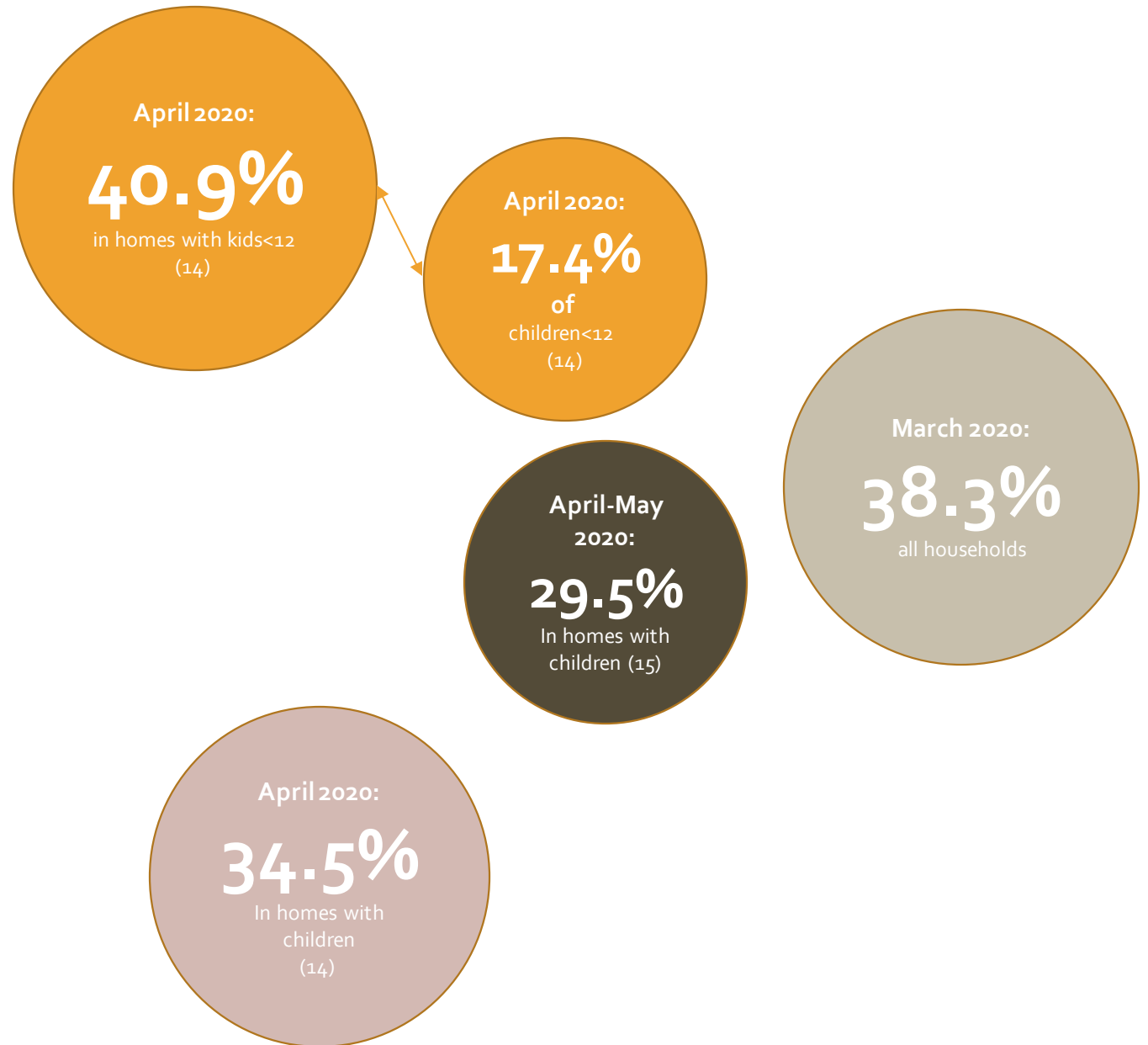


Source: Authors' calculations using data from the 2012 Current Population Survey, Core Food Security Module.

Food Insecurity
by U.S. Citizenship

	Households with Children 2010-2019	
	FOOD INSECURITY	VERY LOW FOOD SECURITY
Born in the U.S.	17.1%	5.2%
Outlying U.S.	25.7%	7.2%
Naturalized	14.4%	3.5%
Not a citizen	23.4%	5.8%

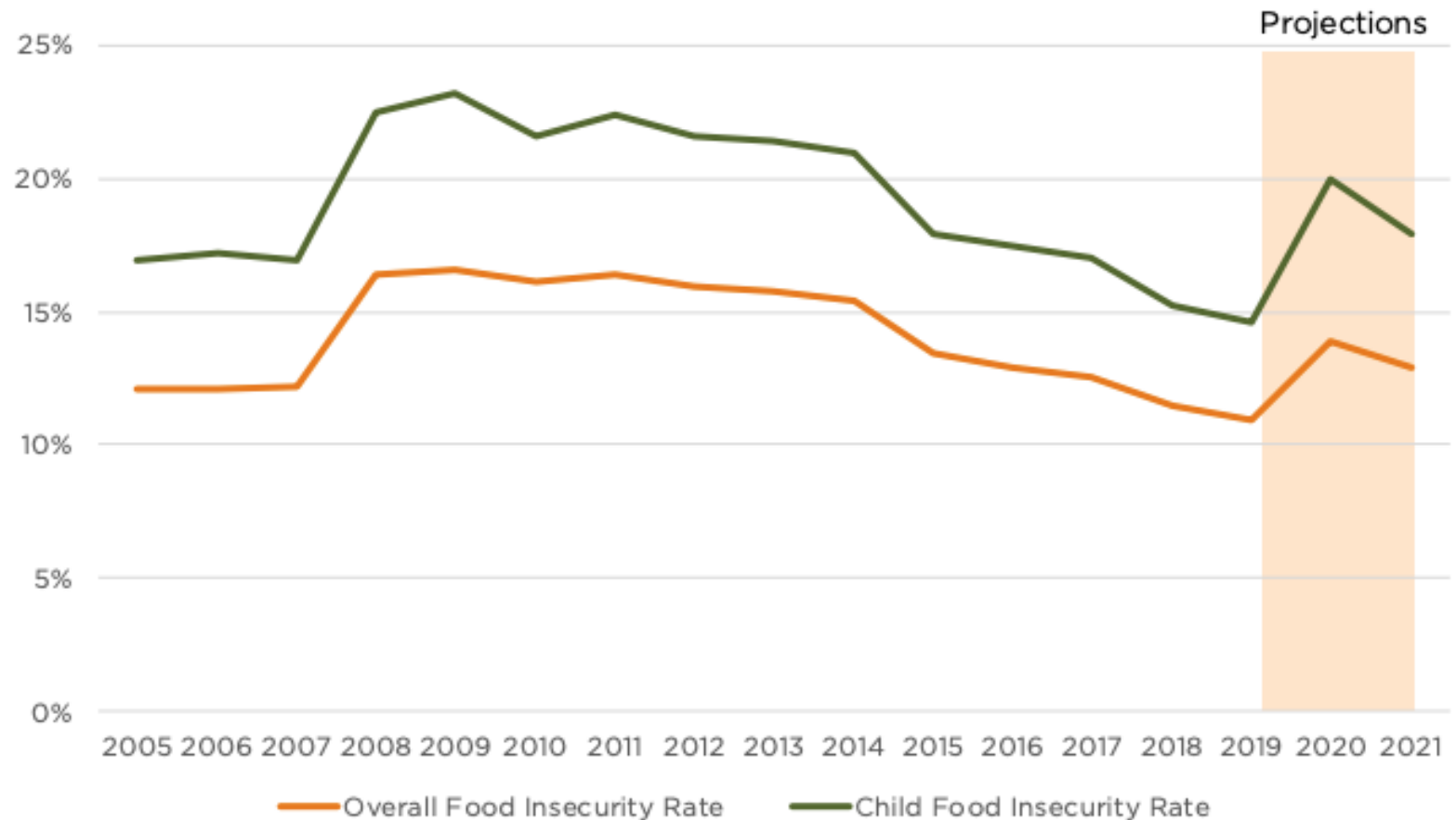
What of Food Insecurity* during the Pandemic?



Estimates from Feeding America's

Mapping the Meal Gap ⁽¹⁷⁾

Food Insecurity Trends & Projections

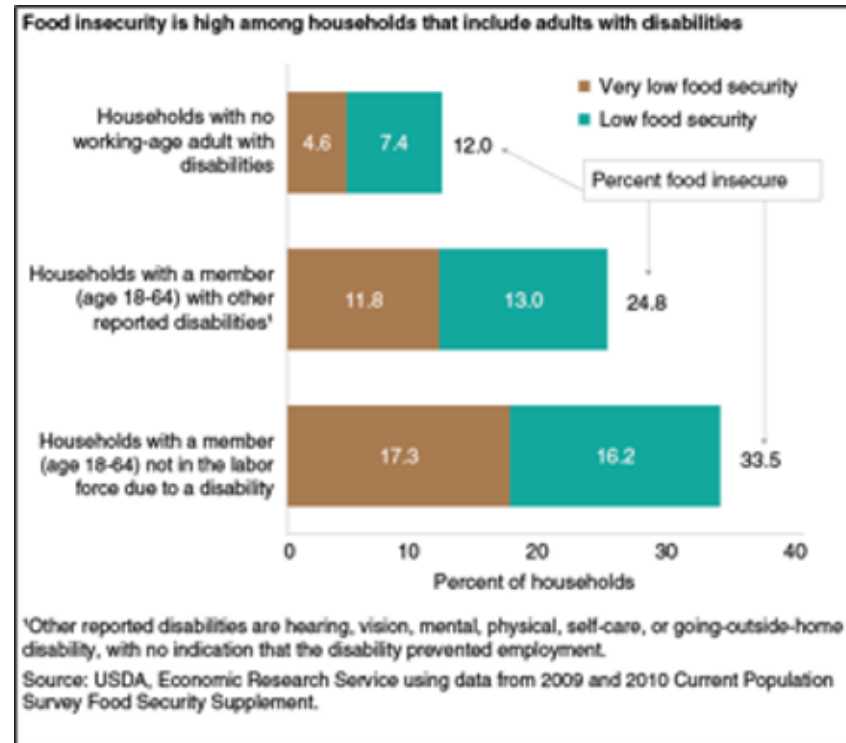


Food Insecurity and Maternal and Child Health

Empirical evidence



Food Insecurity and Child (Neurodevelopmental) Disabilities



Well established relationship between adult disability and food insecurity.^(18,19,20)

Potential pathways: work-limitations; functional limitations; trouble managing money⁽²¹⁾ economic difficulties; trade-offs between food and other needs⁽²²⁾

Similar findings for households where children have disabilities.⁽²³⁻²⁵⁾

However, literature in this space limited in important ways:

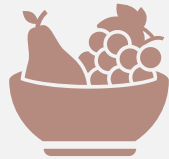
1. General focus on "disability" or "mental health" and not specific conditions like ADHD.
2. **Most important:** lack of clarity about direction of relationship:
Food insecurity -> neuro-developmental disabilities⁽²⁵⁾
OR
Neuro-developmental disabilities -> food insecurity?⁽²⁴⁾
3. Limited attention to or ability to discern pathways⁽²⁵⁻²⁶⁾

Food Insecurity
and Child
(Neurodevelopmental) Disabilities

Food Insecurity and Health



To this point, dozens and maybe hundreds of studies have examined food insecurity and health outcomes.



Different approaches and limitations notwithstanding, clear picture has emerged of **negative health consequences** of food insecurity.



Child Health

In previous work, food insecurity linked to:

Worse general health, increased use of emergency department (ED) services, worse academic performance, poorer social outcomes, and anxiety and depression⁽²⁷⁻³⁰⁾ worse psychosocial outcomes⁽³¹⁻³²⁾, chronic illness⁽³⁰⁾ and iron deficiency and anemia⁽³³⁾.

Associations with worse behavioral, emotional, and academic outcomes are evident across stages of childhood.⁽²⁶⁾

BUT, an important limitation of previous work is incomplete attention to potential confounders.^(34,35)

Thomas, Miller, & Morrissey (2019)⁽³⁶⁾

Our study tried to attend to this limitation by:

(1) using nationally representative data; (2) use of an analytic approach – propensity score weighting – to address concerns about confounding.

Created a matched sample on the basis of:

Survey year, region of residence, child race/ethnicity, family income, child gender, household size and structure, child age, child citizenship, head start attendance, adult employment, receipt of SSI, SSDI, WIC, SNAP, and TANF, income from assets, home ownership, unmet healthcare needs, neighborhood quality, health insurance coverage, # family members with functional limitations; \$ children received special ed or EI, family member is veteran, # persons born outside U.S., adult use of cigarettes and alcohol, child has developmental delay or learning disability, adult mental health.



Our findings

Outcome	Effect Size
Child Health Status	-2.45%
ED Visits	25.88%
Delayed Medical Care due to Cost	146.53%
Needed but Could not Afford Care	179.83%
Needed but Could not Afford Dentist	105.5%
Needed but Could not Afford Mental Health	114.31%
Depressive Symptoms	27.91%
Asthma	19.1%
Skin Allergy	49.34%
Cold in Past Two Weeks	21.81%
Stomach Problem in Past Two Weeks	41.22%



Adult Health

**Literature on adults much more limited, but
as for children, food insecurity linked to:**

Decreased nutrient intake ⁽³⁷⁻⁴²⁾

Increased rates of mental health problems and
depression ⁽⁴³⁻⁴⁸⁾

diabetes ⁽⁴⁹⁻⁵⁰⁾

Hypertension ⁽⁵¹⁾ and hyperlipidemia ⁽⁵²⁾

being in poor or fair health ^(40,52)

poor sleep outcomes ⁽⁵³⁾

worse oral health ⁽⁵⁴⁾

Summary and sources from Gundersen and Ziliak ⁽⁵⁵⁾

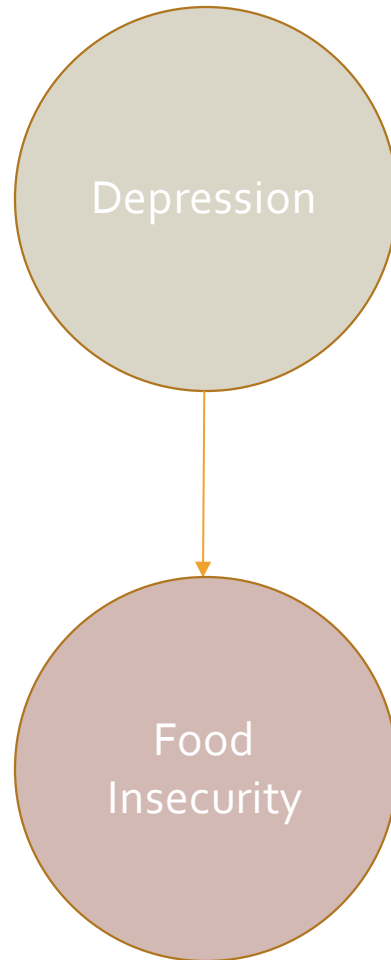


Gaps in our Knowledge

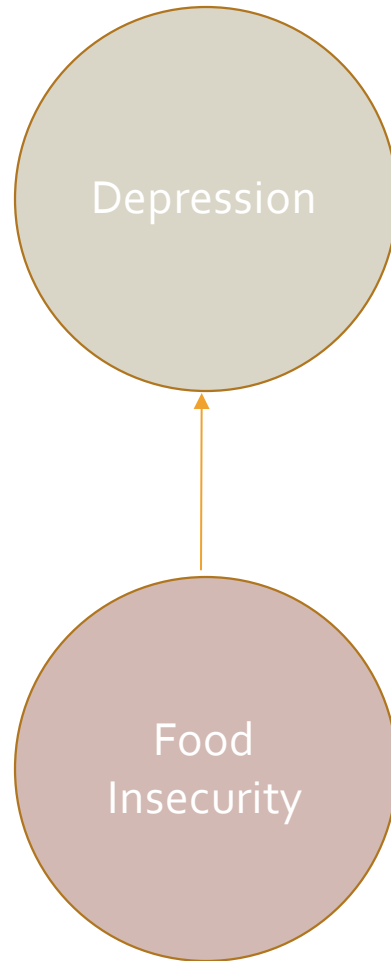
Though we now
have 25 years of
consistent food
insecurity
measurement...

- **Still much we do not know⁽³⁵⁾:**
 - Full understanding of the causes of food insecurity.
 - Dynamic inter-relationships between income, wealth, debt, and food insecurity.
 - Full accounting of the effects of food insecurity.
 - How disability and food insecurity relate to one another.
 - What within-household food insecurity looks like.
 - Longitudinal patterns of food insecurity, predictors, correlates.
 - Long-term effects of food insecurity.
 - How and in what ways does food insecurity interact with other types of material hardship?

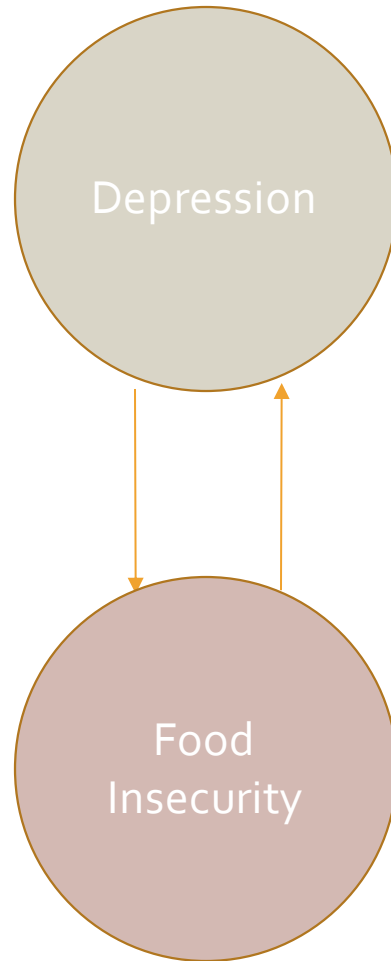
Depression: A Case Study



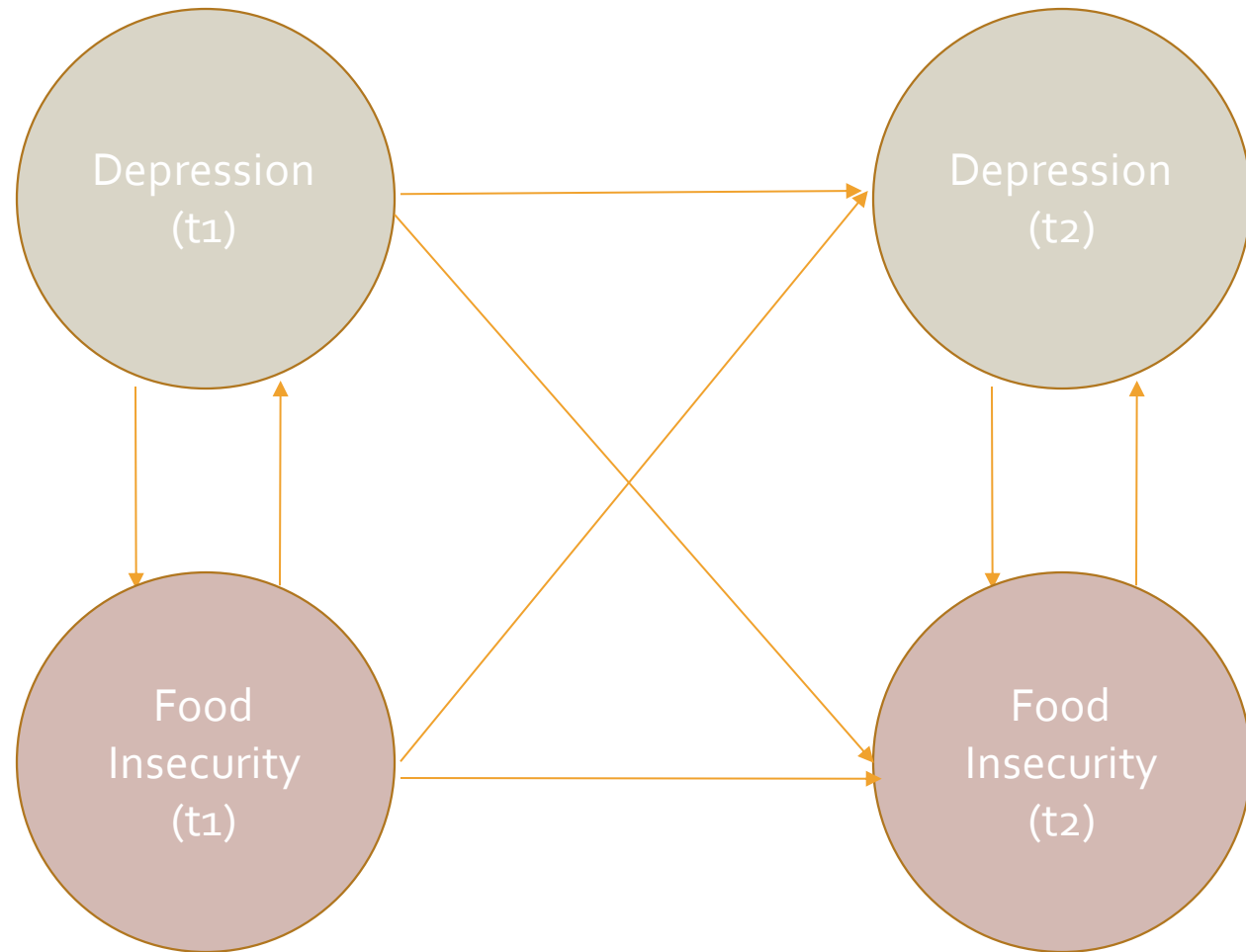
Depression: A Case Study



Depression: A Case Study



Depression: A Case Study





Policies and Programs to Fight Food Insecurity

The USDA's Food and Nutrition Assistance Programs

- The USDA maintains 15 different programs that provide food and nutrition assistance in the United States.
- What portion of households receive benefits from one of these programs in a given year?

The USDA's Food and Nutrition Assistance Programs

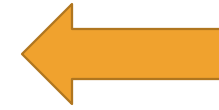
- The USDA maintains 15 different programs that provide food and nutrition assistance in the United States.
- What portion of households receive benefits from one of these programs in a given year?

25%⁽⁵⁶⁾

Table 1

USDA food and nutrition assistance at a glance, FY 2018 and FY 2019

Program		FY 2018	FY 2019	Percent change
SNAP	Average monthly participation (millions)	40.8	35.7	-12.4
	Average benefit per person (\$/month)	124.50	129.83	4.3
	Total annual expenditures (\$ billions)	65.5	60.4	-7.8
WIC	Average monthly participation (millions)	6.9	6.4	-6.9
	Women	1.6	1.5	-7.3
	Infants	1.7	1.6	-6.0
	Children	3.5	3.3	-7.1
	Food cost per person (\$/month)	40.96	40.85	-0.3
	Total expenditures (\$ billions)	5.4	5.1	-5.7
National School Lunch Program	Average daily participation (millions)	29.6	29.4	-0.6
	Free	20.1	20.0	-0.7
	Reduced price	1.8	1.7	-3.2
	Full price	7.7	7.7	0.1
	Total expenditures (\$ billions)	13.8	14.1	2.1
School Breakfast Program	Average daily participation (millions)	14.7	14.7	0.1
	Free	11.7	11.7	-0.2
	Reduced price	0.8	0.7	-3.1
	Full price	2.2	2.2	2.4
	Total expenditures (\$ billions)	4.4	4.5	2.6
Child and Adult Care Food Program	Meals served in:	2,040.7	2,044.9	0.2
	Childcare centers (millions)	1,503.5	1,528.0	1.6
	Family daycare homes (millions)	457.6	434.6	-5.0
	Adult daycare centers (millions)	79.5	82.3	3.4
	Total expenditures (\$ billions)	3.6	3.7	2.5
All programs	Total expenditures (\$ billions)	96.9	92.4	-4.6



SNAP (formerly Food Stamps) is by far the largest program; accounts for 65.3% of all spending.⁽⁵⁶⁾

As cash welfare has waned in the past 25 years, SNAP has come to assume an important countercyclical role⁽⁵⁷⁾, becoming a vital part of the social safety net⁽⁵⁸⁾, and lifting more Americans out of poverty than any other means-tested program⁽⁵⁹⁾. Outside of Medicaid, SNAP is currently the largest program for low-income Americans⁽⁶⁰⁾.

Expansion to SNAP benefits after the Great Recession and during the pandemic.

- Early on in the pandemic, the federal government moved to expand SNAP benefits, much as it had after the Great Recession.
- Most recently, the American Rescue Plan includes \$12 billion for food and nutrition assistance⁽⁶¹⁾:
 - Extend the SNAP benefit increase
 - Extend the Pandemic-EBT program
 - Investment in the WIC program

Response to the
Pandemic

Non-governmental food aid.⁽⁶²⁾



According to Feeding America, Food Banks in the U.S. are serving 55% more people than before the pandemic and distributed 6 billion meals in 2020.



Closing thoughts

A 3D puzzle with one piece missing, set against a warm orange background. The puzzle is composed of several pieces, with one piece missing from the center. The missing piece is a large, irregular shape. The puzzle is set against a warm orange background. The puzzle pieces are white and have a 3D effect. The missing piece is a large, irregular shape. The puzzle is set against a warm orange background.

Food Insecurity: Persistent but not intractable

- Food insecurity is a complex problem with an easy solution.
- Amidst all of the complexity and concerns about data, measurement, and causal relationships:
 - **It does not have to be this way.**
- We have an ethical obligation to eliminate food insecurity⁽⁶²⁾ and we have both the tools and resources to do so.

Additional Slides



Table S-5

Responses to items in the food security scale, 2016-19¹

Scale item ²	Households affirming item ³			
	2016	2017	2018	2019
	<i>Percent</i>			
Household items:				
Worried food would run out before (I/we) got money to buy more	16.2	15.6	14.6	13.9
Food bought didn't last and (I/we) didn't have money to get more	13.3	12.8	12.2	11.4
Couldn't afford to eat balanced meals	12.9	12.7	12.2	11.8
Adult items:				
Adult(s) cut size of meals or skipped meals	7.5	7.0	6.7	6.4
Respondent ate less than felt he/she should	7.7	7.2	6.6	6.7
Adult(s) cut size or skipped meals in 3 or more months	5.7	5.3	5.1	4.9
Respondent hungry but didn't eat because couldn't afford	4.0	3.7	3.7	3.5
Respondent lost weight	2.4	2.4	2.2	2.2
Adult(s) did not eat for whole day	1.7	1.4	1.4	1.5
Adult(s) did not eat for whole day in 3 or more months	1.3	1.1	1.1	1.2
Child items:				
Relled on few kinds of low-cost food to feed child(ren)	13.0	13.0	11.9	11.3
Couldn't feed child(ren) balanced meals	8.3	8.2	7.4	6.8
Child(ren) were not eating enough	3.6	3.3	3.0	2.9
Cut size of child(ren)'s meals	1.7	1.5	1.3	1.2
Child(ren) were hungry	1.0	0.8	0.8	0.8
Child(ren) skipped meals	0.6	0.5	0.4	0.5
Child(ren) skipped meals in 3 or more months	0.5	0.4	0.3	0.4
Child(ren) did not eat for whole day	0.1	0.1	0.1	0.2

Source (7)