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In 2012, nearly 16 million U.S. children, or over one in five, lived in households that were food-insecure, which the U.S. Department of Agriculture defines as “a household-level economic and social condition of limited access to food.”¹ Even when we control for the effects of other factors correlated with poverty, these children are more likely than others to face a host of health problems, including but not limited to anemia, lower nutrient intake, cognitive problems, higher levels of aggression and anxiety, poorer general health, poorer oral health, and a higher risk of being hospitalized, having asthma, having some birth defects, or experiencing behavioral problems.² Many government programs aim explicitly to reduce food insecurity, including the Supplemental Nutrition Assistance Program (SNAP), the National School Lunch Program (NSLP), the School Breakfast Program (SBP), the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and the Child and Adult Care Food Program (CACFP). (Other social safety-net programs—for example, the Earned Income Tax Credit—can also help alleviate food insecurity by increasing household income.)

The fact that food insecurity remains so high even though the government spent over \$100 billion on the various federal food-assistance programs in fiscal year 2012 poses a significant policy challenge.

Food insecurity rates remain stubbornly high for a number of reasons. One is that we don’t fully understand what causes food insecurity or how food assistance and other programs can help alleviate it. Food insecurity has been researched extensively, and this research has helped policy makers and program administrators better address the problem.³ However, relatively little research has looked at what causes food insecurity among children in the first place, or the effectiveness of public policies, especially on more severe forms of food hardship.

In this policy report, we highlight new research that seeks to fill this gap. Much of this work comes from the Research Program on Childhood Hunger at the University of Kentucky Center for Poverty Research, which was underwritten by the Food and Nutrition Service of the U.S. Department of Agriculture (USDA).

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Food Insecurity among Children

In 1989, the Life Sciences Research Office, an independent nonprofit that studies scientific issues, assembled an expert panel on behalf of the American Institute of Nutrition to find ways to measure the nutritional status of “difficult-to-sample” populations (that is, people who are hard to count, such as the homeless, or few in number relative to the general population, such as pregnant women). The panel proposed an operating definition of food insecurity as a situation that “exists whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain.”⁴ It intended food insecurity to be conceptually distinct from “hunger,” which is generally viewed as a physiological condition assessed at the individual rather than the household level. The current definition of food insecurity was put into practice in 1995, when the USDA began fielding the Core Food Security Module (CFSM) as part of the Current Population Survey (CPS), a nationally representative monthly survey conducted by the U.S. Census Bureau. Until 2001, various changes in the survey made it difficult to compare the results across years. However, the CFSM has been consistent since 2001 and is currently a part of the nationally representative 50,000-household December supplement to the CPS. (The CFSM is included in other surveys as well; below we mention these surveys when we review various studies.)

The CFSM is a series of 18 questions (10 if no children live in the household) that ask whether the household faced difficulties feeding adults and children over the past year because of lack of money. These difficulties range from worry about running out of money to skipping meals for a whole day because of a lack of money. The questions also ask separately about food security over the 30 days before the interview. Examples of questions include: “Did you or the other adults in your household ever cut the size of your meals or skip meals because there wasn’t enough money for food?”; “Did you ever cut the size of any of the children’s meals because there wasn’t enough money for food?”; and, the most severe item for households with children, “Did any of the children ever not eat for a whole day because there wasn’t enough money for food?”⁵ Each question is qualified by the stipulation that the lack of food was caused by money problems.

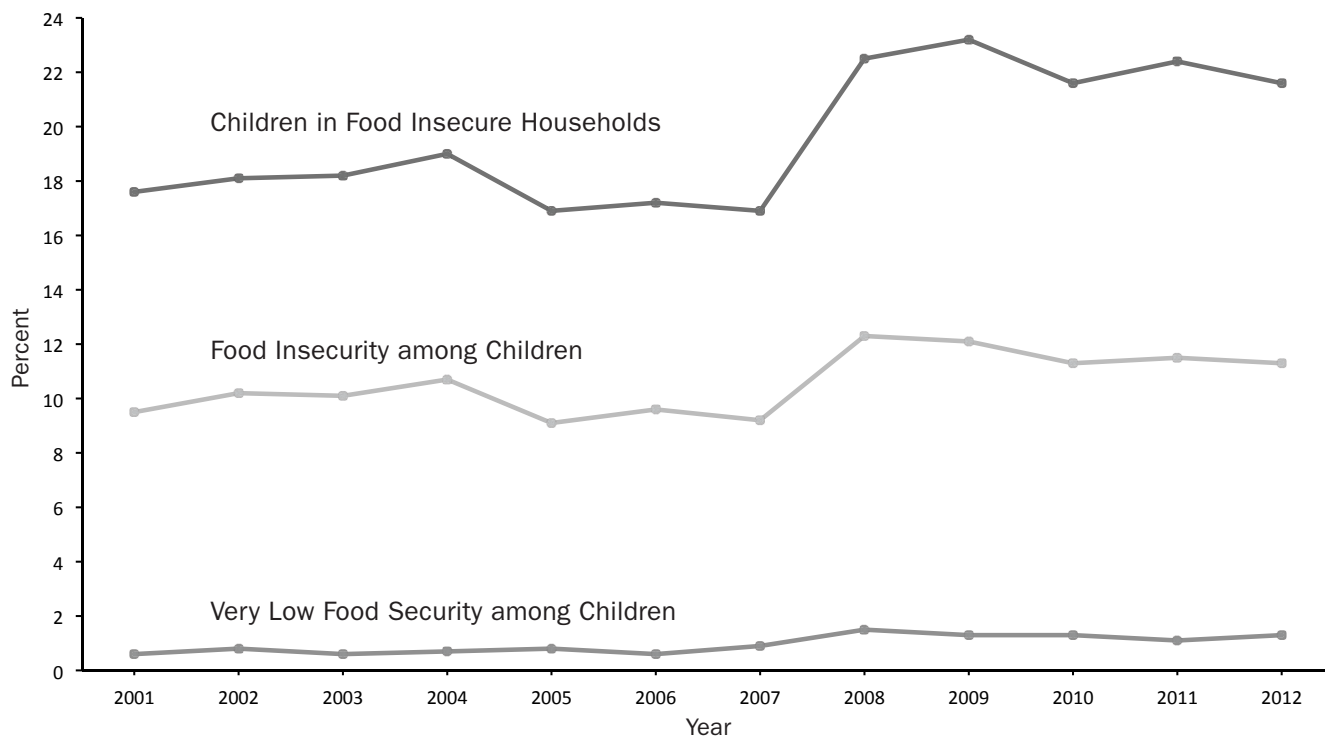
The USDA places households into food insecurity categories based on their responses to these questions; the number of affirmative responses reflects a household’s level of food hardship. As table 1 shows, the USDA has established the following thresholds: (a) fully food secure (all household members had enough food at all times); (b) marginally food secure (the household had problems with or anxiety about getting enough food, but the quality, variety, and quantity of their food intake were not substantially reduced); (c) low food security (household members reduced the quality, variety, and desirability of their diets, but the quantity of food intake and normal eating patterns were not substantially disrupted); and (d) very low food security (at times during the year, eating patterns of one or more household members were disrupted and food intake was reduced because the household lacked money and other resources for food). A household is said to be “food insecure” if it falls into the low or very low food security categories. Food insecurity statuses are also established for the children in the household. Children are experiencing food insecurity if at least two of the eight child-centered questions are answered in the affirmative, and very low food security if five or more such questions are answered positively.

Table 1. Categories of Food Insecurity

<i>USDA Classification</i>	<i>Number of Affirmative Responses to CFSM</i>
Fully Food Secure	0
Marginally Food Secure	1 or 2
Food Insecure	3 or more
Very Low Food Security	6 or more (households without children) 8 or more (households with children)
Food Insecurity among Children	2 or more child-referenced questions
Very Low Food Security among Children	5 or more child-referenced questions

Note: For descriptions of these categories, see Alisha Coleman-Jensen, Mark Nord, and Anita Singh, *Household Food Security in the United States in 2012*, U.S. Department of Agriculture, ERR-155 (Washington, DC, 2013).

Figure 1. Trends in Food Insecurity among Children



Source: Authors' tabulations of data in Alisha Coleman-Jensen, Mark Nord, and Anita Singh, *Household Food Security in the United States in 2012*, U.S. Department of Agriculture, ERR-155 (Washington, DC, 2013), table 1B.

Figure 1 depicts trends from 2001 to 2011 in (a) the fraction of children who live in households facing food insecurity; (b) the rate of food insecurity among children; and (c) the rate of very low food security among children. We emphasize four main points about this figure. First, all three measures saw a substantial increase between 2007 and 2008 with the onset of the Great Recession. Both the fraction of children in food-insecure households and the rate of food insecurity among children rose by one-third across those two years, and the rate of very low food security among children increased by two-thirds, from 0.9 percent in 2007 to 1.5 percent in 2008. Second, despite the official end of the Great Recession in June 2009, rates of food insecurity have remained at these elevated levels. Third, nearly 1 million children are experiencing very low food security. Fourth, though the Great Recession caused a large and sustained increase in food insecurity, food-insecurity rates among children were high even during good economic times. For example, from 2005 to 2007, three years with a robust economy, approximately 17 percent of U.S. children lived in food-insecure households.

As we show in more depth below, not all children are equally likely to be food insecure. Indeed, there is enormous variation in the geographic distribution of children who live in food-insecure households. Figure 2 shows estimated food insecurity rates for all counties in the U.S. For example, the Mississippi Delta, Appalachia, the Rio Grande, and American Indian reservations all have high concentrations of food insecurity among households with children.

Why Are Some Children Food Insecure?

A natural assumption is that childhood food insecurity is caused by poverty, and this is broadly accurate. For example, figure 2 shows that county rates of child food insecurity are highest in the South and in rural parts of the country more generally. As these regions tend to have higher rates of poverty, the association with food insecurity seems clear.⁶ In figure 3, we depict the relationship between food insecurity among children (and households with children), on the one hand, and the income-to-needs ratio, on the other. The income-to-needs ratio is determined by dividing a family's income by the poverty threshold that U.S. agencies

use to determine poverty rates for a family that size. An income-to-needs ratio below 1 means a family is poor; a ratio of 2 means the family income is twice the poverty line; and so on. (The figure includes families with incomes under 400 percent of the poverty line.)

Clearly, the risk for child food insecurity drops quickly with income. But even at incomes two and three times the poverty level, food insecurity is quite high. Moreover, almost 60 percent of children in households close to the poverty line are in food-secure households. This suggests that income is only part of the story and that other factors also contribute to children's food security.

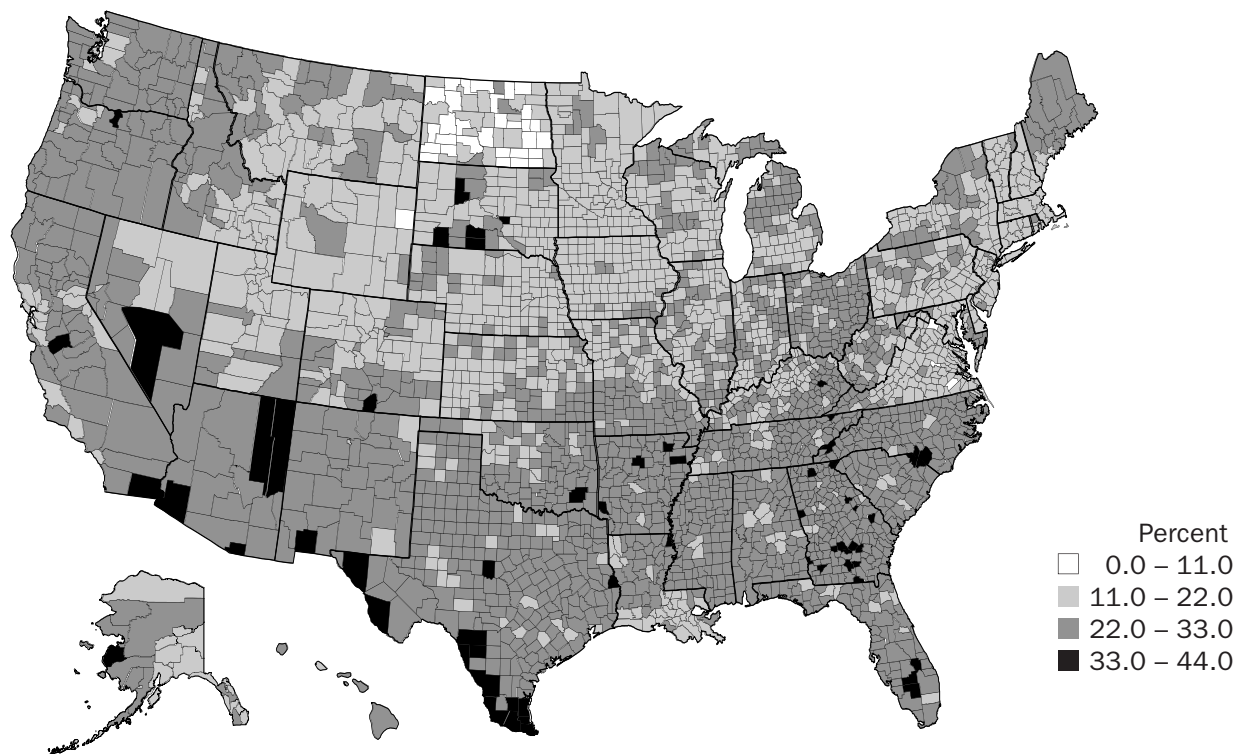
Factors Other Than Income

Research has shown that numerous factors besides income influence whether a household is food insecure.⁷ Here we consider recent studies that extend and improve upon this previous work by, among other things, considering more factors, using newer

data, employing different research methods, and concentrating on food insecurity among children specifically.

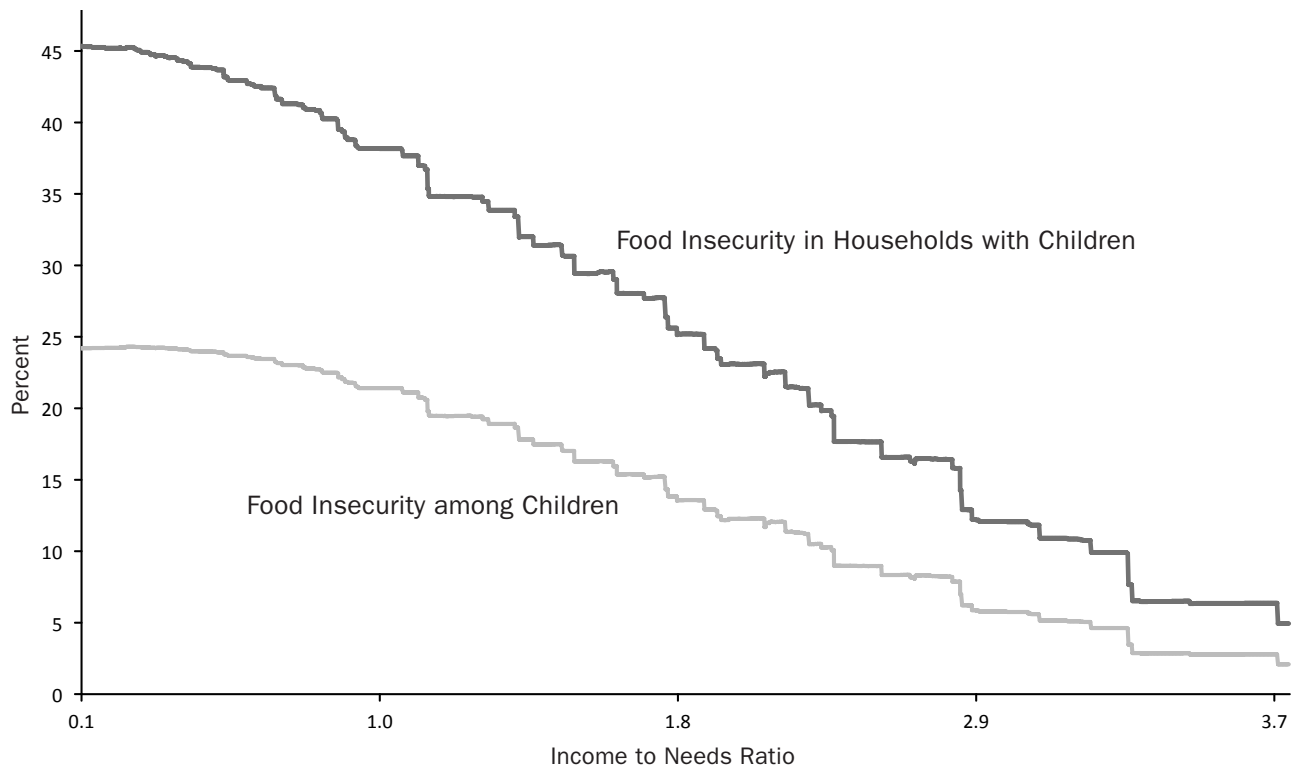
One theme among these new studies is that, even when income and other risk factors are accounted for, adult caregivers' mental and physical health play a central role in children's food security. For example, Neeraj Kaushal and colleagues, using data from the Fragile Families and Child Well-Being Study (a survey based at Princeton University that has followed 5,000 children born between 1998 and 2000 in 20 major metropolitan areas, mostly to unmarried mothers), found that mothers in food-secure poor households are in better physical and mental health and are less likely to report intimate-partner violence and substance use compared with mothers in food-insecure poor households. When the sample is restricted to those with incomes twice the poverty line and lower, food-insecure families are more likely to be headed by poorly educated single mothers and more likely to report maternal depression

Figure 2. County Map of Child Food Insecurity Rates in 2012



Source: Map is based on results compiled through Feeding America's Map the Meal Gap Project. For more information, see <http://feedingamerica.org/hunger-in-america/hunger-studies/map-the-meal-gap.aspx>; for technical details, see Craig Gundersen et al., *Map the Meal Gap 2014: Technical Brief* (Chicago, IL: Feeding America, 2014).

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.

and substance abuse than are food-secure families with similar incomes.⁸ Likewise, using data from the CPS, Kelly Balistreri found that disability among adults living with children greatly increases the likelihood that children will experience very low food security. Holding other factors constant, children living with a disabled adult are almost three times as likely to experience very low food security as are children who don't live with a disabled adult.⁹

Elizabeth Powers, using nationally representative data from the Survey of Income and Program Participation (a survey on socioeconomic status, participation in social assistance programs, and myriad other factors conducted by the U.S. Census Bureau that follows approximately 30,000 people per wave of data collection), examined how parenting practices affect the risk of food insecurity among children. She hypothesizes that parents who have a closer relationship with their children possess better information about them, including their food-insecurity status. The descriptive evidence suggests that mothers in food-insecure households have a more negative perception of their own parenting abilities than do mothers in food-secure households.

However, after controlling for other problems that are correlated with parents' outlook, especially maternal mental and physical health, the effect of parenting outlook on food insecurity disappears. That is, any link between parenting practices and childhood hunger is spurious, and the data instead suggest that improving mothers' health can decrease food insecurity among children.¹⁰

The finding that maternal mental health affects household food security is bolstered further by evidence from Kelly Noonan and colleagues, who used data from the Early Childhood Longitudinal Study Birth Cohort (ECLS-B), which interviewed the parents and caregivers (including early childhood teachers) of 14,000 children born in 2001 four times between birth and the start of kindergarten. They found that when mothers are moderately to severely depressed, the risk of child and household food insecurity rises by 50 to 80 percent, depending on the measure of insecurity.¹¹ Similarly, Patricia Anderson and colleagues examined the link between maternal health and child food security, in this case using data from the National Health and Nutrition Examination Survey (NHANES), which is

a nationally representative annual survey of 5,000 adults and children conducted by the National Center for Health Statistics, Centers for Disease Control and Prevention, that includes both a survey interview and a physical examination conducted by a trained professional. The researchers found that families where children experience very low food security report having significantly weaker social and emotional support networks.¹²

Anderson and colleagues also find that drug use in the last 30 days—and heroin use in particular—is strongly associated with food insecurity among children. Rates of heroin use in the past 30 days are 10 times as high (1.5 percent) in families with very low food security among children than they are in the population overall. Likewise, 16.2 percent of household heads in families with very low food security among children have been in rehabilitation centers of some kind, compared with 5.8 percent of household heads in the full population surveyed in NHANES.¹³

A second theme in the new research on child food insecurity is that the household head's marital status plays a key role. Balistreri finds that, after controlling for economic and household characteristics, children living with a single parent or living with an unmarried parent in a more complex family (for example, one that includes a cohabiting partner or another adult such as a grandparent) have a greater risk of food insecurity than do children living in families where the parents are married. Moreover, among low-income families, mothers' work patterns predict children's food insecurity much more strongly in stepfamilies than in 100 percent biological families.¹⁴ Daniel Miller and colleagues used comprehensive data from four national surveys—ECLS-B, Early Childhood Longitudinal Study–Kindergarten (ECLS-K), the Fragile Families Study, and the Panel Study of Income Dynamics (PSID) (a survey that collects information on a wide array of topics including, among other things, socioeconomic status, consumption, and participation in assistance programs, that has followed thousands of American families since 1968)—to see whether children growing up in single-parent households were more likely to be food insecure than were children in families with cohabiting partners or with mothers who had repartnered with another adult who was not

a biological parent of her children, whether married or cohabiting. Although correlational evidence suggests that children in single-mother families are at higher risk, after controlling for socioeconomic status there was no longer a substantive difference across the family types that Miller and colleagues studied. However, children living with married biological parents still experience a significantly lower risk of food insecurity.¹⁵ Similarly, using Fragile Families data, Kaushal and her colleagues found that children who live with their biological parents, whether married or cohabiting, face a significantly lower risk of food insecurity.¹⁶

Delving deeper into family structure and food insecurity, Lenna Nepomnyaschy and colleagues examined how nonresident fathers' involvement affects childhood food security. To measure fathers' involvement, they considered cash transfers, in-kind contributions to households, and contact with the children. Using a variety of statistical methods, they found strong evidence that in-kind support from fathers is related to lower child food insecurity for both young children and adolescents, and less very low food security among young children. They also found that among adolescents, the provision of inconsistent cash support as compared with no support is associated with higher child food insecurity, but consistent support is associated with a lower risk of food insecurity. Both findings suggest that consistent support from nonresident fathers, whether in cash or in kind, is important for child food security. Fathers' contact with their children had no effect on food insecurity.¹⁷

A third theme is that child-care arrangements affect food insecurity status. Understanding the role of child care is especially important insofar as three-quarters of children spend some portion of their preschool years in the care of people other than their parents—a relative or child-care center, for example—and children in center-based care can receive as much as two-thirds of their nutritional needs there. Using data from ECLS-B, Colleen Heflin, Irma Arteaga, and Sara Gable examined how child care by parents versus child care by someone else affected food insecurity among children in low-income families. The authors compared five types of child-care arrangements: care by parents exclusively; by a relative; by someone unrelated to the

child in a home-care setting; in a child-care center; and in Head Start. They found that, compared with children cared for exclusively by their parents, low-income preschoolers attending a child-care center had lower odds of both food insecurity in general and very low food security; children cared for by a relative were less likely to experience food insecurity in general but equally likely to experience very low food security; and children cared for by an unrelated adult were more likely to experience very low food security.¹⁸

A fourth theme of the new research is that certain populations are particularly vulnerable to food insecurity among children. For example, Balistreri found that children in immigrant families have especially high rates of very low food security in comparison to children in nonimmigrant families.¹⁹ Though less than a quarter of all children in the United States are children of immigrants, such children constitute 40 percent of children experiencing very low food security. Similarly, examining nearly 45,000 mother-child pairs in the Children's Health Watch Study, which monitors the health and nutrition of families with children age three and under in clinics in five major U.S. cities, John Cook found that children of foreign-born mothers were three times as likely to experience very low food security as were children of U.S.-born mothers, even after controlling for other risk factors.²⁰

Children in households with an incarcerated parent constitute another vulnerable group. Sally Wallace and Robynn Cox examined how parents' incarceration affects food insecurity using micro-level data from the Fragile Families study that allowed them to compare food insecurity and very low food security among children, families, and adults in households with and without incarcerated adults. On the face of it, the effect of incarceration is not clear. On the one hand, incarcerating a parent might improve a household's food security because the demands on the family's resources are diminished. On the other hand, it might bring a higher probability of food insecurity because the parent's formal (for example, a paycheck) and informal (for example, child care) contributions would be removed. Moreover, factors correlated with incarceration, rather than incarceration itself, might be the primary cause of any changes in food security status. After controlling for

Children of foreign-born mothers were three times as likely to experience very low food security as were children of U.S.-born mothers, even after controlling for other risk factors.

correlated factors, however, Wallace and Cox found that children in households with an incarcerated parent are indeed more likely to be food insecure.²¹

A fifth theme revolves around the issue of how to measure income when considering the relationship between income and food insecurity. Vanessa Wight and colleagues consider two definitions of poverty: the official poverty measure, based on pretax income; and the Census Bureau's new Supplemental Poverty Measure, which considers both a broader set of resources (including posttax income and near-cash transfers from programs like SNAP, NSLP, SPB, and WIC) and a comprehensive set of needs, including work, child care, and medical expenses. As figure 3 shows, using the official poverty measure, although food insecurity falls as income rises, a substantial number of households with incomes above (and sometimes far above) the poverty line are still food insecure. Wight and colleagues find that the relationship between income and food-insecurity status is even stronger when they use the Supplemental Poverty Measure. Put a different way, when we use a better measure of resources available to a household, the relationship between available resources and food insecurity becomes stronger. For households suffering from very low food security, however, there is no difference between the effects of the traditional poverty measure and the new measure.²² This suggests that simply expanding the definition of income does not eliminate the puzzle of why very low food security often occurs in households without very low incomes. Thus efforts to reduce very low food security may need to take a broader perspective than looking at income alone.

Triggers of Food Insecurity

A few scholars have examined the triggers (for example, losing a job) associated with a higher risk of food insecurity and the long-term protective factors (for example, asset levels) associated with a lower risk.²³ Recent research has expanded this work in new directions.

The first of three themes in this new research is that changes in a household's socioeconomic situation can produce changes in food-security status. For example, Alison Jackowitz and Taryn Morrissey used ECLS-B data to examine what triggers entry into and exit from food insecurity across the first five years of children's lives. They find that changes in a family's housing situation, income instability, and a decline in the mother's mental and physical health or the child's physical health are the most important triggers that are associated with a family's entrance into very low food security among children. Exits from very low food security among children are most often associated with increases in income, improvements in mothers' mental health, and increases in the number of adults in the household (this relationship holds whether the new adults are spouses, partners, or grandparents, suggesting that sharing both time and money is an important factor).²⁴ Sheela Kennedy and colleagues used data from the Current Population Survey to find what factors best predict entry into and exit from low and very low food security among children. They find that living in poverty strongly predicts both whether a child enters food insecurity and whether food insecurity persists. They also found that job losses and declines in income significantly predict entry into very low food security.²⁵ Also using CPS data, the authors of this report, James Ziliak and Craig Gundersen, show that households with grandparents and grandchildren present—including those both with and without at least one of the parents—are at significantly greater risk of entering food insecurity and, once becoming food insecure, remaining so.²⁶ Finally, using a special supplement of the CPS on alternative financial services (for example, check-cashing outlets, rent-to-own stores, and pawnshops), linked to the December CPS of the previous year, Katie Fitzpatrick found that when households went from being "banked" to "unbanked"—that is, from having a checking or savings account to having no account—they saw a 2.6 percentage point increase

in the risk of very low food security and an 8.3 percentage point increase in the risk of food insecurity generally.²⁷

A second research theme considers the distinction between permanent and current income. Neeraj Kaushal, Jane Waldfogel, and Vanessa Wight compared whether food insecurity is more related to current income (that is, income over the past year) or permanent income (defined as income averaged over several years). To find whether current or permanent income is more important, they used ECLS-K data on annual income and food insecurity in households of sampled children at four points over eight years. At each point, they studied the association between food insecurity among children and current income and between food insecurity among children and permanent income. They found that permanent income is a much better predictor of food insecurity among children than is current income.²⁸

The third theme concerns the duration of food insecurity. We have lacked research in this area partly because no long-term, population-wide survey regularly collects information on food insecurity among the same families. However, Kennedy and colleagues have shown that 40 percent of all food-insecure children remain food insecure the following year. (The structure of the CPS is such that a household is observed for two years at most.) Moreover, almost 20 percent of households where children experienced very low food security faced this extreme form of food hardship the next year as well. The researchers also found that very low food security among children was more likely to persist in the years during and after the Great Recession.²⁹ Yiran Li and colleagues, using the three waves when food insecurity was measured in the PSID (1999, 2001, and 2003), also examined permanent and transitory food insecurity and found that just under half of households facing food insecurity reported problems meeting food needs in three or more months over the course of a year.³⁰

Public Policy Response to Food Insecurity

Campaigning for the Democratic nomination for president in 1960, then-Senator John F. Kennedy toured West Virginia and grew alarmed at the region's extreme poverty (county poverty rates exceeded 50 percent in most West Virginia counties). He pledged to help the poor if elected, and

in 1963 he proposed expanding and making permanent a small pilot project called the Food Stamp Program. Fifty years later, this program, now called the Supplemental Nutrition Assistance Program (SNAP), remains the leading component in the safety net against hunger, assisting one in seven Americans at a cost of \$80 billion per year. Following closely on the heels of the Food Stamp Program, Congress passed the Child Nutrition Act of 1966, which expanded the National School Lunch Program (NSLP) and established both the School Breakfast Program (SBP) and Child and Adult Care Food Program (CACFP). The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) was added a few years later. We provide a brief overview of each program and then discuss research on the programs' effectiveness in combating childhood hunger.

Federal Food Assistance

SNAP benefits can be used to buy food in authorized retail outlets, which number about 250,000 nationwide. Benefit levels rise with family size and fall with income. In 2014, the maximum monthly benefit for a family of four was \$632. SNAP benefits may be used only by those who are eligible for and choose to enter the program. To be eligible, households must first meet a test of monthly gross income (that is, income before any deductions), which must be under 130 percent of the poverty line, although some states have set higher thresholds. There are exceptions; for instance, households with at least one elderly member or one disabled member do not have to meet this test. Along with the gross income test, households must have net incomes below the poverty line. Net income is calculated as gross income minus certain deductions, including, for example, a 20 percent earned income deduction and a dependent care deduction when such care is necessary for work, training, or education. This net income test is obviously more likely to affect households in states with higher gross-income thresholds. The final test for SNAP eligibility concerns assets. As defined at the federal level, the total liquid assets of a household must be less than \$2,000 (\$3,250 for seniors and the disabled), and the fair market value of one car per adult household member must be less than \$4,650. Most states have applied for and received waivers to exempt at least one vehicle from the test and, in most states, to waive the asset test

entirely. Some categories of potential participants do not have to meet the gross income, net income, and asset tests. For example, households in which all members receive Supplemental Security Income (SSI) or Temporary Assistance for Needy Families (TANF) are automatically eligible for SNAP.

Once a household passes these eligibility screens, the amount of its SNAP benefits is calculated by multiplying net income by 0.3, under the assumption that households should contribute 30 percent of their net income to food. The resulting value is then subtracted from the value of the Thrifty Food Plan (one of several low-cost food plans developed by the USDA, varying by household size and composition) to yield the SNAP benefit level. Given this formula, a household that has a net income of zero will receive the maximum benefit. Implicit in the SNAP benefit formula is that SNAP benefits are not supposed to cover all food expenditures for families with a net income above zero. Put another way, all households receiving less than the maximum benefit are expected to spend some of their own income on food.

States have discretion over some aspects of SNAP. For example, under broad-based categorical eligibility they can choose the dollar values for the gross income and asset tests, and they set how often a SNAP recipient needs to recertify eligibility. States also administer the program (paying half the administrative costs themselves). Despite this state-by-state flexibility, all benefits, which totaled \$76 billion in 2013, or \$133 per recipient in a typical month, are funded by the federal government.

The National School Lunch Program is a federal assistance program that operates in over 100,000 public and nonprofit private schools across the United States. In 2013, just under 31 million students participated in the NSLP; nearly 19 million of them received free lunches and nearly 3 million more received reduced price lunches. (The remaining 9 million students pay the full price of the school meal.) The federal government gave schools \$1.2 billion in free food for the program in 2013, along with an additional \$11 billion to reimburse the cost of providing the meals. In light of these subsidies, even students who are paying the full price are receiving a discount for the meals. At participating schools, children from families with incomes at or below 130 percent of the poverty level are eligible

for free meals. Children with household incomes between 130 and 185 percent of the poverty level are eligible for reduced-price meals, which cannot cost more than 40 cents. The Community Eligibility Option allows schools in high-poverty areas to provide free breakfasts and lunches to all students if the percentage of households in the community participating in SNAP is high enough. If schools participate in the NSLP, the lunches they serve must meet certain federal requirements. No more than 30 percent of a lunch's calories may come from fat, with less than 10 percent from saturated fat; lunches must also include at least one-third of the Recommended Dietary Allowances of protein, vitamin A, vitamin C, iron, calcium, and calories.

The School Breakfast Program operates much like the NSLP. But while almost all schools in the U.S. serve lunches, about 75 percent serve breakfasts. More than 89,000 public schools, nonprofit private schools, and public and nonprofit private residential child-care institutions participate in the SBP. In 2013, 13.2 million children participated in the program; 11.2 million received their breakfast free or at a reduced price, and the remaining children paid full price for the meals.

The benefits associated with receiving free or reduced-price meals through the NSLP or SBP are not trivial. At least as defined by the reimbursement costs to schools, the value of receiving a lunch every day for a week is about \$15. Still, a high proportion of eligible children do not receive free or reduced price meals through the NSLP or SBP. This fact is often ascribed to the stigma that some children face for receiving NSLP and SBP meals and to some dissatisfaction with the content of the meals on the part of parents, children, or both. These factors can be especially important for high school children, for whom other options besides school meals may be readily available.

The Special Supplemental Nutrition Program for Women, Infants, and Children provides food, nutrition education, and health care referrals. Like the other programs reviewed above, WIC is federally funded and operated by the USDA. Unlike the others, it targets a much narrower population: low-income (that is, less than 185 percent of the poverty line) pregnant, postpartum, and breast-feeding women, as well as infants and children under five

years of age, who are determined to be at nutritional risk. In comparison to SNAP benefits, WIC vouchers can be redeemed at fewer outlets (46,000 nationwide) and for a much more limited set of foods. In 2013, WIC served 8.7 million people, at a cost of \$6.45 billion and with an average monthly benefit of \$43.

Even smaller in size and scope is the Child and Adult Care Food Program, which reimburses family day cares, child-care centers, homeless shelters, and after-school programs for meals and snacks served to children. Though the program has an adult component, the overwhelming majority of participants are children. In 2013, 3.3 million children participated in the program, at a cost of just under \$3 billion.

Causal Effects of Food Assistance on Food Insecurity

Identifying the effect of these programs on food insecurity among children is complicated by the fact that we cannot know either what the food-insecurity status of eligible nonrecipients would be if they received food assistance or what the food-insecurity status of participants would be if they did not receive food assistance. In addition, when we try to quantify the extent to which food assistance reduces food insecurity, we have to worry about reverse causation, because those who sign up for food-assistance programs are more likely to be food insecure in the first place. For example, in the overall population, the rate of food insecurity among those enrolled in SNAP is twice as high as the rate among eligible nonparticipants. Even when we control for readily observed factors that may also affect food insecurity—age, education, race and ethnicity, and income, for example—the rate of food insecurity among SNAP participants remains higher than that among eligible nonparticipants. Moreover, subjects of national surveys frequently either fail to report their participation in food-assistance programs or underreport the amount of assistance they receive, compounding the evaluation problem.

Many researchers have tried to ascertain how food assistance affects food insecurity, and most of their research has focused on SNAP. Christian Gregory and colleagues recently reviewed the research on SNAP with respect to food insecurity, and also presented new estimates of SNAP's impact.³¹ They note that estimates based on nonexperimental

techniques have diverged widely. Some researchers have reported that SNAP ameliorates food insecurity, and others have said that the program has the perverse effect of exacerbating it. (Studies that say SNAP exacerbates food insecurity tend to implicitly treat families' enrollment in SNAP as randomly distributed; that is, they assume that families don't self-select into the program.) Still other studies have found little or no effect. But when rigorous controls are used to account for reverse causation, the research has suggested that, at the very least, SNAP does not increase food insecurity; in most studies, SNAP participation leads to substantial reductions in food insecurity.³² In their own study, Gregory and colleagues use a "dose-response" model, which examines how a dollar increase in SNAP benefits affects food insecurity. This approach offers more variation beyond the basic comparisons of participants and eligible nonparticipants used in most applications. In their dosage models, Gregory and colleagues tend to find results that are consistent with the theory that there is no plausible reason why receiving SNAP benefits (that is, having more financial resources to purchase food) should lead to a higher probability of food insecurity.³³

Using a dose-response approach, Lucie Schmidt, Lara Shore-Sheppard, and Tara Watson investigated how the level of benefits from various safety net programs (SNAP, TANF, SSI, EITC, and Medicaid)—and the distribution of those benefits among cash, food, and health insurance—affect very low food security among children and low food security among families. A program's effects may depend on the mix of cash and noncash benefits and the degree to which they "crowd out" food-specific benefits. For example, cash assistance is a factor in determining SNAP benefits, so residents of states with more generous cash assistance programs may receive less food assistance. Schmidt, Shore-Sheppard, and Watson find that the median food and cash benefit level of \$3,400 reduces low food security by 16 percent. They find that the same package lowers very low food security among children by 36 percent, though because very low food security is relatively rare, this estimate is less precise.³⁴

In many communities, feeding programs for children are not available during the summer, when school is not in session. This may be one of the reasons that food insecurity among children spikes during the

In most studies, SNAP participation leads to substantial reductions in food insecurity.

summer.³⁵ To see whether providing benefits during the summer months may lead to reductions in food insecurity, the USDA conducted a dose-response experiment in a randomized controlled trial by "topping up" SNAP benefits for one group of children by \$60 per child per month during the summers of 2011, 2012, and 2013; another group of SNAP recipients did not receive this summertime boost.³⁶ Among children receiving the extra \$60 per month, very low food security fell by one-third across the 14-site demonstration.

Brent Kreider, John V. Pepper, and Manan Roy estimated the causal effect of WIC on very low food security among infants and children. They examined the assumptions necessary to decisively conclude that WIC reduces food insecurity, and whether those assumptions are plausible, considering both the problem of reverse causation—food insecure families are more likely to apply for WIC—and the fact that households underreport their use of WIC in surveys. Using data from NHANES, they find that under reasonable assumptions, WIC reduces the prevalence of child food insecurity by one-third and of very low food security by at least two-thirds.³⁷

Finally, Colleen Heflin, Irma Arteaga, and Sara Gable examined how CACFP affects child and family food insecurity. Using data from the ECLS-B, they found that CACFP participation has no association with household or child food insecurity.³⁸

Beyond the Safety Net: Family Coping Strategies for Childhood Hunger

In recent years, scholars have documented strategies that families use as they cope with food insecurity among their children. Prior work on household food insecurity suggested that at-risk families access an array of informal food-assistance programs, such as food banks and pantries, and that they also use other coping mechanisms, such as selling furniture,

pawning possessions, “dumpster diving,” eating food that is past its sell-by date, putting off bills, and spending less on medications or heating and cooling.³⁹

Kathryn Edin and colleagues conducted a qualitative study of 90 randomly selected SNAP households that were part of a larger quantitative SNAP survey on food security.⁴⁰ They found that most of the SNAP families—whether food secure or food insecure—faced financial shortfalls at the end of the month. Rather than earmarking funds to hold in reserve, however, they generally improvised when the shortfall occurred, by, for example, keeping the lights off to lower utility bills, delaying bill payments, moving in with relatives to secure a more regular source of meals for themselves, or working odd jobs to earn extra cash. But there were distinctions in coping strategies between the food secure and food insecure. The least food secure were least likely to have access to family members or a wider social network for cash, groceries, or meals when resources were short and were more likely to share food purchased through SNAP with other household members who were not receiving SNAP.⁴¹ Importantly, the least food secure were also the least skilled at shopping for bargains and using other budgeting strategies to stretch low resources. Similarly, Craig Gundersen and Steven Garasky found that households with better financial management skills were less likely to be food insecure.⁴²

Using qualitative methods, Gregory Mills and Karla Hanson studied about 90 families in two small rural areas and one larger urban area to investigate the factors associated with child food insecurity and compare household strategies for avoiding food shortages.⁴³ They found that households with

The least food secure were least likely to have access to family members or a wider social network for cash, groceries, or meals when resources were short.

food-insecure children had both more risks and more intense risks for child hunger than did households with food-secure children. For example, households with food-insecure children were more likely to be led by single parents, have more children, have complex and fluctuating household composition, experience health problems, and have unpredictable earnings. Households with very low food security among children were particularly stressed, and mothers in such households appeared more depressed than mothers in low-food-secure or food-secure households. Limited evidence suggests that at-risk households with food-secure children more often received government assistance (such as rental assistance, health insurance, and disability payments) and more often used food management techniques (such as planning meals, finding recipes, and cooking from scratch). Faced with food shortages, households with food-insecure children drew heavily on their informal social networks, but, in general, the other members of the households’ social networks also lacked resources.

Policy Considerations

Food insecurity among children remains a stubborn policy challenge for the nation, in part because so many factors can expose children to the risk of hunger. The research reported here has shown that beyond low income, whether transitory or permanent, key factors that predict a child’s food insecurity include the mother’s mental and physical health, as well as her current and past substance abuse; residential instability; living in households without both parents present; living in a household where noncustodial parents make inconsistent or no child support payments; whether it is summertime, when school meals are not offered; and whether the parents are immigrants. At the same time, the most credible evaluations of food-assistance programs such as SNAP, NSLP, and WIC indicate that the programs reduce children’s food insecurity. However, many children are still falling through tears in the safety net. Here we highlight a few possible directions for policy.

Although participation rates in SNAP among children fell in the years immediately following the 1996 welfare reform, they have increased steadily since 2000, due, in part, to concerted outreach efforts by the USDA. Despite this, many children are not

receiving benefits even though they are eligible for assistance, and thus improving take-up rates should be a priority, especially in light of SNAP's proven benefits in reducing food insecurity.

One way to improve take-up rates might be to improve access to the program. The process of applying for and recertifying SNAP benefits varies greatly across the country. Some jurisdictions have office hours only during prime work hours, forcing parents to choose between missing work and wages or failing to enroll in SNAP or recertify. Other jurisdictions let people apply or recertify online, an innovation that may lead to lower transaction costs and increased participation. Some states have also decided to extend the recertification period to combat the sharp drop-off in participation that occurs when households need to recertify. The USDA could reward states that increase participation rates among eligible households.

With school feeding programs, the access problem is different. In the case of the SBP, only about two-thirds of schools offer breakfast. Expanding the breakfast program to more schools would be an obvious step. And neither the NSLP nor the SBP is available when school is not in session. Some communities offer food programs in the summer, typically in community centers in disadvantaged neighborhoods, but the practice is not widespread. The recent USDA demonstration that “topping up” SNAP benefits during the summer can reduce food insecurity offers an efficient, well-targeted option. To get a sense of what it might cost to scale up the demonstration nationwide, we note that in 2012, an estimated 13,730,000 school-age children were participating in SNAP. If SNAP were topped up \$60 per month per child for the three summer months, and if take-up rates of the benefits were 100 percent, then scaling up nationwide would require \$2.5 billion in extra benefits, or about a 3.3 percent increase in outlays. At a more plausible take-up rate of 75 percent, which reflects the results of the demonstration project, the additional outlay would be closer to \$1.88 billion. However, though we generally think of the lack of school feeding programs as a summertime issue, it also spans other periods when there are extended breaks. These include the holiday season, when schools are closed for two or three weeks, and the staggered breaks throughout the year in year-round schools. In this case, outreach efforts such as

Some of the factors that predict children's food insecurity

- *Mother's health*
- *Mother's substance abuse*
- *Residential instability*
- *Living in a household without both parents present*
- *Inconsistent or no child support payments*
- *Summertime*
- *Immigrant parents*

expanded backpack programs (in which food banks send children home with food for the weekend) could help tide children over with food assistance during holiday breaks.

The research showing that a mother's mental and physical health can affect her children's food security raises substantive concerns about families' ability to navigate the welfare system. In some cases, these health challenges are exacerbated by lack of access to mental health services. Enabling access to such services could improve food security, but how to do so is not altogether clear; more research in this area may help identify solutions. Similarly, the finding that children of women who have been treated for substance use are also at heightened risk of food insecurity suggests we should ensure that such women are enrolled in programs such as SNAP and WIC during their treatment (if they are eligible), and that their children are enrolled in school meal programs.

Beyond improving program take-up, policy makers should examine whether the programs' benefit levels are adequate, especially with regard to SNAP. In 2013, the Institute of Medicine released a report that questioned whether SNAP benefits are meeting the needs of families today.⁴⁴ Though benefit levels

have increased over time alongside inflation, the structure of the basic benefit formula has not been updated since the Food Stamp Act of 1977. Among other concerns, the IOM noted several issues:

1. SNAP benefits are fixed across the continental U.S. (though they are higher in Alaska and Hawaii). Because food costs are not uniform across the country, the benefit may fall short in high-cost regions. We note, however, that because the Thrifty Food Plan is the least costly plan established by the USDA to attain a nutritious diet, there is little nutritional justification for cutting benefits in low-cost areas, and thus bumping up benefits in high-cost regions would not be cost neutral.

2. Working people have a slightly lower participation rate in SNAP. The SNAP benefit formula treats earned income (that is, income from paid employment) differently than income from other sources insofar as the net income formula (discussed above) assigns earned income 80% of the value of other income sources. This discounting of earned income encourages work among SNAP-eligible households. But discounting earned income even more might encourage more work among the SNAP population. In addition, doing so would increase SNAP benefit levels among families that often have work-related expenditures (for example, for travel to and from work) that diminish the amount of money and time available for food preparation.

3. Families are expected to contribute almost one-third of their net income to food. This 30-percent rule is tied to the time when the official poverty line was established, in the 1950s, when it was set at three times the economy food plan for a given family size. Families today spend closer to one-seventh of their budgets on food, not one-third as in the 1950s, and so it may be worth revisiting how much cash SNAP households should be expected to contribute toward food purchases.

4. Research has demonstrated that take-up rates fall quickly as the potential benefit declines; thus, even though a family may be eligible for assistance, a low benefit level makes it not worth the trouble to apply. Raising the minimum benefit, currently \$16 per month, could solve this problem. Moreover, this extra benefit might move some households with incomes between 100 percent and 130 percent of the poverty line (that is, the nonpoor food-insecure households discussed above) into food security.

We recognize that these suggestions would increase the total expenditures on SNAP.⁴⁵ But they would likely reduce U.S. food insecurity and its corresponding health problems. Whether these benefits are worth the extra cost via SNAP is something that policy makers need to consider.

What We Still Need to Learn

The existing research on food insecurity gives us an exceptional overview of the food-insecurity landscape in the United States, allowing us to propose new policy directions, some of which were covered in the previous section. However, researchers could pursue many more areas to further our knowledge about food insecurity.⁴⁶

Disability

As we've shown, households with at least one person with a disability are substantially more likely to be food insecure than other households.⁴⁷ But we lack a clear understanding of why. Possible reasons include limitations in accessing food; the amount of time it takes to care for those with disabilities and/or to navigate the challenges associated with one's own disabilities; difficulty getting and holding a job; and higher health-care costs, which take away money that might otherwise be available for food. Moreover, the reasons are likely to differ depending on the type of disability. Thus we should study this problem by type of disability (both physical and mental), including the question of who in the household has a particular disability. Understanding what combination of factors is most likely to produce food insecurity among people with disabilities will help guide policy.

Education

Parents' education influences food insecurity among children, even after controlling for a wide array of other factors, including income. The reasons are not immediately apparent, but they may include the direct effect of having more human capital (that is, more knowledge and experience); a more future-oriented outlook; and the fact that education is a proxy both for other assets (most studies are unable to measure such assets) and for other skills (for example, financial management). If something about more years of schooling per se leads to a lower probability of food insecurity, then policies to increase educational attainment may directly and indirectly reduce food insecurity.

Overlooked people

Studies of food insecurity that use nationally representative data (for example, CPS or SIPP) help us understand most of the U.S. population. However, some groups are overlooked. In particular, people who are homeless or living in marginal housing when surveys are conducted may not be included. Because the causes of food insecurity among these groups may differ from those of the general population—and, hence, the best policy responses may differ—including them and similar households in separate surveys may be worthwhile. Understanding the appropriate policy responses will be especially important insofar as many overlooked groups are likely to have substantially higher food insecurity rates than those of the general population. Moreover, understanding food insecurity and its causes among hard-to-reach groups would give us a better, less-biased picture of food insecurity in the population as a whole.

Linking administrative and survey data

One of the challenges we face in evaluating whether food-assistance programs are effectively combating childhood food insecurity is that respondents in household surveys underreport transfer income, including food-assistance programs such as SNAP and WIC.⁴⁸ One remedy would be to link administrative data on transfer programs, as well as tax data on the EITC, with data sets such as CPS, ACS, PSID, and SIPP. (This would give us better information about income, which is often misreported as well.) However, because SNAP and WIC are administered at the state level, the Census Bureau (or any other survey organization) would have to sign separate agreements with each state to create such linkages. Perhaps states could be given incentives, financial or otherwise, to do so.

Qualitative data

Our understanding of food insecurity in the United States is based mostly on quantitative data sets. Few scholars have used qualitative data (that is, information that can't be expressed numerically) to study the problem, and their work to date has had comparatively little influence on either research or policy.⁴⁹ Yet qualitative research would give us a more complete picture of U.S. food insecurity, and it could establish new perspectives that could then be used in collecting quantitative data. We offer three suggestions regarding qualitative data. First, the types of questions posed and the methods used should mainly tackle issues concerning food insecurity

that quantitative data cannot. Second, the sampling should include both food-secure and food-insecure households. Some work using qualitative data has included only food-insecure households; at least with respect to the causes of food insecurity, such data is of limited use. Third, the research teams who conduct qualitative studies should be interdisciplinary, allowing for a richer set of questions and multiple approaches to interpreting responses. Following these recommendations would yield important information about, among other things, the coping mechanisms that families use when their food resources are exhausted, the precursors to food insecurity (for example, family disruptions), the hurdles people may face when they apply for food assistance and other forms of aid, and how disabilities make it harder to procure and prepare food.

Longer-lasting surveys

To study other problems facing low-income Americans, some surveys have collected information from the same group of people, and in some cases their descendants, for years. In part because the CFISM was developed relatively recently, no surveys that ask about food insecurity have gone on nearly as long. Thus we do not have a good understanding of whether the causes of transitory food insecurity differ from those of longer-term or permanent food insecurity. Following people for longer periods would also let us see more variation in food insecurity and its causes, allowing us to analyze the problem, and potential policy solutions, more effectively.

Children's responses

Recent work has demonstrated that children respond differently than their parents do to questions about their food-insecurity status.⁵⁰ As a consequence, findings about the incidence of food insecurity will differ depending on who answers the questions. One question for future research is whether children's answers suggest different causes of food insecurity. If so, then policy responses may depend on whether the children's or parents' perspective is deemed the most useful one for reducing food insecurity.

The Healthy and Hunger-Free Kids Act of 2010 set in motion a flurry of research on childhood food insecurity to assist our nation's fight against hunger. The research reported here opens new opportunities for further inquiry, as well as for new policy options in that battle.

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