Looking at the Evidence

Addressing U.S. Food Insecurity

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An Overview of the Effectiveness of Various Approaches to Addressing Food Insecurity in the United States

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Introduction

Food insecurity is a serious challenge facing millions of Americans. In 2011, for example, 14.9 percent of Americans (50.1 million persons) were food insecure, meaning that they were uncertain of having, or unable to acquire, enough food because they had insufficient money or other resources (Coleman-Jensen et al., 2012). And, over one-third of those households experienced a more serious level of food insecurity termed "very low food security." These rates have soared to unprecedented levels, having increased by more than one-third since 2007.

The prevalence of food insecurity is of great concern, and is heightened by its many demonstrated negative health consequences. Due in large part to food insecurity's status as an important and high-profile nutrition-related public health issue in the United States today, a vast body of literature has emerged on the topic. In this report, I use numerous insights drawn from this literature to demonstrate how foundations, food banks, policymakers, program administrators and advocates can articulate various strategies that can be used to alleviate food insecurity.

The structure of this report is as follows. I begin with an overview of food insecurity in the U.S. As part of this, I discuss how food insecurity is defined in the U.S., the extent of food insecurity and the negative health and other consequences associated with food insecurity. This section concludes with coverage of the determinants of food insecurity. As concluded there, many of the determinants are unlikely to be influenced by policies or direct action, at least in the near term.

There are other determinants of food insecurity, though, that can be influenced through policies and/or direct actions. Not only can they be influenced, but the literature has

demonstrated that addressing these determinants can lead to a substantial decline in food insecurity.

I consider each of these in some detail. Namely, I consider how participation in the Supplemental Nutrition Assistance Program (SNAP), formerly known as the Food Stamp program; participation in the National School Lunch Program (NSLP); use of emergency food assistance programs; lowering food prices; and improving financial management skills can all lead to reductions in food insecurity.

In my concluding remarks for each of these, I consider policies and/or actions by foundations, food banks and advocates that can help ensure that these factors are implemented. The report ends by pointing out some avenues of future research that may grant us new insights to alleviating food insecurity in the United States, followed by some summary remarks.

An Overview of Food Insecurity in the United States

Defining Food Insecurity

A series of questions designed to measure food insecurity debuted in the Current Population Survey (CPS) in 1996. After some modifications, the official set of 18 questions used to measure food insecurity in the United States was established as the Core Food Security Module (CFSM). The measure is based on a set of 18 questions for households with children, and a subset of 10 of these 18 questions for households without children.

Some of the questions people asked included: “Did you worry food would run out before you had money to buy more? (the least severe item); “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?”; “Were you ever hungry but did not eat because you couldn’t afford enough food?”; and

"Did a child in the household ever not eat for a full day because you couldn't afford enough food?" (the most severe item for households with children). A complete list of questions is provided in Table 1.[1]

Each of the questions on the CFSM is qualified by the proviso that the conditions are due to financial constraints. As a consequence, persons who have reduced food intake due to, say, fasting for religious purposes or dieting, should not respond affirmatively to these questions.

Using the CFSM's 18 questions, the USDA delineates households into food insecurity categories. The idea underlying the use of multiple questions is that no single question can accurately portray the concept of food insecurity. The number of affirmative responses is held to reflect the level of food hardship experienced by the family. Based on the number of affirmative responses, the following thresholds are established: (a) food security (defined as cases in which all household members had access at all times to enough food for an active, healthy life); (b) low food security (cases in which at least some household members were uncertain of having, or unable to acquire, enough food because they had insufficient money and other resources for food); and (c) very low food security (cases in which one or more household members were hungry, at least some time during the year, because they couldn't afford enough food).[2]

Categories (b) and (c) are often combined into the category of "food insecure." Households responding affirmatively to two or fewer questions are classified as "food secure." Those responding affirmatively to three to seven questions are classified as "food insecure without hunger" (three to five questions for households without children), and those responding affirmatively to eight or more questions are classified as "very low food secure" (six or more for

[1] For more on the development of the CFSM, see Hamilton et al., 1997, especially chapter 2.
[2] In some surveys, a six-item scale is used in lieu of the 18-item scale. When this scale is used, a household is said to be "food secure" if one or zero questions are affirmed, "low food secure" if 2 to 4 questions are affirmed and "very low food secure" if 5 or 6 questions are affirmed.

households without children). Consistent with the language employed in the literature, a household responding affirmatively to three or more questions is identified as "food insecure." One should note that all households defined as very low food secure are also food insecure, but the converse is not true.

Two other sets of food security categories have been established by researchers. The first is "marginal food insecure," which includes all households that respond affirmatively to one or more of the questions. This is in contrast to the usual definition of food security described above, whereby households responding affirmatively to one or two questions are defined as food secure. One justification for this measure is that marginally food insecure households often appear more similar to food insecure households with respect to health outcomes and other characteristics (for example, income), than to food secure households further from the margin.

The second set of food insecurity questions is defined with respect to children in a household. As a consequence, only the eight child-specific questions (the set of 18 questions that refer to the children in the household) are used. Under this set, a household is said to be "child food insecure" if two or more questions are answered affirmatively, and "very low child food secure" if five or more questions are answered affirmatively. (For a discussion of the child food insecurity measures, see for example, Nord and Hopwood, 2007.)[3]

[3] In this report I concentrate on research using binary measures of food insecurity (e.g., food secure versus food insecure). Continuous measures have also been used in this literature, including a series of food insecurity measures based on the Foster Greer Thorbecke class of poverty measures developed in Dutta and Gundersen (2007) and applied empirically in, e.g., Gundersen (2008).

The Extent of Food Insecurity

I now turn to food insecurity trends for the United States from 2001 to 2010 based on the most recent available data from the CPS. Specifically, these data come from the 2001-2010 December supplements, a monthly survey of approximately 50,000 households. The CPS represents the official data source for poverty and unemployment rates and food insecurity rates for the United States, which are calculated using the CFSM component. The discussion here only uses data available since 2001 to avoid issues of seasonality and changes in the screening questions.[4]

Figure 1 displays the proportion of all households that are food insecure and very low food secure. From 2001 to 2007, the food insecurity rate remained relatively steady at about 11 percent, with very low food security rates ranging from 3 to 4 percent. These rates increased dramatically in 2008. The food insecurity category increased more than 30 percent (from 11.1 percent to 14.6 percent), while for the very low food security category, rates rose by almost 40 percent (from 4.1 percent to 5.7 percent).

Rates of food insecurity remained high in 2009 and 2010. This increase, which is unprecedented since food insecurity was first measured, and continued high rates presumably reflect the economic recession and its lingering effects (for a discussion of the macroeconomic determinants of food insecurity, see Gundersen et al., 2011a).

Even during better economic conditions, there was still a high percentage of Americans who were food insecure. As seen in Figure 1, food insecurity rates never fell below 10 percent, despite strong economic conditions throughout most of the 2001-2010 time period.

[4] The numbers are drawn from tables 1A and 1B in Coleman-Jensen et al., 2012.

Figure 2 shows similar trends in the proportions of children living in food insecure households, food insecure children and very low food secure children. (Note that Figure 1 is based on households rather than individuals, whereas Figure 2 is based on children.) As in Figure 1, the rates remained relatively static from 2001 to 2007. The proportion of children in food insecure households ranged from 16.9 percent to 19.0 percent; the proportion of food insecure children from 9.1 percent to 10.7 percent, and the proportion of very low food secure children was always under 1 percent.

Consistent with what occurred for the full population, in 2008 there were increases of over 30 percent in children living in food insecure households and food insecure children, and an over 60 percent increase in the number of very low food secure children. These levels remained high in 2009, with slight declines in 2010.

Consequences of food insecurity

The consequences of food insecurity are numerous and occur across the age spectrum. An extensive body of literature has found that food insecurity is associated with a wide range of negative health outcomes. Food insecurity during pregnancy is associated with higher risks of some birth defects (Carmichael et al., 2007). Households suffering from food insecurity are more likely to have children who suffer from anemia (Eicher-Miller et al., 2009; Skaliky et al., 2006); lower nutrient intakes (Cook et al., 2004); greater cognitive problems (Howard, 2011); higher levels of aggression and anxiety (Whitaker et al., 2006); higher probabilities of being hospitalized (Cook et al., 2006); poor general health (Cook et al., 2006); higher probabilities of dysthymia and other mental health issues (Alaimo et al., 2002); higher probabilities of asthma

(Kirpatrick et al., 2010); higher probabilities of behavioral problems (Huang et al., 2010); and more instances of oral health problems (Muirhead et al., 2009).

Households suffering from food insecurity are more likely to have adults who have lower nutrient intakes (Kirkpatrick and Tarasuk, 2007; McIntyre et al., 2003); greater probabilities of mental health problems (Heflin et al., 2005); long-term physical health problems (Tarasuk, 2001); higher levels of depression (Whitaker et al., 2006); diabetes (Seligman et al., 2007); higher levels of chronic disease (Seligman et al., 2009); and lower scores on physical and mental health exams (Stuff et al., 2004).

Food insecure seniors have lower nutrient intakes (Lee and Frongillo, 2001a; Ziliak et al., 2008); are more likely to be in poor or fair health (Lee and Frongillo, 2001a; Ziliak et al., 2008); and are more likely to have limitations in activities of daily living (ADL) (Ziliak et al., 2008).

The Determinants of Food Insecurity

The literature has established numerous socioeconomic and demographic factors associated with food insecurity in the United States. For example, as seen in Coleman-Jensen et al., (2012), households headed by an African American, Hispanic, a never-married person, a divorced or separated person, a renter, younger persons and less educated persons are all more likely to be food insecure than their respective counterparts. In addition, households with children are more likely to be food insecure than households without children.

Research using multivariate methods has generally found that, even after controlling for other factors, these characteristics are either positively associated with food insecurity or are statistically insignificant. This general set of findings holds whether the sample is all households, households with children or households without children.

These findings have used data from each of the nationally representative data sets, which include the CFSM (or the full or portions of the six-item scale); the CPS; Panel Study of Income Dynamics (PSID); the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B); the Early Childhood Longitudinal Study – Kindergarten Cohort (ECLS-K); the Survey of Income and Program Participation (SIPP); the Three City Study (TCS); and the National Health and Nutrition Examination Survey (NHANES). Along with these datasets, a series of other smaller-scale datasets that are based on limited geographic areas have been used in these studies.

Along with all of these factors, perhaps the most important are the resources available to a household. The relationship between food insecurity and income (normalized by the poverty line) can be found in Figure 3.[5] The figure is based on all observations in the 2010 December Supplement of the CPS with incomes between 0 and 400 percent of the poverty line. (The two solid vertical lines indicate the income thresholds for SNAP and NSLP, as discussed below.)

There are three main things to notice about this figure. First, the probability of food insecurity declines with income, and the decline is more marked for food insecurity than for very low food security. Second, that poverty is not synonymous with food insecurity, and is reflected in the high proportions of households that are food secure and poor. For example, about 65 percent of households close to the poverty line are food secure. Third, conversely, a non-trivial portion of households with incomes above the poverty line are food insecure: As the income-to-poverty ratio approaches two, food insecurity rates are slightly over 20 percent. Even as the ratio approaches three, food insecurity rates hover around 10 percent.

[5] This is a nonparametric representation with a bandwidth of 0.6. See Fox (2000) for details on the estimation methods.

The inverse relationship between income and food insecurity is not surprising. What is surprising, perhaps, is the large number of poor households that are food secure and the large number of non-poor households that are food insecure.

One conjecture for why these households are food insecure is that current income (that is, what is observed in datasets like the CPS) does not adequately portray the ability of families to avoid food insecurity. Using a sample of households from the Survey of Income and Program Participation with current incomes below 200 percent of the poverty line taken, Gundersen and Gruber (2001) find that average household income over a two-year period is a better predictor of whether a household is food insecure than current income. In addition, they found that households without any liquid assets are substantially more likely to be food insecure than those with liquid assets.

Using a larger number of years and combining information from the SIPP with the Survey of Program Dynamics (SPD), Ribar and Hamrick (2003) analyzed the dynamics of poverty and food insecurity. These authors found that assets were protective against food insecurity for poor households, and that income volatility is associated with food insecurity.

Finally, using data from the 2001 SIPP, Leete and Bania (2010) demonstrate that liquidity-constrained households are more likely to be food insecure than unconstrained households. They also found that negative income shocks, but not positive income shocks, lead to increased probabilities of food insecurity.

Using food insecurity (FI) data aggregated to the state level, Gundersen et al., (2011) further examined the role of economic factors beyond individual income. Using data from combined cross sections from the 2001-2009 CPS, the authors find that the elasticity of the food insecurity rate with respect to the unemployment rate is greater than the elasticity with respect to

the poverty rate. Since many unemployed persons are not poor, this is further evidence of why information beyond poverty status is relevant for understanding food insecurity. Earlier work looking at state-level determinants using different methods and a shorter time horizon includes Bartfeld and Dunifon, 2006.

Alleviating food insecurity

The previous discussion entailed looking at factors influencing food insecurity that are unlikely to be influenced, especially in the near-term by foundations, food banks and advocates. In contrast, I now consider the determinants of food insecurity that can be influenced by public policies and through direct actions that can be taken by foundations, food banks and advocates. These factors not only can be influenced by public policies and direct actions, but they also have a profound impact on food insecurity in the U.S.

1. Encourage Participation in Supplemental Nutrition Assistance Program (SNAP)

Background on the Supplemental Nutrition Assistance Program:

The Supplemental Nutrition Assistance Program (SNAP, formerly known as the Food Stamp Program) is by far the largest U.S. food assistance program.[6] Participants receive benefits, distributed via an Electronic Benefit Transfer (EBT) card, for the purchase of food in authorized retail food outlets. The level of benefits received by a household is determined by income level and family size. SNAP, with a few exceptions, is available to all families and individuals who meet income and, in some states, asset tests.

[6] While SNAP is funded at the federal level, states pay half of the administrative costs of the program, with the federal government paying the other half.

The program is large, both in terms of benefit size and in the number of people served. In 2010, the average monthly benefit was $288/month for a family of four, with the maximum benefit for a family of this size being $668. These benefits can represent a substantial component of low-income households' total income. In terms of the number of people served, the program reached about 40.3 million individuals in each month of 2010, with an annual benefit distribution of about $68.3 billion.

To receive SNAP, households must meet a gross-income test, a net-income test and an asset test. In the majority of cases, the eligibility criteria are as follows. First, a household's gross income before taxes in the previous month cannot exceed 130 percent of the poverty line. In recent years, though, some states have received permission to set this at a higher threshold.

Second, net monthly income must be below the poverty line. Net income is calculated by subtracting a standard deduction from a household's gross income. In addition to this standard deduction, households with labor earnings deduct 20 percent of those earnings from their gross income. Deductions are also taken for child care and/or care for disabled dependents, medical expenses and excessive shelter expenses. One should note that while most everyone who meets the gross income criterion of being below 130 percent of the poverty line, many of those who meet higher state-specific gross income thresholds are not eligible under the net income criterion.

Third, the federal guidelines stipulate that assets must be less than $2,000. About 80 percent of states, however, have received waivers to the asset test. In those states, there are no limits to asset levels.

The amount of SNAP benefits received depends on net income. Households with a net income of zero receive the maximum benefit. As noted above, for a family of four in 2011 this

amounted to $668. As income increases, the benefit declines: for every additional dollar of income, the amount of SNAP benefits is reduced by 30 cents (except income that comes in the form of earnings, in which case the reduction is 24 cents).

Despite the potentially large benefit levels, a large fraction of households eligible for SNAP do not participate. The most recently calculated food stamp participation data show that about 72 percent of eligible people in the United States received SNAP benefits in 2009 (Leftin et al., 2011).

The decision to not participate is often ascribed to three main factors. First, there may be a stigma associated with receiving SNAP, ranging from a person's own distaste for receiving food stamps to the fear of disapproval from others when redeeming food stamps, to the possible negative reaction of caseworkers (Ranney and Kushman, 1987; Moffitt, 1983). In recent years, the stigma attached to being overweight in the United States has led many potential recipients to not participate lest observers criticize them.

Second, transaction costs can diminish the attractiveness of SNAP participation. Examples of such costs include travel time to a SNAP office and time spent in the office, the burden of transporting children to the office or paying for child care services and the direct costs of transportation. A household faces these costs on a repeated basis when it must recertify its eligibility. As seen in, for example, Klerman and Danielson, (2011), states with shorter recertification periods have lower caseloads, all else equal. Information costs – including overcoming language barriers and gaining understanding about the validity of immigration consequences – are included under transaction costs. Third, the benefit level can be quite small – for some families as low as $17 a month.

Effect of SNAP on food insecurity

As noted above, the central goal of SNAP is the reduction in food insecurity. Of concern then, is that rates of food insecurity among recipients are about double the rates among eligible non-recipients (Coleman-Jensen et al., 2012). These higher rates remain even after controlling for observed factors (for example, Gundersen et al., 2009). This is a counterintuitive result, both from a theoretical standpoint (It is difficult to see how shifting out the budget constraint can lead to an increase in food insecurity), and from an empirical standpoint (see Figure 3 above).

This counterintuitive result is presumably due to the fact that participation in SNAP is likely to be endogenous, and that SNAP recipients are likely to differ from non-recipients across unobserved factors that contribute to their higher probability of food insecurity. This is the so-called "selection effect."

Using sophisticated econometric techniques, Kreider et al., (forthcoming) addresses this selection effect. In this work, they consider the following comparison: What would the food insecurity rate be if all eligible households with children received SNAP, and what would the food insecurity rate be if no eligible households with children received SNAP? They then take the difference between these two estimates to arrive at what is known as the average treatment effect (ATE). In the case where there is assumed to be no measurement error[7], they find that SNAP participants in comparison to non-participants are between 14.9 percentage points and 36.6 percentage points less likely to be food insecure. Their results are broadly consistent with recent work on this topic, which I will now briefly review.

[7] As covered in Bollinger and David, (1997, 1999), misreporting of SNAP participation is also an issue. To make the results comparable to previous work in this area, which, except for Gundersen and Kreider (2008) has ignored measurement error, I consider the results without measurement error.

In a study using a data set that does not include the full set of questions from the CFSM but instead includes more severe questions from the CFSM, DePolt et al., (2009) finds that SNAP participants with benefit levels up to $300, in comparison to eligible non-participants[8], are 3.9 percent less likely to report having to cut back on the size of meals; 1.9 percent less likely to have adults who go without food for a full day; and 1.4 percent less likely to have reported losing weight due to lack of food. A comparison of SNAP recipients who had received SNAP for five or more consecutive months in comparison to non-recipients yielded declines of 7.3 percent, 3.6 percent and 2.8 percent respectively.

Mykerezi and Mills, (2010) looked at the proportion decline in the extent of food insecurity rather than at the incidence of food insecurity. (In contrast, other work has used binary comparisons.) In a sample composed of households with and without children, they find that SNAP participation leads to a 28 percent reduction in the magnitude of food insecurity. Nord and Golla, (2009) examined what happens to entrants into SNAP after they have been on the program for more than one month. They find a large decline – a 33 percent decline in the probability of very low food security.

Along with alleviating food insecurity, other advantages of SNAP for low-income households should be acknowledged. In particular, SNAP leads to reductions in poverty. A recent analysis by Tiehen et al., (2012) shows that, once SNAP benefits are included in the measure of income, the extent of poverty in the United States declines markedly. For the poverty rate (i.e., the number of persons who are poor divided by the total number of persons), there was

[8] Defining who is eligible for SNAP within a dataset is not always straightforward, insofar as some households are seemingly ineligible based on information collected within a dataset and vice versa. Further complicating things is that most datasets do not contain all the necessary information to decide who is eligible. In the discussion here, I concentrate on results for studies in which the eligible population can be plausibly defined.

an average decline of 4.4 percent in the prevalence of poverty due to SNAP benefits over the time period of 2000-2009.

The effects of SNAP are even stronger once one considers the depth and severity of poverty – two poverty measures that consider both whether a person is poor, but also how far they are below the poverty line. The average decline in the depth and severity of poverty was 10.3 and 13.2 percent, respectively, once SNAP benefits are included.

The effects of SNAP on child poverty are even larger. For example, these benefits reduced the depth of child poverty by an average of 15.5 percent, and the severity of child poverty by an average of 21.3 percent.

Enhancing the Role of SNAP

In light of the demonstrated positive impact of SNAP on food insecurity, there are a few ways that its role can be further enhanced. I consider six of these here.

First, the current structure of SNAP reduces the prevalence of food insecurity, and insofar as this is its central goal, it is quite successful as a program. This should be kept in mind as reconstructions of SNAP are being proposed. In particular, some have proposed changes to the structure of SNAP with respect to what types of food should be available for purchase. While these proposals have the goal of enhancing nutrition among SNAP participants, the effectiveness of the program as a whole could be compromised if more restricted food options discourage participation and lead to subsequent increases in food insecurity.

Since SNAP has an explicit goal of alleviating food insecurity and is considered the leading program in the fight against hunger, proposals to modify the program should carefully

weigh the consequences. Chief among these consequences is the increase in food insecurity rates in the U.S. That would occur if purchases were restricted.

Second, the negative health outcomes associated with food insecurity have been well-established. (Please see the discussion above.) Alongside the direct benefits associated with reducing food insecurity (for example, as a society, we wish to avoid having children go to bed hungry due to economic constraints), potential reductions in medical expenditures should be incorporated into relevant benefit-cost considerations of programs like SNAP. In particular, whenever cutbacks in SNAP are considered, one should point out that any possible cost-savings may be outweighed by the increase in medical care and other costs associated with the increase in food insecurity that would follow when SNAP benefits are reduced. Moreover, given that SNAP leads to reductions in obesity, improvements in general health and other benefits, the costs associated with cutbacks in SNAP are even larger.

Third, along with ensuring the continuing structure and pointing out the benefits of SNAP, enabling higher participation rates in SNAP continues to be important. This can be done indirectly through the encouragement of policies that reduce the transaction costs associated with applying for and recertifying for SNAP benefits. It can also be done through food banks' efforts to enroll eligible households in the program.

Fourth, helping to remove the stigma associated with being a SNAP recipient is also important. An increased source of stigma is associated with weight status. Unfortunately, there is anecdotal evidence that some Americans believe that SNAP should not be available to those who are overweight. Or, at the very least, some SNAP recipients perceive this as a perception. As a consequence, persons who are overweight may feel stigmatized, especially when making purchases using SNAP benefits.

As a society, we should strive to become kinder to those who struggle with their weight and reduce the unhealthy obsession some have regarding weight status. A side benefit to this would be to reduce the stigma associated with using SNAP.

Fifth, while SNAP does help reduce food insecurity among those who are eligible, it is worth noting that millions of food insecure Americans are ineligible for SNAP. (See the discussion of figure 3 above.) In addition, those with incomes above 185 percent of the poverty line are ineligible for other food assistance programs.

So, along with the issue of non-participation of eligible families, many of whom are food insecure, there is the issue of ineligible food insecure families who would presumably benefit from participation in SNAP and similar programs. This further points to the importance of food banks. They serve as the only source of food assistance to the households that are ineligible for SNAP and other federal food assistance programs.

Sixth, the level of benefits for many SNAP households is still insufficient to raise them into food security status. This can be seen in Figure 4 where the per-capita dollar amount needed by food insecure households to be food secure is compared by year for SNAP recipients and SNAP-eligible non-recipients. (See Feeding America, (2011) and Gundersen and Ribar, (2011) for more on this measure of need.) As seen there, in every year food insecure SNAP recipients report needing more resources to be food secure. This is one reflection that, despite raising many participants out of food insecurity, some SNAP recipients still need additional resources to be food secure.

2. Recognize Importance of National School Lunch Program

Background on the National School Lunch Program:

The National School Lunch Program (NSLP) is a federally assisted meal program that operates in over 101,000 public and non-profit private schools and residential child care institutions, and provides nutritionally balanced, low-cost or free lunches to children each school day. In 2010, over 31 million students participated in NSLP. Of these, over half received free lunches, and about one-tenth received reduced-price lunches. In addition to any commodities the schools received, cash payments to schools for the NSLP in 2010 exceeded $10 billion.

Generally, public and non-profit private schools and residential child care institutions may participate in the NSLP. School districts and independent schools that choose to participate in the lunch program receive cash subsidies and donated commodities from the USDA for each meal they serve. In return, the districts must serve lunches that meet federal requirements: Providing no more than 30 percent of a student's calories from fat; less than 10 percent from saturated fat; and at least one-third of the RDAs of protein, vitamin A, vitamin C, iron, calcium and calories.

School districts must offer free or reduced-price lunches to eligible children. In addition, school food authorities can also be reimbursed for snacks served to children through the age of 18 years in after-school educational or enrichment programs.

Eligibility for the NSLP begins at the individual level. Any child at a participating school may purchase a meal through the NSLP. Children who are home-schooled or no longer attend school are not eligible. Among children in these schools, families with incomes at or below 130 percent of the poverty level are eligible for free meals. Children living in a household with an

income between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals, which are not allowed to cost more than 40 cents.

Effect of the NSLP on Food Insecurity

Relatively few studies examine the impact of the NSLP on food insecurity. Nord and Kantor, (2006), for example, provide indirect evidence of the importance of the NSLP in alleviating food insecurity. A central difference between the summer and the rest of the school year is that children do not participate in school meal programs during the summer. Prior to 2001, the month in which the CFSM was placed in the CPS, this varied from year to year. Using this variation, they established that food insecurity rates are higher for school-age children during the summer months.

Gundersen et al., (2012) directly estimates the effects of the NSLP. Like SNAP, food insecurity rates are substantially higher among participants than among nonparticipants – 39.9 percent versus 26.3 percent. Also like SNAP, it seems implausible that providing children an extra meal each day would lead to higher probabilities of food insecurity.

Assessing the true effects of the NSLP is made difficult, however, due to two fundamental identification problems. First, children receiving free or reduced-price meals are likely to differ from eligible non-participants in ways that are not observed in the data. Second, the association between participation in the NSLP and food insecurity may be, at least partly, an artifact of household misreporting of program participation. Meyer et al., (2009), for example, finds evidence of aggregate underreporting rates of 45 percent in the CPS and 27 percent in the PSID.

Using methods similar to those used in their analyses of SNAP, Gundersen et al., (2012) compared a case where all eligible children received a free or reduced-price lunch through SNAP and a case where no eligible children received a free or reduced-price lunch. They find that participants are between 2.3 and 9.0 percentage points less likely to be food insecure.

Unlike the literature for SNAP and the NSLP, there has not been work addressing selection issues and/or measurement error issues in the context of the effects of other food assistance programs on food insecurity. In particular, there has not been work looking at WIC and the School Breakfast Program (SBP)[9]. While these programs are significantly smaller than SNAP, their impacts could be comparable per recipient. [10]

Enhancing the Role of the NSLP

I now turn to two ways that the role of NSLP and, more broadly, lunches for low-income children can be enhanced. The first is regarding policies. The above work demonstrates that the NSLP reduces food insecurity, even though it is not explicitly designed for that purpose. While the program focuses on specific nutritional objectives, policymakers contemplating proposals to modify the program should keep in mind its potential to alleviate food insecurity.

As for the case of SNAP, proposals to modify the NSLP should consider the possibility that changes in the program could have the unintended effect of increasing the prevalence of food insecurity by discouraging participation in the program. As always, policymakers should carefully weigh all anticipated benefits and costs.

[9] Work that doesn't address these issues but is suggestive that SBP leads to reductions in food insecurity can be found in Bartfeld and Ahn, (2011). Similarly, Metallinos-Katsaras et al., (2011) provides preliminary evidence that WIC may be associated with reductions in food insecurity.

[10] There has also not been much research on the effects of other social safety net programs such as unemployment insurance and in-kind programs such as Medicaid and housing assistance. DePolt et al., (2009) is an example of a study examining the impact of TANF, a cash assistance program. The authors find that while SNAP leads to reductions in food insecurity, TANF does not have an impact.

The second topic worth considering is how lunches can be provided to school-age children when school is not in session, and in particular, over the summer. As discussed above, research has found that food insecurity increases among children over the summer months. In addition, food pantries and other sources of emergency food assistance often report increased need over the summer.

There are federal government programs that do provide food assistance to children over the summer. Chief among these is the Summer Food Service Program (http://www.summerfood.usda.gov/). This program is administered by the USDA and meals, funded by the USDA, are distributed through various community organizations that sponsor sites. In "open" areas where the majority of children are below 185 percent of the poverty line, all children are eligible to participate. In "enrolled" or "camp" areas, meals can be provided to all participants in, say a camp, if at least half of the children have incomes below 185 percent of the poverty line.

Encouraging sufficient funding for this program, along with increasing awareness of the program among eligible children, would certainly help to alleviate food insecurity. As of now, these programs serve only about 2 million children – far below the approximately 17 million children who receive free or reduced-price meals through the NSLP. Along with these summer food programs, food banks have set up their own programs to ensure that children have enough food to eat over the summer.

3. Importance of Food Banks

Along with public food assistance programs like SNAP and the NSLP, there is a substantial private food assistance network in the United States. This network is overseen by Feeding America, which is comprised of 201 food banks (approximately 80 percent of all the food banks in the United States), and the tens of thousands of agencies they serve. These food banks receive food directly from major food companies, grocery stores, restaurants, commodity exchanges, individual donors, as well as food purchased with donations. Food is distributed through emergency food pantries that distribute non-prepared foods and other grocery products; emergency soup kitchens that provide prepared meals that are served on-site; and emergency shelters that provide residential shelter on a short-term basis and serve one or more meals per day. The Feeding America system served an estimated 37 million people in 2009 (Mabli et al., 2010).

There have not been studies explicitly analyzing the effects of the receipt of emergency food assistance on food insecurity. This lack of studies is due to a number of factors. Chief among them is that there is not a dataset that has information from both non-recipients and recipients on emergency food assistance receipt.[11] Using the work in Kreider et al., (forthcoming) and Gundersen, et al. (2011), along with information from Mabli et al. (2010), one can establish an approximate measure of the impact of emergency food assistance receipt on food insecurity.

For this, I proceed as follows. First, I make the same assumptions as in Kreider et al. (forthcoming) and Gundersen et al. (2012). In particular, I assume that receipt of emergency food assistance cannot make someone more food insecure; that persons who receive emergency food

[11] Information on emergency food assistance receipt is collected in the December Supplement of the CPS. However, the proportion of respondents reporting receipt of emergency food assistance is far below the number of persons reporting receipt in the Hunger in America study conducted by Feeding America.

assistance benefits are more likely to be food insecure independent of their receipt of benefits; and that persons with higher incomes are less likely to be food insecure.[12] These all seem to be acceptable assumptions. For example, it is difficult to think of cases whereby getting more food would make someone more likely to be food insecure. Second, I assume that the average amount of emergency food assistance received per month for those with incomes below the poverty line (i.e., those who would likely be eligible for SNAP and NSLP) is valued, conservatively, at roughly $50.

This assumption is derived as follows using information from Mabli et al. (2010). The average number of boxes or bags of food distributed in a typical week through food pantries is 143, and there are 33,493 food pantries. This implies, on a monthly basis, that there are 19,157,996 boxes or bags distributed per month. On average, there are 6,500,000 pantry visits by households per month. Of these, 79 percent have incomes below the poverty line. This means that the average number of boxes or bags received for someone with an income below the poverty line is 3.74. If each bag is worth roughly $15, this then yields a monthly value of roughly $50.

The value of emergency food assistance is then roughly one-sixth of the average SNAP benefit level of roughly $300. Insofar as discussed above, the range of decline in food insecurity due to receipt of SNAP found in Kreider et al., (forthcoming) is between 14.9 and 36.6 percentage points. One can then establish that the range of impact is one-sixth of this, or 2.5 to 6.1 percentage points.

Alternatively, one can compare the receipt of emergency food assistance programs to the receipt of NSLP. Insofar as the value of NSLP is roughly the same as the value of the average

[12] Technically, these are the Monotone Treatment Response (MTR), Monotone Treatment Selection (MTS) and Monotone Instrumental Variable assumptions.

emergency food assistance benefit, one can estimate the range of the effect of emergency food assistance as being between 2.3 and 9.0 percentage points. What is interesting is that the lower-bound estimate is quite similar in the two cases.[13]

Before turning to the implications of the provision of emergency food assistance, three points are worth raising. First, it should be emphasized that the above are just rough estimates. At some point, a formal evaluation of the impact of emergency food assistance programs should be done.[14] Second, the work for SNAP and NSLP, and its application here, compares participation versus non-participation rather than, say, the effects of different levels of benefits. In future work, it may be worthwhile to consider the effect of different levels of emergency food assistance on food insecurity.

Third, along with binary considerations of participation, this work also considers binary outcomes – food insecure versus food secure. In future work, continuous outcomes could be considered, such as those found in Gundersen, (2008). This may be especially relevant for considerations of the effect of emergency food assistance programs, insofar as they may also be successful at reducing the extent of food insecurity among those who are not raised into food security status.[15]

[13] As emphasized above, this is a rough estimate of the effect of emergency food assistance programs on food insecurity. There are two reasons why these estimates may overstate the effect of food banks on food insecurity. (Below we discuss two reasons why the effect may be understated.) First, the assumption that emergency food assistance benefits are one-sixth the size of SNAP benefits may be too high. A recent study for Texas found that the value of food from food pantries was about $1/14^{th}$ the size of SNAP benefits. Second, the extent of choice for food at, say, a food pantry can be limited. In contrast, the choice of food for SNAP beneficiaries is not restricted. This may lead to some of the food from a food pantry not being utilized by a household.

[14] However, at this time, given the structure of nationally representative datasets, it is difficult to see how this work could be done.

[15] The econometric framework needed to address the issues posed in the second two points has not yet been developed such that they can be applied to the approaches used in Kreider et al., (forthcoming) and Gundersen et al., (2011).

Enhancing the Role of Food Banks

The work presented here demonstrates that, based on reasonable assumptions, emergency food assistance programs lead to reductions in food insecurity. Moreover, even if one finds the results estimated above as implausibly large or small, it is difficult to construct a case for why emergency food assistance programs would lead to an increase in food insecurity. The general finding that emergency food assistance programs plausibly lead to reductions in food insecurity has two main implications for these programs. First, it demonstrates that those providing time, talent and treasure to the network of food pantries across the country are helping to alleviate food insecurity. Without these contributions, the extent of food insecurity in the United States would be higher than it is today. Second, it demonstrates the importance of continued funding for The Emergency Food Assistance Program *(*TEFAP). While food banks receive money from many different sources, TEFAP is a large component of the food distributed by food banks through its system of pantries. Cutbacks in TEFAP or non-increases in funding in times of need can therefore lead to increases in food insecurity in the United States.

Along with the discussed direct effect of food banks on food insecurity, these entities have assumed a larger role in encouraging participation in SNAP. This can be done through many avenues, including helping food pantry users apply for SNAP and providing information about how to apply for SNAP. Since food pantry users are highly likely to be food insecure or in danger of being food insecure, these SNAP outreach efforts are particularly useful.

4. Importance of Low Food Prices

The previous three sections have demonstrated that directly increasing the purchasing power of households can help reduce their food insecurity status. In other words, they help move

persons to the right in the curves found in Figure 3. I now turn to the first of two methods that can be used to help persons become food secure, even if there is no change in the resources available to purchase food. In other words, shifting the curves down in Figure 3.

In the development economics literature, there has been extensive research on the influence of food prices on well-being (see, for example, Ivanic and Martin, 2008). While the proportion of total expenditures spent on food among low-income Americans is substantially lower, on average, than in developing countries, food prices may still make a significant difference. There exists an enormous amount of variation in food prices across the United States. (For a description of this variation at the county level, see the maps at http://feedingamerica.org/hunger-in-america/hunger-studies/map-the-meal-gap.aspx).

A report by Feeding America (2011) shows at least some correlation between food prices and food insecurity at a county level: 44 counties in the United States are in the top 10 percent of food prices and food insecurity rates. In addition, research by, for example, Beatty (2010) and Broda et al. (2009) has found that food prices have an influence on the well-being of low-income consumers in developed countries.

The first paper (to my knowledge) that has explicitly addressed the influence of food prices on food insecurity is Gregory and Coleman-Jensen (2012). They consider the following question: What is the effect of the price of the Thrifty Food Plan (TFP)[16] on food insecurity among SNAP recipients? To answer this question, they use data from the CPS and the Quarterly Food-At-Home Price Database (QFAHPD), along with the appropriate econometric technique to address selection into SNAP.

[16] The Thrifty Food Plan (TFP) is a representative healthful and minimal-cost meal plan that shows how a nutritious diet may be achieved with limited resources. It is used to set the maximum value of SNAP benefits. For more on the TFP see Carlson et al. (2007).

They find that a SNAP recipient living in an area with a $10 higher cost of the TFP has a 2.4 percentage point higher probability of adult food insecurity and a 3.7 percentage point higher probability of child food insecurity. These correspond to 8.4 percent and 15.9 percent increases in food insecurity, respectively. Needless to say, these effects are large. While their analyses concentrated on SNAP recipients, one would imagine that higher food prices would also likely lead to increases among SNAP non-recipients.

Ensuring Low Food Prices

There is probably little that foundations, food banks and advocates can do to directly influence food prices in a particular area or for the country as a whole. However, there are three areas where these groups can influence the decision-making process among policymakers and program administrators.

First, they can encourage the location of large-scale food retailers in low-income areas and prevent efforts by other groups to block their entrance into these areas. Large-scale food retailers have lower prices than other types of food retailers, and along with lowering prices in their own stores, the competition forces down prices in other stores as well.[17]

Second, they can resist efforts to tax food items. In some circles, there have been efforts to put taxes on various foods. The evidence above indicates that these higher taxes will likely lead to higher rates of food insecurity. More broadly, taxes on food are very regressive and should therefore be avoided, especially in the absence of demonstrated negative externalities.

[17] As with any policy choice, there can be disadvantages associated with encouraging the entrance of large-scale food retailers into a neighborhood. For example, the increased competition may cause some stores to go out of business, and there may be increased traffic surrounding the store.

Third, they can view proposals encouraging organic foods and local foods with skepticism. While proposals to encourage, say, local food procurement by supermarkets can have ancillary benefits, these benefits do not generally extend to low-income households because they cannot afford these items. Instead, the benefits are more likely to extend to upper-income households that can afford these items. Moreover, by devoting scarce resources to encouraging the entrance of these into the food supply chain, this diverts resources away from factors that would help low-income households.

5. Importance of Financial Management Skills

The final factor determining food insecurity covered in this report that can be influenced through the work of food banks and others is financial management skills. There are two central reasons why households with better financial management skills may be less likely to be food insecure, conditional on other factors.

First, those with more limited financial management skills may not be optimizing their food consumption, given income and prices. The skills held by those with better financial management skills may include identifying sales and taking advantage of discounts (e.g., food club memberships; coupons).

Second, those with more limited financial management skills may be less able to weather negative financial shocks. These shocks can take the form of declines in income, unexpected necessary consumption expenditures or combinations of both.

As discussed above, an important determinant of food insecurity is negative economic shocks. It may be the case that some households are more skilled at identifying supplemental resources (e.g., assistance programs) to help them weather these shocks. In addition to responses

to these shocks, households with better financial management skills may have also been able to save more money to serve as an emergency fund.

A recent paper based on research funded by the USDA National Institute of Food and Agriculture examined the impact of financial management skills on food insecurity (Gundersen and Garasky, 2012). This paper used data from the *Survey of Household Finances and Childhood Obesity*, a dataset that included information on objective financial management skills, perceptions of financial management skills and a household's food insecurity.

An index ranging from 0 to 5 (five being the most knowledgeable) was created based on information on objective financial management skills. The index included questions such as "How often do you (or your spouse/partner) review your bills for accuracy?" and "How often do you (or your spouse/partner) review income and expenses before making large purchases?" The responses of "usually" or "always" had scores equal to 1.

For subjective measures, the first measure concerns the respondent's perception of their own financial management abilities. Individuals who indicated they were "confident" or "very confident" in their ability to manage their household's finances were assigned a value of 1 for this measure, while those who were "somewhat confident," "a little confident" or "not confident" were assigned a value of 0.

Similarly, respondents were also asked to describe their level of financial skill. This subjective measure received a value of 1 if the individual indicated they had "intermediate" or "advanced" financial skills, and 0 if the individual indicated that they had "beginning" or "no" financial skills.

After controlling for other factors, the author(s) found a large and statistically significant inverse relationship between a household's financial management skills and its probability of

food insecurity. Assessing the effect in terms of income for the five-item scale, a one-unit increase was roughly equivalent to having about $370 more per month in income. For the measure reflecting one's confidence in financial management skills, the effect in that case was again large – someone who is confident in their financial management skills has a 13.7 percent probability of being food insecure, all else equal, while someone who is not confident in their skills has a 30.7 percent probability. The general finding that financial management skills matter also held when the sample was restricted to households with incomes under 200 percent of the poverty line.

Ways to Enhance Financial Management Skills

Given the magnitude of the effect of financial management skills on food insecurity, efforts to enhance these skills should be encouraged. As an example, the USDA Expended Food and Nutrition Education Program (EFNEP) teaches a wide variety of skills related to cooking and nutrition; these programs could be expanded to include the teaching of financial management skills.[18] A similar argument for inclusion of financial management skill training holds for education programs within the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Food banks, in particular, can play a role in encouraging financial management skills. Given the close contact between operators of food pantries and their clients, this can be a nice opportunity to either encourage people to take financial management skill classes or to even offer such classes on-site.

[18] The results of this paper also point out one of the further advantages of existing financial education programs – namely that they can contribute to the reduction in food insecurity in the United States.

Along with the direct benefit of better financial management skills leading to reductions in food insecurity, there is a potential ancillary benefit. As discussed above, households with more assets are less likely to be food insecure. One potential benefit of improved financial management skills is that households will save more, and in the process, reduce their probability of food insecurity. This indirect benefit of improved financial management skills should be taken into consideration when evaluating financial management classes.

Conclusions

The material covered above demonstrates the many ways that food insecurity can be alleviated in the United States. Before turning to summary remarks, it is worth noting that there are other determinants of food insecurity that have not yet been uncovered. After all, the food insecurity literature is still relatively new – it has only been about 15 years since work began in this area. I consider some of what has been seen as the most fruitful areas for future research. In defining this research agenda, along with the USDA, foundations, food banks and advocates can all play crucial roles both in conducting this research and defining the scope.

Before turning to specific research topics that are worth pursuing and will give us new insights, I wish to note that the USDA recently established a $5 million program titled "Research on Childhood Hunger" through the University of Kentucky Center for Poverty Research to learn more about the determinants of very low food security among children. (Jim Ziliak and I are the PIs.)

This program has distributed large and small grants to researchers across the country in several disciplines to meet the goals of this research program. Within the large grants, issues being examined include, among other issues, the coping strategies used by low-income

households in the face of food insecurity; the role of communities in alleviating hunger; the dynamics of childhood hunger; and the effects of family structure on childhood hunger. The small grants display an even wider array of issues including, for example, the effects of safety net programs, income shocks, educational transitions and incarceration on very low food security among children.

These research questions are being answered using a wide array of statistical techniques and datasets. With respect to the latter, every nationally representative dataset with food insecurity questions is being used in at least one study. In addition, researchers are establishing new qualitative and quantitative primary datasets and merging administrative and survey data. When published and presented in various fora, the results from these projects will have a pronounced impact on the food insecurity literature.

I now turn to some other research questions worth pursuing. First, how is food insecurity distributed within a household? As discussed above, food insecurity measures are generally defined at the household level rather than for each individual in the household.[19]At least based on evidence derived from studies of intra-household allocation developing countries, there are likely to be differences in the distribution of food insecurity within households (see, for example, Hadley et al., 2007; Kuku et al., 2011). At a minimum, these differences are apparent in the aggregate, where food insecurity rates among children in a household are observed to be substantially lower than food insecurity rates for households with children (see Figure 2).

Some recent work has utilized measures that include questions about food insecurity specifically for children (Framm et al., 2011; Connell et al., 2005). Child-specific responses can

[19] The exception is for one-person households and for child-specific measures when there is one child in the household.

lead to new insights into how families distribute food security status or, at the very least, how individuals within a household perceive this distribution.

Second, what types of coping mechanisms do low-income food secure families utilize, and what are the effects of these mechanisms? As seen in Figure 3, a large proportion of poor households are able to avoid food insecurity. Similarly, a large proportion of those households with incomes below 50 percent of the poverty line are able to avoid food insecurity. The construction of the poverty line in the United States is such that the presumption is that income-poor households will have to forego at least some necessities. In other words, to be food secure, they may be deprived in some other dimension of well-being.

Two main issues could be explored in this context. The first is with respect to what commodities food-secure families are giving up to be food secure. For example, seniors may be foregoing prescription drugs to feed themselves and other members of the household. In such contexts, food security combined with poverty should signal to policymakers and program administrators that assistance may be needed; in other words, food security does not indicate an absence of need.[20]

The second issue is regarding the coping strategies used by food-secure families. These coping strategies can, in essence, lower the probability of being food insecure at any given income level. There has been some qualitative work based on small-scale datasets that illuminates how low-income families maintain food security (see, for example, Olson et al., 2004; Swanson, Olson, Miller, Lawrence, 2008). Conducting similar research using a broader

[20] Several studies have shown that difficulties over other dimensions of well-being are correlated with food insecurity. See, for example, Cook et al., 2008; Gundersen et al., 2003; Sullivan et al., 2010. These analyses are concerned with the determinants of food insecurity. The proposed topic of interest here is how the choices of food-secure households along similar budget constraints differ from food-insecure households.

sample with an economic lens could provide further insights into the effectiveness of various coping mechanisms.

A related and important question is whether these coping mechanisms have unintended effects on health and well-being. For example, families concerned about the possible onset of food insecurity might cope by purchasing storable, high-calorie foods that are potentially associated with increased weight. As another example, a family might engage in illegal activities to avoid food insecurity.

Third, how do health limitations affect food insecurity? The literature on the effects of food insecurity on health outcomes has implicitly assumed that food insecurity has an influence on health outcomes, rather than the other way around. In some instances, this assumption seems valid. For example, it is not obvious how nutrient intakes would affect food insecurity. In other cases, this assumption may be untenable.

For example, one would anticipate that ADL limitations lead to food insecurity rather than the other way around. (Work that does consider reverse causation includes Lee and Frongillo, (2001b) and Casey et al., (2004).) Causality might often run in both directions. For example, the limited food intakes associated with food insecurity could lead to diabetes, while having diabetes and its concordant medical costs might make someone more likely to be food insecure. Research on the impact of health care limitations on food insecurity would be of interest, especially when the causal direction is mixed, both in terms of improved estimates of the impact of food insecurity and in terms of further delineating the causes of food insecurity.

Fourth, to what extent do food banks help reduce food insecurity? Above we provided an approximation of the impact of food banks on food insecurity under various plausible assumptions. But, as noted there, there have not been studies that have directly estimated the

impact of food banks on food insecurity. To do these studies, datasets with accurate information regarding receipt and non-receipt of benefits from food banks would be needed. This would enable comparisons of recipients and non-recipients.

Unfortunately, there does not currently exist such a dataset. While there is data on food bank users (as described in Mabli et al., 2010) this dataset does not also include similar households that do not utilize food banks. Other datasets ask information about usage of food banks (e.g., the December Supplement of the Current Population Survey), but the extent of underreporting of food bank usage makes the data unsuitable for comparisons of food bank users and non-users. Once the appropriate data is available, sophisticated analyses akin to those applied to formal food assistance programs could be done.

Along with looking at participants versus non-participants, it may also be worthwhile to consider how food bank usage combined with receipt of formal food assistance influences the probability of food insecurity. This is especially relevant insofar as there exists at least anecdotal evidence that many SNAP recipients use food from food pantries to ensure food security.

Continued research on food insecurity will open up new avenues to be pursued to reduce food insecurity in the United States. One should recognize, though, that some programs that have been proposed will decidedly not reduce food insecurity. Examples of such programs are community gardens, encouraging consumption of locally grown produce, farmers markets, etc. These programs can be justified along other lines, but they do not lead to reductions in food insecurity. Moreover, by spending time and energy on these types of programs, this has the potential to lead to increases in food insecurity, insofar as this time and energy could instead be spent on programs that we know do lead to declines in food insecurity.

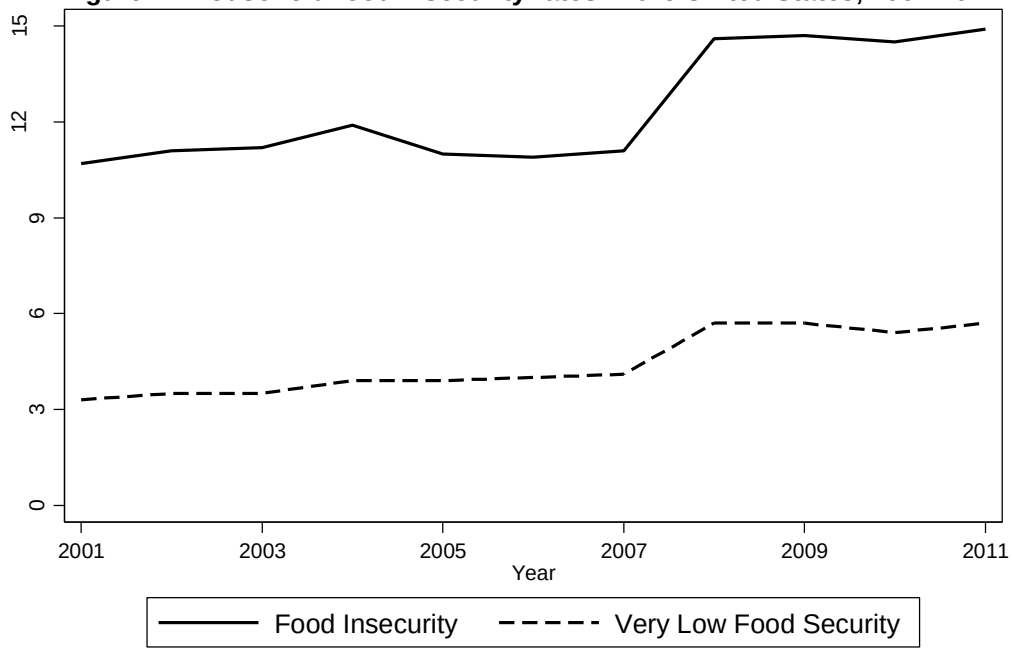
In particular, as noted above, it would be far better if foundations, food banks and advocates concentrated on enabling high SNAP participation rates; providing food for children over the summer; recognizing the importance of food banks in the safety net against hunger; ensuring low food prices; and improving financial management skills.

Table 1: Food insecurity questions in the Core Food Security Module

1. "We worried whether our food would run out before we got money to buy more." Was that **often, sometimes**, or never true for you in the last 12 months?
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 for you in the last 12 months?
3. "We couldn't afford to eat balanced meals." Was that **often, sometimes**, or never true for you in the last 12 months?
4. "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 for you in the last 12 months?
5. In the last 12 months, 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)
6. "We couldn't feed our children a balanced meal, because we couldn't afford that." Was that **often, sometimes**, or never true for you in the last 12 months?
7. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food? (**Yes**/No)
8. (If yes to Question 5) How often did this happen—**almost every month, some months but not every month**, or in only 1 or 2 months?
9. "The children were not eating enough because we just couldn't afford enough food." Was that **often, sometimes**, or never true for you in the last 12 months?
10. In the last 12 months, were you ever hungry, but didn't eat, because you couldn't afford enough food? (**Yes**/No)
11. In the last 12 months, did you lose weight because you didn't have enough money for food? (**Yes**/No)
12. In the last 12 months, did you ever cut the size of any of the children's meals because there wasn't enough money for food? (**Yes**/No)
13. In the last 12 months 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)
14. In the last 12 months, were the children ever hungry but you just couldn't afford more food? (**Yes**/No)
15. (If yes to Question 13) How often did this happen—**almost every month, some months but not every month**, or in only 1 or 2 months?
16. In the last 12 months, 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. In the last 12 months did any of the children ever not eat for a whole day because there wasn't enough money for food? (**Yes**/No)

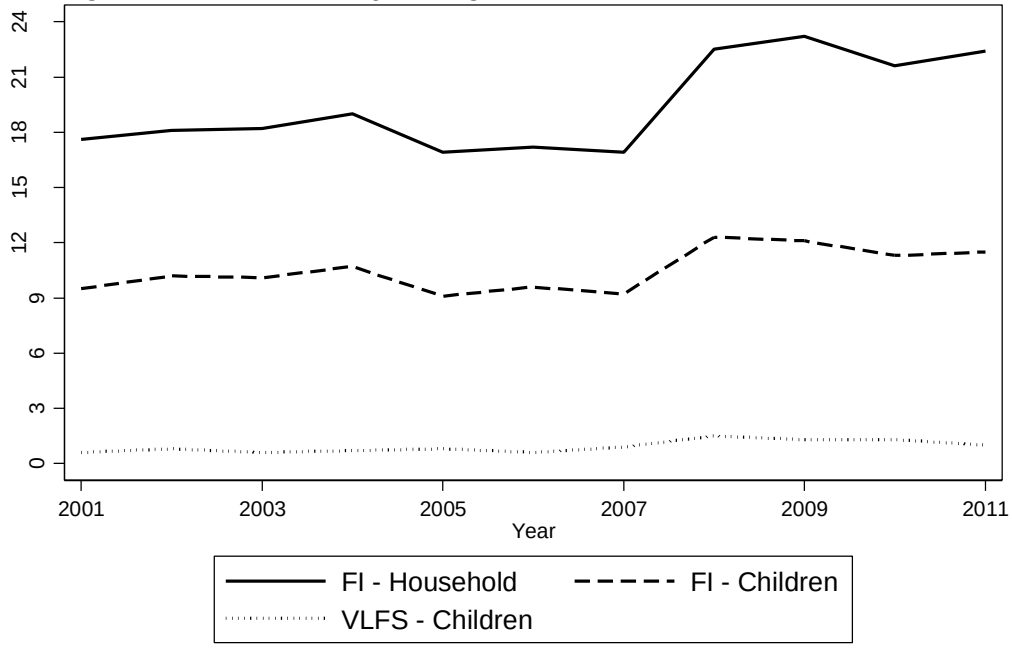
Note: Responses in bold indicate an affirmative response. This table is taken from Gundersen and Kreider, 2008.

Figure 1: Household food insecurity rates in the United States, 2001-2011



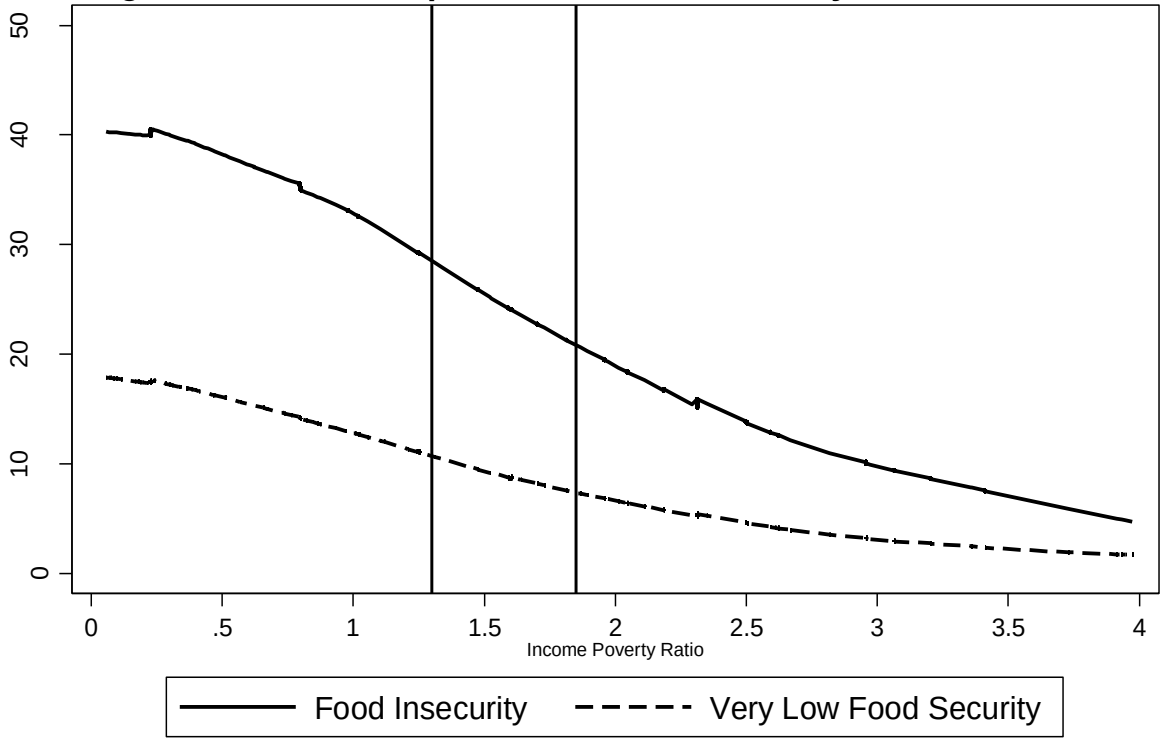
Note: Figure is based on data from Coleman-Jensen et al. 2012, Table 1A

Figure 2: Food insecurity among Children in the United States, 2001-2011



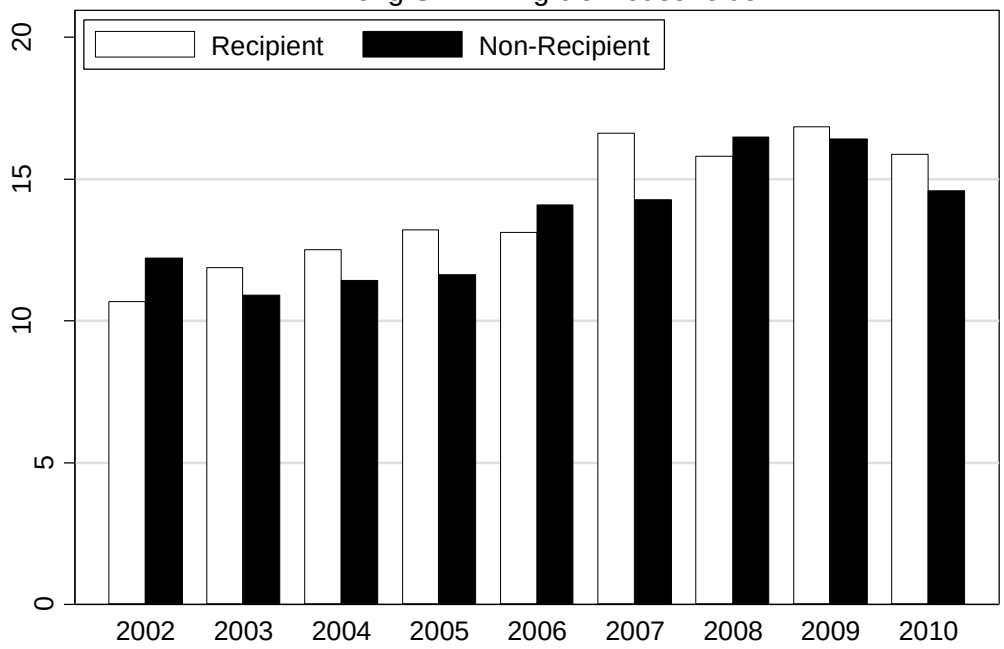
Note: Figure is based on data from Coleman-Jensen et al., 2012, Table 1B

Figure 3: Relationship between food insecurity and income, 2010



Note: Author's calculations based on data from the December Supplement of the 2010 Current Population Survey

Figure 4: Per-Capita Weekly Dollars Needed to be Food Secure
Among SNAP Eligible Households



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