Public Policy and Food Insecurity among Children

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Introduction

The objective of this paper is to study the role of public policies, including but not limited to food and nutrition assistance programs, in reducing food insecurity among children. Over the past decade and a half, there have been several changes in eligibility as well as generosity of public assistance programs, in particular programs for children. Using data from the 2001–2011 Current Population Survey Food Security Supplement, we will study the relationship between food insecurity among children and the following policies: Food Stamps/Supplemental Nutrition Assistance Program (SNAP), Earned Income Tax Credit (EITC) benefits, welfare programs, and programs specifically linked to children, namely childcare subsidies and Head Start. Our aim is to study the extent to which the generosity and accessibility of safety net programs have been helpful in reducing the prevalence and severity of food insecurity among children. Our focus on the recent period allows us to investigate if social programs and policies had as large an effect on prevalence of food insecurity during the Great Recession as in the past.

Previous Research

Several studies have examined the effect of government food and nutrition assistance programs, such as the Food Stamp Program (now called the Supplemental Nutrition Assistance Program [SNAP]), the National School Lunch Program (NSLP), and the School Breakfast Program (SBP), on alleviating food insecurity. Research consistently shows that the Food Stamp/SNAP program increases household food expenditures and transfers food purchasing power to low-income individuals, increasing household food consumption (Breunig, Dasgupta, Gundersen, & Pattanaik, 2001; LeBlanc, Lin, & Smallwood, 2006; Nord, 2009). In addition, households receiving Food Stamps tend to have higher levels of actual food consumption and

food expenditure as compared to similar households receiving cash assistance (Breunig, et al., 2001; Isaacs, 2009; Levedahl, 1995).

Yet selection bias (i.e., the fact that those who are more food needy are more likely to participate in food and nutrition assistance programs) makes it difficult to assess the degree to which these programs reduce food insecurity. Research by Nord et al. (2010) indicates that the rate of food insecurity among food stamp recipients is about two times greater than the rate among eligible non-recipients. Furthermore, these higher rates among participants generally remain even after controlling for observed factors (Gundersen, Jolliffe, and Tiehen, 2009; Jensen, 2002; Kasper, et al., 2000). In contrast, research that accounts for selection tends to find either no difference (Gundersen and Oliveira, 2001; Gibson-Davis and Foster, 2006; Huffman and Jensen, 2008) or a positive association between program participation and an improvement in food security (Bartfeld and Dunfon, 2006; Borjas, 2004; DePolt, Moffitt, and Ribar, 2009; Nord and Golla, 2009, Yen et al. 2008; Ratcliffe, McKernan, and Zhang, 2011; Mykerezi and Mills 2010). For example, in one of the earlier studies to address the effect of selection, Gundersen and Oliveira (2001) use data from the 1991 and 1992 SIPP and an instrumental variable approach to estimate a simultaneous probit model for Food Stamp participation and food insecurity. The authors use an imputed measure of stigma associated with SNAP receipt as an instrument for SNAP participation and find that once they control for selection, there is no difference in the probability of experiencing food insecurity between Food Stamp recipients and non-recipients.

While a handful of studies find no relationship between food stamp receipt and food insecurity, several studies do find evidence that the program works. Some studies use the Current Population Survey and focus on specific populations, such as immigrants (Borjas, 2004),

households with children (Bartfeld and Dunifon, 2006), or all households that receive food stamp benefits (Nord and Golla, 2009). Other studies use smaller datasets that are not representative of the U.S. (Yen et al. 2008; DePolt, Moffitt, and Ribar, 2009). Some use an instrument variable approach (Borjas, 2004; Yen et al., 2008) while others use hierarchical regression (Bartfeld and Dunifon, 2006) or a panel data approach to assess change in food insecurity status before and after food stamp receipt (Kabbani and Kmeid 2005; Nord and Golla, 2009). For a detailed review of these earlier studies, see Ratcliffe, McKernan, and Zhang (2011).

Recent research supports these earlier findings. Mykerezi and Mills (2010) exploit data on state-level errors in payments in benefits to create instrument variables. They find participation in the food stamp program lowers food insecurity by 18 percent. Few studies focus on very low food security. Findings from a month-by-month analysis of Food Stamp recipients showed a decrease of about one-third in the prevalence of very low food security among recent entrants (Nord & Golla, 2009; Wilde, 2007). Using state variation in SNAP policies, Ratcliffe et al. 2011 create four instrument variables: use of biometric technology, outreach spending, full immigrant eligibility, and partial immigrant eligibility. Consistent with earlier research, they find the receipt of SNAP reduces the likelihood of being food insecure by roughly 30 percent and reduces the likelihood of being very food insecure by 20 percent. Studies focusing on food insecurity among children are rare, but findings from a paper using partial identification bounding methods to bound the effects of SNAP receipt on children's food insecurity find some evidence that SNAP participation has a positive effect on children's food security status (Kreider et al. forthcoming).

Studies that examine the role played by cash assistance (welfare) programs such as Temporary Assistance to Needy Families (TANF) or other income support programs (such as the

Earned Income Tax Credit (EITC), housing subsidies, or child care subsidies) are also rare. In an effort to examine whether such programs reduce the probability of experiencing food deprivation, Borjas (2004) used the change in eligibility rules precipitated by the 1996 welfare reform legislation as a natural experiment for assessing the effect of cash assistance programs on food insecurity among immigrants. Using data from the 1995–1999 CPS Food Security Supplements, he found that a 10 percentage point cut in the fraction of the population that received public assistance increased the fraction of food-insecure households by about 5 percentage points. Kaushal and Gao (2010) investigated the effect of changes in welfare policies, and policies specific to food stamps (e.g. introduction of electronic benefit cards and simplified reporting of income) and found that these changes had statistically insignificant effect on consumption levels and patterns. Finally, Ratcliffe, McKernan, and Finegold (2008) examine the effect of 27 specific program rules related to the Food Stamp Program, TANF, the minimum wage, and the EITC on food stamp receipt. They find food stamp receipt grows with increases in the leniency of vehicle exemption and immigrant eligibility rules, the length of recertification periods, and the expansion of categorical eligibility and decreases when biometric technology is used.

In summary, after decades of research on the effects of food and nutrition assistance programs on food insecurity, convincing evidence on the role of such programs continues to remain elusive, underscoring the need for more rigorous research and evaluation of the influence public programs have on alleviating food insecurity, particularly among children. In addition, relatively few studies have examined the role of programs outside the food and nutrition domain (programs such as TANF, EITC, housing subsidies, and child care subsidies). Finally, while there is a wide body of research on the effect of food and nutrition assistance programs on

household food insecurity, very little research has examined the effect of these policies on food insecurity among children—particularly very low food security. Thus, the objective of this paper is to assess the role of public policies, including but not limited to food and nutrition assistance programs, in reducing food insecurity among children. To what extent have the generosity and accessibility of safety net programs – cash and non-cash – been helpful in reducing the prevalence and severity of food insecurity among children? What are the implications for government efforts to reduce very low food security among children?

We propose to use a similar methodology to Ratcliffe et al. (2011). However, our study differs from their research in several ways. First, this analysis is based on data from the 2001-2011 Current Population Survey, a large nationally representative dataset of households in the United States. These data, which allow us to take advantage of state variation in a range of policies that spans 10 years, are more recent than Ratcliffe et al. 2011. Thus, we are able to examine whether the Food Stamp Program had as large an effect during the Great Recession as it had in the past. In addition, while Ratcliffe et al. 2011, as well as several other studies, focus on the effect of food and nutrition assistance programs on food security, we also examine the role of other public policies, such as the EITC, which are less frequently studied. Finally, our focus is on food insecurity among children—particularly extreme food insecurity among children—a population that has generally been understudied in terms of food insecurity, but one of great interest to policy makers and program administrators.

Research Methods

Data

We mainly draw on data from the 2001–2011 Current Population Survey Food Security Supplement (CPS-FSS) to examine the role of government policy in explaining food insecurity and very low food security among children. Policy data on the food stamp program, the EITC, and childcare subsidies and Head Start come from a variety of sources including the University of Kentucky's Center for Poverty Research State-Level Data of Economic, Political, and Transfer-Program Information; the National Bureau of Economic Research Work Family Policies Data; and the Public Policy Institute of California State SNAP Policies data file. Data were also obtained from other organizations and government agencies, including Rand (Danielson and Klerman, 2006), personal communication with Caroline Danielson, and direct contact with federal and state administrators.

Our sample is restricted to children less than 18 and excludes children who are emancipated minors (i.e., the household reference person living alone, with others, or married to the household reference person) and children whose household food security status is unknown because the reference person did not give a valid response to any of the questions in the food security scale. We also remove children who do not have information on family income (about 9 percent). This results in a sample size of approximately 234,000 children for years 2001–2009.[1]

Food Insecurity among Children

Food insecurity among children is based on a set of 18 questions fielded in the Food Security Supplement of the Current Population Survey. (See Table 1 for a complete list of the 18 questions.) Using the USDA's guidelines, households are defined as food insecure if they

[1] We currently have analyzed data through 2009 but will add two more years of data (i.e., years 2010 and 2011) prior to PAA.

respond affirmatively to at least three of the 18 questions. Children's food security status in the household is based on responses to questions 11 through 18, which ask the main respondent in the household to report on the food security of children. Using the USDA's guidelines, households reporting between two and four indicators of food insecurity are classified as having *low food security among children*, and households responding affirmatively on five or more questions are classified as having *very low food security among children*. The classification *food insecurity among children* includes both categories.

We study three outcomes relating to food security. The first is a dichotomous measure coded 1 for children in households reporting food insecurity among children, and zero for all others. The second outcome is also a dichotomous variable coded 1 for children in households with very low food security among children and zero for all others. The third is a multinomial outcome in which children are assigned to one of five mutually exclusive categories based on the householder's response to the 18 questions: *No Food Insecurity; Marginal Food Security among Adults, No Child Food Insecurity* (defined as households reporting at least one food insecure condition among adults, but none among children); *Marginal Food Security among Children* (defined as households reporting one food insecure condition among children); *Low Food Security among Children* (defined as households reporting between two and four food insecure conditions among children); and *Very Low Food Security among Children* (defined as households reporting five or more food insecure conditions among children).The choice to use these measures of food insecurity is based on the USDA's guidelines and prior research in the field (Bartfeld and Ahn 2011; Coleman-Jensen et al. 2011).

Analytical Strategy

The following empirical model will be used for this analysis:

(1) $Ch_{it} = \alpha + \alpha_f FSP_{st} + \alpha_c Chcr_{st} + \alpha_e EITC_{st} + \alpha_h HS_{st} + \alpha_k K_{st} + \beta X_{it} + v_{it}$

In equation (1) FSP_{st} is a vector of food stamp program policy variables including program rules on the implementation of Electronic Benefit Transfer cards, Simplified Reporting, Transitional Benefits, and biometric technology, as well as the maximum benefit amount for Food Stamps for a family of four in state s and year t, $Chcr_{st}$ is the amount of federal and state childcare subsidy spending per low-income child under the age of 12 in state s and year t, $EITC_{st}$ is the maximum state plus federal EITC benefit by state s and year t[2], HS_{st} is the policy variable indicating the number of Head Start slots per low-income preschool age child in state s and year t.

In equation (1), K_{st} denotes state-specific time-varying economic variables, e.g. state unemployment rate and per capita income, providing controls for economic trends that may be correlated with policy changes. It is, however, likely that there are time-varying unobserved factors correlated with the policy variables that may be confounding our estimates of the effect of policy. To address this issue, following previous research we will estimate equation (1) on two groups of families. Group 1 will consist of families most likely to benefit from by the aforementioned policies (e.g. families headed by single mothers with less than a high-school degree), and group 2 will comprise of families who are similar to group1, but less likely to be eligible for such benefits (e.g. two parent families in which mothers have less than a high school degree, families headed by single mothers with a high-school degree or some college). If the

[2] Since the EITC benefit level differs by the number of children in the family, we will also experiment with using a variable for maximum EITC benefit by number of children in the family, state, and year.

estimated coefficients in equation (1) represent the true effect of these policies on food security, estimates for group 2 should be modest and statistically insignificant.

Preliminary Results

Table 2 presents rates of food insecurity among children from 2001–2009. The first panel of results shows the percentage of children living in food insecure households as well as the percentage of children living in households reporting food insecurity and very low food security among children. The lower panel shows food insecurity as a percentage of households with children. The data in Table 2 suggest an overall increase between 2001 and 2009 in the percentage of children residing in food insecure households (17.6 percent versus 23.2 percent, respectively) and in households with food insecurity among children (9.5 percent versus 12.1 percent, respectively). The percentage of children in households reporting the most severe food hardship—very low food security among children—doubled during this time period from 0.6 percent in 2001 to 1.3 percent in 2009. The trend in food insecurity among households with children was relatively similar.

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Table 1. 18 Questions for Measuring Food Security in the Food Security Supplement of the Current Population Survey.

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	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)
5	(If yes to Question 4) How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months?
6	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)
7	In the last 12 months, were you ever hungry, but didn't eat, because there wasn't enough money for food? (Yes/No)
8	In the last 12 months, did you lose weight because there wasn't enough money for food? (Yes/No)
9	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)
10	(If yes to Question 9) How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months?
11	"We relied on only a few kinds of low-cost food to feed our children because we were running out of money to buy food." Was that often, sometimes, or never true for you in the last 12 months?
12	"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?
13	"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?
14	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)
15	In the last 12 months, were the children ever hungry but you just couldn't afford more food? (Yes/No)
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)

Table 2. Children and Households with Children by Food Security Status, 2001-2009

	Food Insecure Households		Households with Food-Insecure Children		Households with Very Low Food Security among Children	
	N	%	N	%	N	%
Children (by food security status of household)						
2001	5284	17.6	2794	9.5	196	0.6
2002	5821	18.1	3216	10.2	233	0.8
2003	5407	18.2	3015	10.1	160	0.6
2004	5629	19.0	3090	10.7	225	0.7
2005	5066	16.9	2728	9.1	248	0.8
2006	4807	17.2	2624	9.6	159	0.6
2007	3486	16.9	1856	9.2	184	0.9
2008	5739	22.5	3173	12.3	383	1.5
2009	6241	23.2	3266	12.1	362	1.3
Households with children						
2001	2549	16.1	1292	8.4	85	0.6
2002	2787	16.5	1471	8.9	110	0.7
2003	2611	16.7	1409	8.9	82	0.5
2004	2729	17.6	1447	9.5	109	0.7
2005	2474	15.7	1293	8.2	108	0.7
2006	2343	15.6	1238	8.4	81	0.6
2007	1726	15.8	896	8.3	91	0.8
2008	2822	21.0	1498	11.0	172	1.3
2009	3028	21.3	1513	10.6	162	1.2

Note: Totals exclude emancipated minors (i.e., children who are household heads or married to the household head) and households whose food security status is unknown because they did not give a valid response to any of the questions that are part of the food security scale.

Sample sizes are unweighted; percentages are weighted using the appropriate supplement weight.

Source: Authors' calculations of the 2001-2009 Current Population Survey, Food Security Supplement.