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The Affordable Care Act's Medicaid Expansion and Food Insecurity Rates

Mary Moran
University of Southern Maine, mary.moran8@yanoo.com

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Master of Public Health Capstone

Muskie School of Public Service

University of Southern Maine

Introduction Many Americans face difficult financial decisions, often regarding the allocation of limited resources. Household resources may be split among the costs of food, clothing, housing, transportation, childcare, utilities, and health care. For some households, this allocation may present a challenge to purchasing sufficient food, leading to food insecurity. Defined by the United States Department of Agriculture (USDA) as "a household-level economic and social condition of limited or uncertain access to adequate food" (2017), food insecurity may decrease when other financial-related aspects of life improve. An improvement in access to affordable health care, as seen through the recent Medicaid expansion under the Patient Protection and Affordable Care Act (ACA), may lead to a reduction in food insecurity.

Food Insecurity Rates of food insecurity in the United States are high, with 12.3% of Americans reporting food insecurity at some point in 2016 (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). Access to food is a critical determinant of health, playing a key role in health outcomes (U.S. Department of Health and Human Services, n.d.). For example, past research has documented a strong relationship between food insecurity and iron deficiency anemia (Eicher-Miller, Mason, Weaver, McCabe, & Boushey, 2009), hypertension (Seligman, Laraia, & Kushel, 2010), obesity (Pan, Sherry, Njai, & Blanck, 2012), diabetes (Seligman, Bindman, Vittinghoff, Kanaya, & Kushel, 2007), depression (Heflin, Siefert, & Williams, 2005), and overall lower self-reported health status (Lee & Frongillo, 2001; Stuff et al., 2004).

Food and Health Care Research exploring the allocation of limited resources for food and health care has found evidence of trade-offs made between the two. A report from Feeding America found that 66% of clients reported having to make decisions between buying food or paying medical bills (Weinfield et al., 2014). Similarly, Berkowitz, Seligman, & Choudhry (2014) found evidence that individuals may need to choose between buying food or purchasing

necessary medications. If one of these necessities becomes more affordable, it may lead to a reduction in trade-offs made between the two. This has been found with recent Medicaid enrollees reporting an easier time purchasing food since enrolling (The Ohio Department of Medicaid, 2016). The idea that an improvement in affordability of health care could have a positive effect on purchasing food has been termed the "spillover" effect and is thought to occur due to improved financial stability (Berkowitz, Seligman, & Choudhry, 2014). The increased financial stability brought on by access to affordable care health might lead to an ease in purchasing food, ultimately leading to a reduction in food insecurity. This association has been found with participation in non-Medicare, public health insurance being linked to lower levels of food insecurity (Berkowitz, Seligman, & Choudhry, 2014).

Medicaid Expansion In 2010, the ACA was signed into law. The ACA included an expansion of Medicaid, extending eligibility to those with incomes up to 138% of the federal poverty line. As of April 2018, the expansion has been adopted by 32 states and the District of Columbia. The majority of these states implemented the expansion in January of 2014 (Kaiser Family Foundation, 2018). Recent evidence has shown that Medicaid expansion has greatly improved health care coverage, with Medicaid expansion states witnessing significant increases in Medicaid enrollment (Decker, Lipton, & Sommers, 2017; Miller & Wherry, 2017) and significant decreases in uninsured rates (Blavin, Karpman, Kenney, & Sommers, 2018; McMorrow, Kenney, Long, & Anderson, 2015). As of September 2016, approximately 15 million new individuals had enrolled in Medicaid as a result of the ACA expansion (Kaiser Family Foundation, 2016). Evidence has shown that the recent expansion has led to improved financial stability, notably decreases in the number of high-interest payday loans (Allen, Swanson, Wang, & Gross, 2017).

Although some research has delved into the relationship between health care coverage and food insecurity, none to my knowledge has considered this relationship in light of the recent increase in health care coverage experienced under the Medicaid expansion of the ACA. To address this lack of knowledge, I estimate the relationship between food insecurity rates and state Medicaid expansion status over a five-year time period. I hypothesize that households in Medicaid expansion states will be significantly less likely to be food insecure than households in non-Medicaid expansion states at the end of the five-year time period.

Methods

Data Source I use microdata from the 2012, 2013, 2015, and 2016 December Current Population Survey (CPS) - Food Security Supplement (FSS) (United States Census Bureau, 2018a; United States Census Bureau, 2018b). Administered by the United States Census Bureau, the CPS is an at-home or telephone survey, nationally representative of the noninstitutionalized civilian population. Each month, approximately 56,000 households are surveyed (United States Census Bureau, 2018c). The CPS provides official government statistics regarding the status of employment in the United States (United States Census Bureau, 2018c). It has been conducted monthly for over 50 years, with the FSS used as a yearly supplement since 1995 (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017; United States Census Bureau, 2018c). The FSS is sponsored by the Economic Research Service of the USDA and collects statistics regarding the prevalence and degree of food insecurity in U.S. households (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). The supplement questions are asked of one adult respondent per household and are designed to target behaviors and experiences related to food insecurity

(United States Census Bureau, 2018c). The Economic Research Service compiles and analyzes all responses to the FSS (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017).

Study Sample and Variable Creation The sample was limited to those at or below 185% of the federal poverty line, under the age of 65, and without dependent children. These restrictions were included to ensure that the population of interest, those targeted by the Medicaid expansion, would be appropriately captured for the sample. Those over 185% of the federal poverty line would not be eligible for the expansion, those aged 65 and older have access to public health insurance through Medicare, and parents of dependent children were already eligible for Medicaid prior to the expansion. The sample includes surveys administered in December 2012, 2013, 2015, and 2016. All non-interview and non-supplement surveys were set as missing. Additionally, surveys by those other than the reference person of the household were excluded to allow for accurate household-level analysis.

Pre- and post-expansion time points were created by combining 2012-2013 and 2015-2016 data, respectively. These time points were selected to provide the entire year of 2014 for the expansion to roll out and enrollment to occur. Observations were categorized as Medicaid expansion states (the treatment group) or non-Medicaid expansion states (the control group) based on the state identifier attached to each observation within the FSS. Five states were excluded from the analysis because they implemented the expansion after 2014 but before the end of 2016, therefore not qualifying as either a pure treatment or control state during this time period (Kaiser Family Foundation, 2018). Additionally, the state of Maine adopted the Medicaid expansion through a ballot initiative in November 2017 but has not yet implemented the expansion (Kaiser Family Foundation, 2018). Maine's data is included with the states that have

not yet adopted the Medicaid expansion (the control group). The final analysis included 26 states and the District of Columbia as the treatment group and 19 states as the control group.

The dependent variable used in the analysis is a binary indicator of household food insecurity, measured by the number of food insecure responses a household reports on an 18-item scale (see Appendix A for the scale) (Coleman-Jensen et al., 2017). Respondents are classified as food secure if they provide zero to two food insecure responses and food insecure if they provide three or more food insecure responses (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). The data is re-coded by the Economic Research Service of the USDA and categorizes food security status as high or marginal food security, low food security, or very low food security. I then combined low and very low food security to create one food insecurity variable. Age, sex, race, metropolitan status, education, marital status, and Supplemental Nutrition Assistance Program (SNAP) participation were included in the analysis as other explanatory variables.

Methodology A difference-in-differences (DID) approach was used to examine changes in the rate of food insecurity over time in Medicaid expansion states relative to non-Medicaid expansion states. The DID model is useful for examining repeated cross-sectional data and is a way to estimate the effect of an intervention, such as the Medicaid expansion, between two groups over time (Columbia University, 2018). Various other studies have utilized the approach to examine the relationship between Medicaid expansion and other outcomes, including cancer diagnoses (Soni, Simon, Cawley, & Sabik, 2018), dental care use (Nasseh & Vujicic, 2017), and workforce participation (Hall, Shartzer, Kurth, & Thomas, 2017). To examine Medicaid expansion's effect on food insecurity rates, I estimated the following model:

$$y = \beta_0 + \beta_1(post) + \beta_2(expansion) + \beta_3(post*expansion) + \boldsymbol{\alpha X} + \varepsilon$$

y is the outcome of interest, food insecurity. β_0 is the average food insecurity rate in the control group pre-intervention. β_1 is the coefficient on a time dummy to distinguish between households observed pre- and post-intervention. The treatment group I am interested in consists of states with Medicaid expansions. They are indicated by the expansion dummy. The average causal treatment effect, provided the assumptions are met, is given by the coefficient on *expansion x post*, β_3. $\boldsymbol{X}$ is the vector of control variables and includes age, sex, race (black, non-Hispanic; Hispanic; and other, non-Hispanic or multiple races compared to white, non-Hispanic), metropolitan status (metropolitan or non-metropolitan), education (less than high school education and high school education compared to post-secondary education), marital status (married or unmarried), and SNAP participation. $\boldsymbol{\alpha}$ consists of parameters to be estimated. ε denotes the error term. The equation was estimated using a logit model with odds ratios via SAS version 9.4 (SAS Institute, Cary, NC). To account for the complex sample survey format of the CPS and nonresponse to the FSS, United States Census Bureau replicate weights were used. The final weighted sample included 18,187 households.

Results Bivariate comparisons demonstrate that, over time, food insecurity rates declined in both expansion and non-expansion states (Table 1). Food insecurity rates in the Medicaid expansion states declined from 17.77 percent in the pre-expansion time period to 16.14 in the post-expansion time period. In non-Medicaid expansion states, food insecurity rates declined from 18.38 percent pre-expansion to 16.42 post-expansion. Additional survey respondents' characteristics, including average age and percentages of group characteristics, are presented in Table 1.

Table 1. Food Insecurity and other Characteristic Percentages among Low-Income Households by Medicaid Expansion Status and Pre- and Post-Medicaid Expansion (n = 18,187)

		Medicaid Expansion States (treatment)		Non-Medicaid Expansion States (control)	
		Pre-Medicaid Expansion, 2012-2013 (n = 5,537)	Post-Medicaid Expansion, 2015-2016 (n = 4,772)	Pre-Medicaid Expansion, 2012-2013 (n = 4,034)	Post-Medicaid Expansion, 2015-2016 (n = 3,844)
Food Insecurity (%)		17.77	16.14	18.38	16.42
Age (mean)		44.01	44.30	44.91	44.31
Female (%)		25.18	24.12	24.53	25.24
Race (%)	Black, non-Hispanic	7.52	7.53	12.99	13.09
	White, non-Hispanic	28.55	26.33	24.97	25.22
	Hispanic	10.15	10.48	9.19	8.49
	Other, non-Hispanic or Multiple	4.26	5.18	2.95	3.10
Metropolitan (%)		43.55	41.82	37.79	39.47
Education (%)	Less than High School Education	9.93	8.29	10.71	9.48
	High School Education	32.72	33.21	32.83	34.23
	Post-secondary Education	7.84	8.01	6.56	6.20
Married (%)		10.85	11.20	12.70	12.46
SNAP Beneficiary (%)		15.20	13.67	14.30	12.70

Notes: Medicaid expansion states include: Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Hawaii, Illinois, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Rhode Island, Vermont, Washington, and West Virginia. Non-Medicaid expansion states include: Alabama, Florida, Georgia, Idaho, Kansas, Maine, Mississippi, Missouri, Nebraska, North Carolina, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Wisconsin, and Wyoming. States excluded: Alaska, Indiana, Montana, Louisiana, and Pennsylvania. All estimates are weighted using the Food Security Supplement replicate weights.

Source: 2012, 2013, 2015, and 2016 Current Population Survey - Food Security Supplement.

Using the DID approach, I compared food insecurity rates in Medicaid expansion states to those in non-Medicaid expansion states. Table 2 shows that in 2015-2016, low-income households in Medicaid expansion states were not significantly less likely to be food insecure

Table 2. Adjusted Odds Ratio Estimates for Food Insecurity Among Low-Income Adults by Main Interaction Effect and Other Covariates

Variable	Estimate (p-value)	Confidence Interval
Post expansion (2015-2016) x Medicaid expansion states (treatment group)	1.058 (0.9113)	0.389, 2.880
Post-expansion (2015-2016)	0.869 (0.6963)	0.429, 1.762
Medicaid Expansion State (treatment group)	0.933 (0.8373)	0.478, 1.819
Age	1.009 (0.2907)	0.992, 1.025
Female	1.099 (0.6837)	0.697, 1.733
Black, non-Hispanic	1.098 (0.7954)	0.539, 2.237
Hispanic	1.023 (0.9545)	0.4273, 2.209
Other, non-Hispanic or Multiple Races	0.826 (0.6859)	0.325, 2.097
Metropolitan Status	1.009 (0.9794)	0.523, 1.945
High School Education	0.843 (0.5733)	0.463, 1.534
Post-secondary Education	0.479 (0.1227)	0.188, 1.222
Married	0.730 (0.3052)	0.399, 1.336
SNAP Recipient	3.260 (<.0001)	1.823, 5.828

Notes: All estimates are weighted using the Food Security Supplement replicate weights. Data based on 18,187 observations.

Source: 2012, 2013, 2015, and 2016 Current Population Survey and Food Security Supplement.

than households in non-Medicaid expansion states (*p*-value, 0.9113). Being a female, yearly increases in age, and living in a metropolitan area were each associated with an increased likelihood of being food insecure, although these findings were not significant. Compared to those without a high school education, those with a high school education were less likely to be food insecure (not significant). Being married was associated with a decreased likelihood of being food insecure, although this was also not significant. Compared to households headed by white, non-Hispanics, households headed by black, non- Hispanics or Hispanics were more likely to be food insecure, while those headed by non-Hispanics of other or multiple races were less likely to be food insecure (not significantly). Finally, receiving SNAP benefits in the previous 12 months was significantly associated with food insecurity, where those who participated in SNAP were 3.3 times more likely to be food insecure (*p*-value, <.0001).

Assumptions To estimate for a causal treatment effect, the DID approach holds several assumptions that must be met. These assumptions include that the make-up of the treatment and control groups remain stable over time; that the intervention is not provided based on the outcome variable of interest; and that the difference between the two groups, in the absence of the treatment, would remain stable over time (Columbia University, 2018). As discussed later, the make-up of the two groups appear to remain stable over time (see Table 1), but these differences were not tested. The intervention was not provided based on the outcome variable. The Medicaid expansion was intended to be a universal policy, providing health care coverage to an increased number of low-income Americans. Although not all states implemented the expansion, the states that implemented did so to increase health care coverage, not to improve food insecurity status. Additionally, since a statistically significant difference in food insecurity

rates was not found between the two groups over time, further evaluation to determine whether the changes might have happened without the intervention was not warranted.

Discussion Signed into law in 2010 and implemented by most states in 2014, the Medicaid expansion of the ACA extended Medicaid eligibility and increased the number of individuals accessing health care coverage. I used this policy change to examine the relationship between health care coverage and food insecurity rates in Medicaid expansion and non-Medicaid expansion states. I find that the effect is statistically zero. Those living in Medicaid expansion states were not significantly less likely to be food insecure in the 2015-2016, post-expansion time period than those living in non-Medicaid expansion states. This suggests that the Medicaid expansion under the ACA is not having a significant impact on food insecurity rates for low-income households.

The lack of association between state Medicaid expansion status and food insecurity was surprising, given the literature demonstrating the efficacy of Medicaid expansions in improving overall financial stability, including the decrease in high-interest payday loans mentioned earlier, as well as lower out-of-pocket medical expenses, decreased medical debt, and even reductions in bankruptcies (Allen, Swanson, Wang, & Gross, 2017; Finkelstein et al., 2012; Gross & Notowidigdo, 2009). The improvement in financial stability due to Medicaid expansions may create a "spillover" effect, in which lower health care costs free up available financial resources, allowing for money to be spent in other areas of life (Berkowitz, Seligman, & Choudhry, 2014). It was thought that this "spillover" effect may also be seen with improvements in accessing food. It may be possible that those under 185% of the federal poverty line (those my sample focused on) were not purchasing health care coverage prior to the expansion, and therefore did not have

resources "free up" when they gained affordable coverage through the Medicaid expansion. If this is true, this population would not benefit from an increase in financial stability from the Medicaid expansion, and would not enjoy an ease in purchasing food, ultimately reducing the household's level of food insecurity.

A finding of interest was the relationship between food insecurity and SNAP participation. Interestingly, SNAP participation was significantly associated with a greater likelihood of being food insecure. Extensive literature has demonstrated the efficacy of SNAP in reducing food insecurity (Collins et al., 2016; Mabli & Ohls, 2014; Mabli, Ohls, Dragoset, Castner, & Santos, 2013; Nord & Golla, 2009). However, there are several possible explanations for this finding. First, a self-selection effect has been found in SNAP participation, with households opting into SNAP participation when food insecurity is especially severe, meaning more of those with acute food insecurity are the ones participating in SNAP (Nord & Golla, 2009). Next, the finding may provide evidence that SNAP benefits are unable to fully ameliorate the nutritional needs of Americans, with low-income Americans still suffering from food insecurity while utilizing SNAP benefits. Finally, the relationship may also demonstrate a difference between those who choose to participate in SNAP and those who do not. Those who participate in SNAP may be more likely to also report food insecure instances in their history, biasing the make-up of the food insecure population.

The lack of significant relationships between each of the control variables and food insecurity was unexpected, specifically with differing levels of educational attainment and races. A possible explanation may be the limited, homogenous sample of this study. The sample was limited to those at or below 185% of the federal poverty line, leaving the entire population at risk of food insecurity.

While not significant, metropolitan households were 1% more likely to be food insecure. This small difference may arise from the fact that while food insecurity rates are typically higher in nonmetropolitan areas than metropolitan areas, when metropolitan areas are parsed apart, the highest food insecurity rates are seen in large urban areas and the lowest in suburban areas (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). As expected, age demonstrated a positive relationship with food insecurity. Although not significant, this parallels other studies that have shown aging to be associated with increased food insecurity (Bukenya, 2017; Hardin-Fanning, Witt, & Rayens, 2017). Additionally, females were more likely to be food insecure than males (finding was not significant). Meta-analyses have shown that when a woman is the respondent in the study, the odds of the household being food insecure are 40% higher (Jung et al., 2017). The finding that households headed by black, non-Hispanics or Hispanics have an increased likelihood of being food insecure compared to households headed by white, non-Hispanics was expected given the literature demonstrating higher than average rates of food insecurity in these populations (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017; Hernandez, Reesor, & Murillo, 2017). The finding that households headed by other, non-Hispanic or multiple races were less likely than white, non-Hispanic households was relatively surprising, given the literature demonstrating similar rates of food insecurity among white, non-Hispanics and other, non-Hispanic races (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). Next, as expected (Gregory & Coleman-Jensen, 2013; Gundersen & Garasky, 2012; Olabiyi & McIntyre, 2014), higher levels of educational attainment were related to lower levels of food insecurity, although not significantly. It was found that married individuals were less likely to be food insecure. Although the population in this study is restricted to adults without dependent children, other studies have

shown that married individuals with children are less likely to be food insecure, as well (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017).

Food insecurity is a complex issue. It has been linked with other determinants of health, including economic stability, in areas such as financial management skills (Gundersen & Garasky, 2012) and income (Dahl, DeLeire, & Mok, 2014); education (Gregory & Coleman-Jensen, 2013; Gundersen & Garasky, 2012; Olabiyi & McIntyre, 2014); the social and community context, including factors of social deprivation and social cohesion (Carter, Dubois, Tremblay, & Taljaard, 2012); the neighborhood and built environment, including access to food outlets (Bonanno & Li, 2015); and health and health care (Berkowitz, Seligman, & Choudhry, 2014; Eicher-Miller, Mason, Weaver, McCabe, & Boushey, 2009; Heflin, Siefert, & Williams, 2005; Pan, Sherry, Njai, & Blanck, 2012; Seligman, Bindman, Vittinghoff, Kanaya, & Kushel, 2007; Seligman, Laraia, & Kushel, 2010). Attempts to isolate food insecurity from these other ecological factors of health are complicated, especially when making comparisons across states and regions. This difficulty may play a role in the lack of a relationship found between food insecurity and the recent Medicaid expansion under the ACA.

Limitations First, as highlighted elsewhere, self-report measures of food insecurity may be flawed due to possible recall bias and differences in personal perceptions of food insecurity (Nguyen, Shuval, Bertmann, Yaroch, 2015). Next, as mentioned earlier, the characteristics of the two groups need to be tested over time to ensure that there were not statistically significant changes within each group. Finally, challenges arose when trying to compare across states. These challenges included the inability to control for changes in SNAP that may have affected food insecurity rates during 2012-2016. Some states altered eligibility rules, benefit amounts, and policies relating to the stigma associated with SNAP participation during this time period (Stacy

& Tiehen, 2018). The effect of eligibility rules was partially controlled for in the analysis through the inclusion of reception of SNAP benefits. However, this does not control for varying benefit amounts, possibly affecting the relationship between food insecurity and the expansion. Additionally, SNAP participation rates can vary greatly among states (United States Department of Agriculture, 2012).

These challenges also existed in differences with Medicaid expansions. Some states introduced limited benefit expansions to their Medicaid programs in the years leading up to the Medicaid expansion of the ACA (Arkansas, Idaho, Iowa, Indiana, Maine, Michigan, New Mexico, Oregon, Utah, and Wisconsin), while other states expanded their Medicaid programs in preparation for the ACA Medicaid expansion (California, the District of Columbia, Massachusetts, New Jersey, and Washington). These states were included in both the treatment and control groups, based on whether or not they implemented the full Medicaid expansion in 2014. All 15 states could have been excluded from analyses since they are not pure controls or treatments. However, after reviewing other studies that examined the Medicaid expansion with the DID approach, and to maintain a larger sample size, the states were kept in the analysis. It is also advised that comparing statistics across states with CPS – FSS data should be done cautiously due to the margin of error from sampling of a limited number of households in each state (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017).

Future Directions This study used a specific sample to gather data targeting those who may have been affected by the Medicaid expansion. This meant some populations known to be at a greater risk of food insecurity, including households with children headed by a single parent, were excluded from analyses (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). Future research should examine the relationship between food insecurity and health care coverage

access in these specific subpopulations. Additionally, this research could be extended and variability among states removed, if food insecurity rates within each state and among all eligible individuals could be compared between those who accessed the increased health care coverage through the Medicaid expansion and those who did not.

Conclusion For low-income households, Medicaid expansion was not associated with lower levels of food insecurity. Given the literature regarding Medicaid's ability to improve overall financial stability and introduce a "spillover" effect, this finding was surprising. Ultimately, state variability, as well as the complexity of the relationship between food insecurity and other ecological factors of a household's financial stability, may prevent a relationship between food insecurity and the Medicaid expansion to be shown. While this study did not find an association between state Medicaid expansion status and food insecurity, it provides insight into future directions for examining this relationship.

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Appendix A

18-Item Questionnaire used to Determine Household-Level Food Security in the Current Population Food Security Supplement (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017)

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 of 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?

(Questions 11-18 were asked only if the household included children age 0-17)

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 1-2 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)