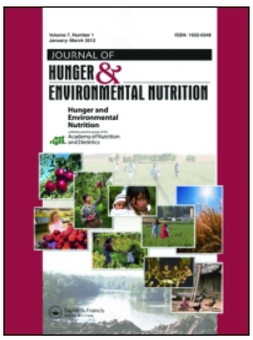

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Unpacking an Anomaly: Analyzing the 2005–2012 Current Population Survey to Understand Why Many Emergency Food Assistance Users Report Being Food Secure

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ABSTRACT

We analyzed households that use emergency food assistance (EFA) programs (eg, food pantries, soup kitchens) to better understand the repeated but seemingly anomalous finding that many EFA participants report being food secure. Using bivariate descriptive statistics and simple probit models to data from the 2005–2012 Current Population Survey (CPS), we examine 3 hypotheses: (1) food secure EFA participants are systematically different from food insecure participants; (2) food secure EFA participants are reporting food security and EFA usage from different times; and (3) among food secure households, EFA participants are more likely to be marginally food secure. We find limited evidence that food secure EFA participants are more advantaged than their food insecure counterparts. The 30-day food security reports are markedly higher than the 12-month reports, which suggests recall bias. Finally, among the food secure, EFA participants are more likely to be marginally food secure. We conclude that the 12-month measure of food security used in the CPS may result in over-reports of food security among EFA participants, and many participants characterized as food secure may still face uncertainty about their food supply.

KEYWORDS

Food insecurity; food security; emergency food assistance; food pantries; marginal food secure

Introduction

Food insecurity, defined as "limited or uncertain availability" of food or the ability to acquire food, has been measured by the Current Population Survey's (CPS) Food Security Supplement every year since 1995.[1(p42)] Food insecurity at the household level has been shown to be associated with poor nutrition, lower food consumption, and low income[2–9] as well as a host of negative individual consequences, particularly among children, including poor cognitive and behavioral outcomes, low academic achievement, and poor physical health.[7,10–12] Food security has been extensively measured and the current measures are considered to have high construct validity.

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However, an anomaly in food insecurity research exists: several studies have found that emergency food assistance (EFA) users—that is, people who obtain food from food pantries, soup kitchens, and community programs that provide direct food assistance—report being food secure. This finding presents a conundrum because by definition a food secure household should have "no reported indications of food-access problems or limitations."[13(para2)] This study examines why households that participate in emergency food assistance programs, such as food pantries and soup kitchens, report being food secure.

There is wide variation in the reported level of food security among the EFA population in U.S. studies. Each year, the U.S. Department of Agriculture (USDA) publishes nationally representative household food security studies based on CPS data that are collected from more than 54 000 households. Reports using CPS data from the past 10 years show that there has been a nearly constant level of food security among EFA users (see Figure 1).[15–26] In 2013, the most recent year available, 27% of EFA users were food secure.[15] Ten years earlier, in 2003, about 30% of EFA users were food secure.[25] As Figure 1 indicates, the trend has been relatively stable, with nearly one third of all EFA household participants classified as food secure in each of the years from 2002 to 2013. Though reported levels from CPS data are very consistent, they differ

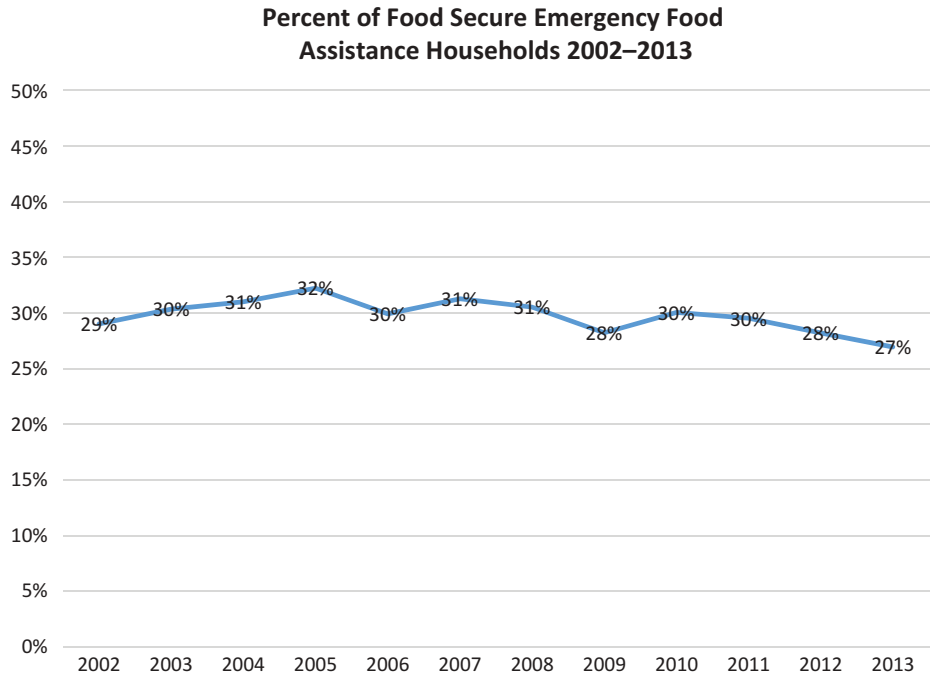

Figure 1. Percentage of food secure emergency food assistance households. Reports from USDA Annual Report of U.S. household food security based on data from the Current Population Survey.[14–26]

sharply from studies measuring food security in samples of EFA users where respondents were interviewed on-site.

A second set of studies uses data from client surveys that were carried out at food banks or food pantries. In 2001, the USDA conducted a survey of food pantry clients as part of a larger study of the emergency food assistance network.[27] The USDA study used the 6-item Food Security Short Form that is a subset of the 18-item Food Security Questionnaire in the CPS.[27] Food security status was assessed for all sampled adults who visited a food pantry in the USDA emergency food assistance system at the day and time scheduled for interviews. Survey interviews were mostly conducted by telephone but also sometimes face to face and offered in English and Spanish with translators for other languages.[27] According to the 2001 USDA emergency food assistance client survey, 21% of emergency food assistance users were food secure.[27]

In 2010 and 2014, Feeding America carried out a study of member organizations using the same 6-item Food Security Short Form.[4,28] In both 2010 and 2014, surveys were conducted on-site at Feeding America partner agencies in varying locations across the United States. Survey respondents were limited to adults 18 years and older who visited the pantry at the specific day and time of the interviews. The 2010 Feeding America study found that 24.5% of emergency food assistance users were food secure.[28] In the 2014 survey, however, the estimate fell to 15%.[4] The lower rate of food security between the Feeding America survey years is likely due to the shifting definition of food assistance programs and to changes to the survey method. In 2010, emergency food assistance included food pantries, churches, and food banks, but in 2014 the definition of emergency food assistance was broadened to include nonemergency food assistance such as grocery delivery programs, commodity supplemental food programs, backpack programs, and community gardens.[4] In addition, in 2014 the client survey was conducted on computers at food pantry locations and was available in 5 languages (English, Spanish, Vietnamese, Mandarin Chinese, and Russian), whereas in 2010 interviews were done face to face and only in Spanish and English.[4]

A third set of studies relies on local level data and shows a great deal of variation in estimates of food security.[3,5,6,29–35] In these studies, the geographical location (ie, urban, suburban, or rural), sample size, and coverage appear to impact results. Rural areas had the highest percentage of emergency food assistance users who report being food secure; suburban areas had the lowest. However, these studies are imperfect because they are limited to a single state and they used convenience-based sampling methods, so they are not representative.[3,5,6,29–35] Largely due to the variation in sampling and data collection methods, the levels of reported food security in these studies ranged from 16 to 55%.

Overall, differences in the reported levels of food security among emergency food assistance users likely reflect systematic differences in survey methods. The estimate range found in CPS data are highest (27%-32%), followed by national studies of emergency food assistance users (15%–25%) and then the community-level surveys (16%–55%). In the CPS, survey respondents self-report both their use of emergency food assistance and their level of food security, and both are likely underreported due to the social undesirability of reporting food hardship. In the other studies, surveys were conducted on-site at food pantries when clients were obtaining food assistance and the measurement error was likely to go in the opposite direction because respondents may have felt the need to justify their use of the emergency food assistance system by reporting food insecurity.

The purpose of our study was to evaluate 3 possible explanations for the consistent presence of a sizable food secure population among EFA participants. First, we evaluated whether food secure EFA participants differ systematically from their food insecure counterparts; that is, they have higher incomes or lower household demands and thus more food security or are disproportionately from privileged demographic groups and, as a consequence, less likely to accurately report their food security status. Second, we examined whether the 12-month time frame of the food security measure introduces recall bias and misreporting, which could mean that some EFA users are reporting food security from a prior period that was actually food insecure. Finally, we examine the possibility that EFA participants are food secure but only marginally so; that is, they gain some food security from food assistance programs but still have concerns about the adequacy of the food supply.

Methods

Data and sample

In this study, we used the nationally representative Current Population Survey Food Security Supplement (CPS-FSS) from 2005 to 2012 to examine reports of food security by participants in emergency food assistance programs (ie, EFA participants).[14] The CPS-FSS is collected annually in December and includes specific questions focused on food security and the use of food assistance programs, as well as standard demographic information. The sample includes approximately 55 000 households from across the entire civilian noninstitutional population in the United States, excluding those who are homeless, institutionalized, and in transitional housing situations.[15] The CPS-FSS is a unique data source containing information on respondents' self-reported use of emergency food assistance as well as their level of food security using a 30-day and a 12-month recall. Households

are in the survey on a rotating basis: respondents are in the survey for 4 consecutive months, out of the survey for 8 months, and then in the survey again for 4 months before permanently leaving the rotation.[35] In order to ensure that respondent households are present in the data only once, we limit our sample to households in their first rotation cycle.

We limited our analysis of CPS data to years 2005–2012 because, starting in 2005, food security levels were divided into 4 categories: high food security (no reported issues with food hardship); marginal food security (one or 2 food hardships); low food security (3 to 5 reports of food hardship); and very low food security (6 or more reports of food hardship).[15] The questions used to determine the level of food security are retrospective with a 12-month or 30-day recall, which is important for our analytic strategy.

For our first 2 analyses, our sample population is composed of EFA recipients, which we define in this study as anyone who answered affirmatively to the question "Did (you/you or other adults in your household) ever get emergency food from a church, a food pantry, or food bank?"[15] Thus, our sample size includes 8581 CPS respondents pooled from 2005 to 2012 who answered affirmatively that they received emergency food assistance using the 12-month recall measure. For the last analysis, we include the full set of respondents to the CPS-FSS (n = 64 321).

Measures

We defined a food secure household as one that has "no reported indications of food-access problems or limitations."[13(para2)] The CPS measures food security with a battery of 18 questions that follow the USDA guidelines. (Sample questions are the following: Did [you/you or other adults in your household] ever cut the size of your meals or skip meals because there wasn't enough money for food? Did you ever eat less than you felt you should because there wasn't enough money for food? In the last 12 months [was the child/were the children] ever hungry but you just couldn't afford more food? How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months? Did this happen in the last 30 days?) We also controlled for a number of general demographic characteristics in our analysis, including the respondent's race (non-Hispanic white, non-Hispanic black, Hispanic, or other); age (18–24, 25–49, 50–64, and 65 years and older); marital status (married, single, or divorced, separated, or widowed); sex (male or female); and education (less than high school, high school/GED, some college, or college diploma). In addition, we control for citizenship status (native born, U.S. citizen; foreign born, U.S. citizen; foreign born, noncitizen); income; whether children are present in the household; and the number of people living in the household. Finally, we include year dummy variables from 2005 to 2012 in our analysis.

Table 1. Descriptive statistics of emergency food assistance users and their food security status.

	12-Month measure[a]		
	High and marginal food security (%)	Food insecure (low and very low food security) (%)	Significant difference
Total	31.1	68.9	
Race			*
Non-Hispanic white	63.4	57.6	
Non-Hispanic black	17.9	19.8	
Hispanic	12	15.5	
Other	6.7	7.2	
Age (years)			*
18–24	6.3	5.7	
25–49	43.1	56.8	
50–64	26.4	27.9	
65+	24.2	9.6	
Marital Status			
Married	31.1	29.9	
Single (never married)	25.2	27.9	
Divorced, separated, or widowed	43.7	42.2	
Sex			
Female	61	64.6	
Male	39	35.4	
Education			
Less than high school	28.5	29	
High school diploma or GED	36.2	34.2	
Some college education	27.2	29.8	
College degree	8.1	7	
Citizenship			
Native born, U.S. citizen	91.7	89.8	
Foreign born, U.S. citizen	3.4	3.2	
Foreign born, noncitizen	5	7	
Income ($)			*
Mean income	20 718	19 030	
Children in the household			*
Yes	32.5	42.3	
No	67.5	57.7	
Number of people living in household			*
Mean number of people in household	2.6	2.8	

[a]Pooled data from 2005–2012 Current Population Survey data. Sample includes those who affirmatively answered that they received food from emergency food assistance within the 12 months, $N = 8581$. Significance testing done using the Pearsons' chi-square test for categorical variables and t tests for the number of people living in household and household income. Columns may not add to 100% due to rounding.

*$P < .01$.

Table 1 presents descriptive statistics for the variables that were used in our analysis.

Analysis

To test our first explanation, we compared the demographics of food secure EFA participants and food insecure EFA participants, using both bivariate descriptive statistics and simple probit models of the probability of being

food secure. If the food secure EFA participants are advantaged relative to the food insecure participants on resource measures such as income and household composition, it is likely that they do not really need food support from the EFA system. On the other hand, if they differ only by education or race, it might suggest that food secure EFA participants are underreporting their level of food security.

To test our second explanation, we examined the timing of reports of food security and EFA participation, as presented in bivariate tables. Because both food security and EFA participation are assessed over the last 30 days and over the prior 12 months, we examined the pattern of results for clues about how recall bias and measurement error might be influencing self-reports.

Finally, to test our third explanation, we looked at the full sample of food secure households over the 2005–2012 time period and estimated the probability of being marginally food secure as a function of EFA participation and the standard set of demographic controls. Once again, we used probit models for estimation and report marginal effects. A positive and significant coefficient on EFA users would be consistent with the explanation that participating in EFA might reduce the experiences of food hardship but still leave a household insecure about their food supply.

Results

Hypothesis 1: Food secure EFA participants are systematically different

First, we examined whether food secure participants are systematically different from their food insecure counterparts. Table 1 presents descriptive statistics for the pooled sample in which the base rate of food security is 31.1%. In terms of descriptive characteristics, food secure EFA participants were slightly advantaged in terms of resource measures; similar in terms of education, sex, marital status, and citizenship; and differed in terms of race and age. Food secure EFA households had slightly higher average total household income ($20 718 versus $19 030), were less likely to have children present (32.5% versus 42.3%), and had smaller household sizes (2.6 versus 2.8), which are all indicators that food secure households might be more advantaged than food insecure households. Additionally, food secure households were more likely to have a racial identity of white (63.4% versus 57.6%) and be over age 65 (24.2% versus 9.6%), both of which are characteristics of people who might be less likely to self-report being food insecure due to stigma.

Table 2 presents marginal effects and their standard errors with statistical significance from a simple probit model of food security among EFA participants. Relative to whites, all other racial groups were less likely to report being food secure with effect sizes in the 3.5–4.0 percentage point range. In

Table 2. Probability of emergency food assistance user being food secure.[a]

	Marginal effect (SE)	*P* value
Race (non-Hispanic white omitted)		
Non-Hispanic black	−0.0403	**
	(0.0135)	
Hispanic	−0.0353	**
	(0.0178)	
Other	−0.0371	*
	(0.0198)	
Age (18–24 years old omitted)		
25–49 years old	−0.0821	***
	(0.0227)	
50–64 years old	−0.0318	
	(0.0246)	
65+ years old	0.2059	***
	(0.0308)	
Marital status (married omitted)		
Single (never married)	0.0054	
	(0.0157)	
Divorced, separated, or widowed	−0.0286	**
	(0.0139)	
Sex		
Male	0.0244	**
	(0.0113)	
Education (high school diploma or GED omitted)		
Less than high school	−0.0263	**
	(0.0132)	
Some college education	−0.0186	
	(0.0129)	
College degree	−0.0012	
	(0.021)	
Citizenship (native-born U.S. citizen omitted)		
Foreign born, U.S. citizen	−0.0026	
	(0.0302)	
Foreign born, noncitizen	−0.0106	
	(0.0257)	
Total household income	0.0000	***
	(0.0000)	
Children in the household	−0.0211	
	(0.0151)	
Number of people living in household	−0.0013	
	(0.0041)	

[a]Note: Pooled data from 2005–2012 Current Population Survey data. Sample includes those who affirmatively answered that they received food from emergency food assistance within the 12 months, $N = 8256$.
*$P < .10$. **$P < .05$. ***$P < .01$.

terms of age, the elderly were much more likely to report being food secure than younger household heads and household heads aged 25–49 were significantly less likely to report food security. EFA participants who were divorced, separated, or widowed were 2.9 percentage points less likely to report being food secure. Male respondents were 2.4 percentage points more likely to report being food secure than female respondents. In terms of education level, household heads with less than a high school education had a reduction of 2.6 percentage points in the probability of being food

secure relative to someone with a high school education. Interestingly, having more than a high school education conferred no protective value among EFA participants. As expected, total household income was associated with an increase in the probability of being food secure, but the magnitude of the effect was quite small. The presence of children in the household, the total household size, or the U.S. citizenship status of the household head had no relationships to the probability of being food secure.

In summary, there do not appear to be many systematic, demographic differences among EFA participants that would support the hypothesis that some EFA users are food secure because they have lower household demands or higher resources to cover demands: Household size and composition are similar across the 2 groups in the probit analysis and although total household income is higher in food secure households, the size of the coefficient renders it largely meaningless. In contrast, food secure households appeared to be higher status in that they were more likely to be white, elderly, and male and have higher levels of education; this finding suggests that food security may be exaggerated in this group because food insecurity is more uncomfortable to report.

Hypothesis 2: The 12-month measure has more noise than the 30-day measure

Next, we took advantage of the 30-day and 12-month food security measures in the data to see whether recall bias and misreporting over the 12-month time frame might result in incorrect reports of food security among the EFA population. If hypothesis 2 is true, the 30-day food security rate will be lower. However, the univariate rate is 45.2%, about 15 percentage points higher than the 12-month food security rate for the EFA participants in the last 12-month sample. This finding does not support our hypothesis: The 30-day food security rate among the sample of EFA participants in the last 12 months was even higher—54.5%. This suggests that some households are reporting EFA participation from a past period of hardship (ie, 4 months ago) when the current period is food secure. This finding supports the hypothesis that respondents are not necessarily reflecting on the same time period when answering both questions.

Hypothesis 3: EFA eliminates food gap but households still marginally food secure

In order to test our last hypothesis, we looked at a sample of food secure households (n = 64 321) using pooled CPS data from 2005 to 2012. The results shown in Table 3 confirm the hypothesis; EFA participants are 26.43 percentage points more likely to be identified as marginally food secure

Table 3. Probit model predicting marginal food security among food secure population.[a]

	Marginal effects (SE)	*P* value
Emergency food assistance use	0.2643	***
	(0.0103)	
Race (non-Hispanic white omitted)		
Non-Hispanic black	0.0786	***
	(0.0061)	
Hispanic	0.0486	***
	(0.0068)	
Other	0.0371	***
	(0.0082)	
Age (18–24 years old omitted)		
25–49 years old	0.0083	
	(0.0071)	
50–64 years old	−0.0165	**
	(0.0077)	
65+ years old	−0.1277	***
	(0.007)	
Marital status (married omitted)		
Single (never married)	0.0173	**
	(0.0056)	
Divorced, separated, or widowed	0.0294	***
	(0.0048)	
Sex		
Male	−0.0218	***
	(0.0036)	
Education (high school diploma or GED omitted)		
Less than high school	0.0318	***
	(0.0054)	
Some college education	−0.0072	*
	(0.0043)	
College degree	−0.0585	***
	(0.0048)	
Citizenship (native-born U.S. citizen omitted)		
Foreign born, U.S. citizen	−0.0072	
	(0.008)	
Foreign born, noncitizen	−0.0254	**
	(0.0074)	
Total household income	−0.0000	
	(0.000)	
Children in the household	0.0159	**
	(0.0054)	
Number of people living in household	0.0078	***
	(0.0016)	

[a]Pooled data from 2005–2012 Current Population Survey data. Sample includes those who meet the definition of high or marginally food secure, $N = 64\,321$.
*$P < .10$. **$P < .05$. ***$P < .01$.

instead of highly food secure, after controlling for basic demographic characteristics, income, and household size. This finding suggests that although food secure, EFA users still have concerns about their food supply.

Discussion

In this study we examined the seemingly anomalous finding that a sizeable portion of individuals who use food assistance from a church, food pantry, or food bank report being food secure. Specifically, we evaluated 3 explanations for this consistent finding, which has been found across a range of nationally representative household surveys, nationally representative food pantry client surveys, and community-level food pantry studies. Using cross-sectional analysis based on nationally representative data from the CPS, our results suggest that food security among food assistance users is likely overreported and may also mask household concerns about food. We find that there is limited evidence that EFA users who report being food secure are doing so because they are more advantaged than their food insecure counterparts. However, EFA participants who report being food secure do have some notable demographic differences; it appears that the food secure EFA participants are a higher status group. We also find that reports of food security increase by 50% when 30-day measures of food security (as opposed to 12-month measures) and EFA participation is examined; this finding suggests that recall bias might be a source of measurement error in existing reports. Finally, we find that EFA participants who report being food secure are much more likely to identify as marginally secure rather than "highly" food secure. One interpretation of this finding is that emergency food assistance is sufficient to prevent food insecurity, but the protection is only partial, so household concerns about the adequacy of the food supply likely remain.

Indeed, taken together, our results indicate that the consistent finding of food security among a portion of food assistance users is at least somewhat a misrepresentation and does not likely mark the kind of stability, lack of stress, and consistent nutrition that "food security" implies. In short, our results indicate that food security among EFA participants is likely to be overreported using a 12-month measure and a significant portion of those who are categorized as food secure still face uncertainty about their food supply. Our results suggest that there is no need to screen EFA participation for fraudulent usage but instead that caution should be taken before assuming that EFA participants who identify as food secure face no concerns about their household food supply.

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