

Predictors of Food Bank Usage Among Those with Low Food Security

Analysis of the Current Population Survey Food Supplement Data

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Executive Summary

Food insecurity is defined as the “access...at all times to the food needed for a healthy life” (Powledge 2010). According to the U.S. Census Bureau, approximately 15 percent of all Americans have experienced some measure of food insecurity. The issue is not new, but one that is ongoing and very complex and has impacts on individuals, households and society. In order to better understand the breadth and depth of the nation’s struggle with food sufficiency, an annual Food Supplement was attached to the Current Population Survey (CPS), a national labor force survey instrument. The CPS Food Supplement gathers information on food expenditures, participation in available assistance programs, household concerns regarding the sufficiency of food and ways in which households manage without being able to afford needed food (CPS Codebook). Food security is determined by one’s responses to these questions.

For the purposes of this study, data was extracted from the CPS on respondents deemed of low or very low food security (hereafter referred to as low food security). Initial tabulations of the data showed that approximately 75 percent of those with low food security did not frequent food banks. Consequently, this study seeks to compare those that frequented a food bank to those who did not in order to pinpoint potential predictors of food bank usage. The data was analyzed using simple linear and linear probability regression models. Findings indicate that factors such as income, homeownership and participation in other food assistance programs affected one’s likelihood of receiving food from a food bank, while variables such as gender and presence of children in the household did not seem to impact the probability of food bank usage.

Further analysis of the CPS as well as local data is recommended in order to better inform local food banks of specific needs and trends in particular areas. Yet, the findings of this study support prior research and serve as a reminder of the complexities of food insecurity.

Introduction

There are approximately 17.4 million households in the United States that do not have “access...at all times to the food needed for a healthy life” (USDA 2011, Powledge 2010). This situation, commonly referred to as food insecurity, has proven to have broad impacts on several levels. While in the United States it is estimated that approximately 85 percent of households have moderate or high food security, that leaves approximately 15 percent with low or very low food security, which equates to 50.2 million people (USDA 2011).

Anne-Marie Hamelin, Jean-Pierre Habicht and Micheline Beaudry studied the consequences of food insecurity and found that it not only impacted individuals in the household, but society as well. The team of researchers interviewed a sample of single and two-parent households from a variety of places “in and around Quebec City” (1999). Through their analysis, they found that the household consequences fell into three main categories: physical, psychological and sociofamilial. The physical consequences could be seen in an inability to concentrate on school or work responsibilities. Psychologically, food insecurity was shown to cause stress in the home between family members. The third area of consequences, those of sociofamilial, can have an effect on the traditions and patterns of a family (Hamelin, et. al 1998). If there is no food available, the emphasis on sharing family meals together may likely decrease. The social implications of food insecurity followed along the same three main categories. From the physical standpoint, many who responded to the survey said that the lack of food in their household affected learning and slowed their ability to perform well due to factors such as increased absenteeism

in the workplace. The psychological implications on a societal level showed that people often experience feelings of “exclusion and powerlessness” about their situation. Further, respondents expressed that their experience with food insecurity and disrupted routine has affected the family’s social life as well as the “transfer of knowledge and practices” (Hamelin 1998). If there is an inability to provide food for one’s own family, it is unlikely that the household will create or participate in social situations where food may have to be provided. From these findings, it would seem that much of human development and interaction is contingent on food security.

Given the various impacts that food insecurity has on a society, research has been conducted to monitor its prevalence and severity. One such study is the Current Population Survey (CPS) Food Supplement. The CPS is a labor force survey conducted on a monthly basis by the U.S. Census Bureau. Using this instrument, the U.S. Census collects employment information on approximately 60,000 households. Once a year, a food supplement is attached that collects data on food expenditures, participation in available food programs, household concerns regarding the sufficiency of food and ways in which households manage without being able to afford needed food (CPS Codebook).

Research Question

Initial examination of the December 2009 data showed that there were 17,834 respondents who were food insecure. Of these respondents, approximately 75 percent did not receive emergency food from a food bank or food pantry. This knowledge leads one to wonder if there are certain indicators among those with low food security

that predict the likelihood of food bank usage. Knowledge of specific predictors could inform emergency food providers of ways in which services could be adapted to increasingly reach those in need. In order to do this, the remaining sections of this report will provide a background on food banking, an explanation of the Current Population Survey instrument and resulting data and an analysis of pantry use among respondents with low food security. The report will conclude with a discussion of possible implications for food banks given the findings and possible limitations of the study.

Background

Food banking as an organizational process began in the 1960s with the founding of St. Mary's Food Bank by John van Hengel. In 1965, van Hengel learned that "grocery stores disposed of food that had damaged packaging or was near expiration" (St. Mary's Food Bank Alliance). At the time, van Hengel was working at a church community kitchen. Knowing that this food was available and safe for consumption, he worked with grocers in the area, convincing many of them to donate their "edible but unsalable" food items to the community kitchen. It did not take long before van Hengel had more donated food than could be used, and thus the food bank idea was born.

A food bank conceptually functions much like that of a financial bank. Certain groups (grocers and food producers) deposit while others (agencies and individuals) withdraw food supplies. Mainly, food banks serve as warehouses for

food between the source and the end user. Food banks work with food pantries in a given area in order to ensure distribution to the appropriate individuals and households. Food pantries, as part of the food banking system, are defined as “food distribution agencies which provide its clients with bags or boxes of food for home preparation and consumption” (*Hunger in Kentucky*). Food eligibility is determined by referrals from “social workers or social service agencies” (God’s Pantry FAQs). Specific eligibility requirements vary between food banks.

Food Insecurity and Hunger in Kentucky

The rates of hunger and food insecurity in Kentucky have been assessed in a variety of surveys by organizations such as the Kentucky Association of Food Banks and Feeding America. The most recent survey, *Hunger in Kentucky 2010*, showed that there are approximately 684,000 Kentuckians living at or below the poverty line, approximately 16 percent of the total state population. Twenty-five percent of Kentucky’s children are living in poverty. There are approximately 620,100 food bank clients across the state, with 67,300 people receiving “emergency food assistance” every week. Seventy-two percent of client households “have incomes below the federal poverty level.” Of the client population of Kentucky’s Food Banks, 71 percent are food insecure, with 29 percent of all clients experiencing very low food security. The survey also found that the average household size is 2.4 individuals. According to the data, in 23 percent of client households, there is at least one employed household member. Forty-one percent of households with children are

led by a single parent. For another 41 percent of Kentucky clients, a high school diploma or GED is the highest level of educational attainment.

Local entities, such as God's Pantry Food Bank in Lexington, KY have conducted studies to assess hunger in different regions of the state. The most recent study conducted by God's Pantry is the *Hunger in Central and Eastern Kentucky 2010* report. According to the data, there are 310,170 people living at or below the poverty line in this 50 county service area, with 15,400 families receiving food supplies every week. The average yearly income of clients in central and eastern Kentucky was approximately \$13,070 (2008). Of the clients in this particular service area, 73 percent of households experience food insecurity, with 33 percent having very low food security. Moreover, the average client household has 2.8 individuals. Twenty-seven percent of households have one or more employed adults. Additionally, close to half (47%) of the client population has "less than a high school education."

These reports present clear and concise information that can be used to give stakeholders an idea of the need for food banking in Kentucky as well as the services provided by a particular organization. Unfortunately, much of this data is collected and stored in aggregate form, making it difficult to fully analyze.

The initial research question of this study included a comparison of CPS data for Kentucky with that of local data on food insecurity and food bank usage. When the Kentucky data regarding food bank usage was extracted from the CPS Food Supplement, the sample size proved to be too small to draw any conclusions. This

reality, coupled with the aggregated data of the local surveys has limited the study's ability to address the question of food bank usage among those with low food security in Kentucky. Consequently, this study is approached with a national perspective.

Methodology and Data

In the last couple of decades, a considerable amount of research has been done on the topic of food security. Prior to the early 1990s, the United States had no agreed-upon model that might provide insight into the national food (in)security rates. With the creation and implementation of a nation-wide measurement model, the federal government, along with the nutrition and food security communities, has been able to better understand the pervasiveness of food insecurity. Moreover, with advances in measurement, researchers have been able to get a clearer understanding of the many determinants of food insecurity as well as possible consequences. Food insecurity largely affects vulnerable groups of people, especially with regards to the growth and development of children and the intake of valuable nutrients among pregnant women and the elderly (USDA 2010, Rose 1998). This research is important in order that policy makers and organizations can create and change programs in order to address this complex need.

In the early 1990s, with the introduction of the term 'food security,' researchers were better able to define food-related circumstances. For instance, the word 'hunger' can now be used simply to refer to the temporary condition created by not having enough food in the body. This expansion of terms used to describe

situations allows ‘food security’ to describe a broader, more chronic condition that not only affects individuals, but households, communities and nations as well. “Food insecurity can therefore be studied at different levels of analysis without stretching its definition” (Campbell 409). Moreover, the delineation of these two terms brings broader recognition to the fact that solutions to this problem are not minor and executed on an individual basis, but require further examination of larger processes (Campbell 1991).

In 1992, the U.S. Department of Agriculture (USDA) worked together with the Centers for Disease Control and Prevention (CDC) and the National Center for Health Statistics (NCHS) to develop a system to measure “food insecurity and hunger” (Carlson, et al 1999). With help from the nutrition community, specifically the Community Childhood Hunger Identification Project (CCHIP) and Cornell University’s Division of Nutritional Sciences, a “draft questionnaire” was presented to researchers in the field at a Conference on Food Security Measurement and Research. Upon revision of the provisional draft, it was submitted to the U.S. Bureau of the Census Center for Survey Methods Research for evaluation. Once all revisions and recommendations were taken into consideration, a final questionnaire was added in 1995 to the Current Population Survey done by the U.S. Census Bureau (Carlson, et. al 1999).

After the data was collected and initially analyzed, it became apparent that food security measurement could be ordered along an 18-item scale based on severity, ranging from being worried about food running out to children not eating for

an entire day (Carlson, et. al 1999, Gundersen 2007). An example of this is illustrated in Figure 1 from the 1998 Food Supplement.

Figure 1: Food Security Range, 1998 Food Supplement

**HOUSEHOLDS WITH COMPLETE RESPONSES:
FOOD SECURITY SCALE VALUES AND STATUS LEVELS
CORRESPONDING TO NUMBER OF AFFIRMATIVE RESPONSES**

Number of Affirmative Responses:		1998 Food Security Scale Values ^a	Food Security Status Level	
(Out of 18) Households With Children	(Out of 10) Households Without Children		Code	Category
0	0	0.0	0	Food Secure
1		1.0		
2	1	1.2		
	2	1.8		
		2.2		
3		2.4	1	Food Insecure Without Hunger
4		3.0		
	3	3.0		
5		3.4		
	4	3.7		
6		3.9		
7		4.3		
	5	4.4		
8		4.7	2	Food Insecure With Hunger, Moderate
	6	5.0		
9		5.1		
10		5.5		
	7	5.7		
11		5.9		
12		6.3		
	8	6.4		
13		6.6	3	Food Insecure With Hunger, Severe
14		7.0		
	9	7.2		
15		7.4		
	10	7.9		
16		8.0		
17		8.7		
18		9.3		

Source: Bicket, et. al. *Guide to Measuring Household Food Security*, Revised 2000.

From this detailed range, broader categories were developed. If the respondent answered three questions or less in the affirmative, the household was considered food secure, where four or more affirmative answers landed the household

in the insecure range. If the household in question had children and answered 3-7 questions positively, it was deemed “food insecure without hunger”. If the range of affirmative responses was 8-12, the household was “food insecure with moderate hunger” and more than thirteen positive responses illustrated a situation where the household was “food insecure with severe hunger” (Carlson 1999).

The CPS Food Supplement has proven to be a valid measurement tool, helping researchers understand more about this complex issue. The measurement instrument in question has been constructed and performs in a way that makes sense with respect to prior research on the subject. Moreover, it is precise, dependable and “accurate at both group and individual levels within reasonable performance standards” (Frongillo 1999). With increasing research done, it is becoming clear that food insecurity is more than just an economic issue, but has social, biological and nutritional implications as well. The construction of this initial nation-wide measurement model helped to open the door for greater exploration into those variables that cause food insecurity as well as potential consequences of this phenomenon.

Donald Rose of Michigan State University looked further into the data from the 1995 Current Population Survey, finding that there is a strong relationship between income and food insecurity, yet this relationship is not a perfect one-to-one ratio. For instance, the CPS data shows that approximately half of the households “affected by hunger have incomes above the poverty level” (Rose 1999). The high rate of food insecurity among those above the poverty line is due in large part to the validity of the measure. Basing the measure on income has the potential to create

biases due to variation in “housing, food or health care” (Rose 1999). Thus, several other factors should be taken into consideration in order to best understand the problem of food insecurity, such as political and economic occurrences, the use of food stamps, and other demographic variables, such as homeownership and education levels.

In their analysis of the Survey of Income and Program Participation (SIPP) and Continuing Survey of Food Intake by Individuals (CSFII) data, Rose, Gundersen and Oliveira (1998) were able to pinpoint variables that seemed to explain food insecurity, generally. In addition to income, there were inverse relationships between education level and homeownership. Moreover, having more household members increased the probability of food insufficiency. The study also showed that if the head of household was over 60 years of age, there was less likelihood of experiencing food insecurity. Moreover, analyzing the data to test the importance of food stamps on food security showed an inverse relationship; decreasing the amount of benefits for food assistance would “increase the percentage of food-insufficient households” (Rose, et. al 1998).

Current Population Survey Data

For this study, the CPS data was retrieved from DataFerrett, an online data extraction tool that provides a variety of datasets of federal, state and local data. Use of the CPS codebook provided additional information needed about the dataset and facilitated the selection of variables that would be pertinent to this study. Once the variables were chosen, data was extracted on those observations that represented low

and very low food security. This selection narrowed the dataset to 17, 834 observations. General tabulations and cross tabulations were completed on demographic, labor force and food security variables in order to understand the characteristics of the sample population. In order to compare food bank users to non food bank users, an additional variable, PANTRY, was created. Observations were assigned a '1' if they represented a respondent that used a food bank in the past year and a '0' for respondents that did not. Simple linear regression was used to determine statistical significance of a variety of variables with respect to the PANTRY variable. A linear probability regression model was completed in order to better understand which variables indicate food bank usage, controlling for other factors. The regression evaluated the effect that demographic, employment status and earnings and food sufficiency variables had on one's likelihood to use food bank services. Both regression models were examined with the consideration of a 95 percent confidence interval.

Weights were applied where applicable, so that, "Supplement respondents represent the national civilian non-institutionalized population" (CPS Codebook). According to the CPS Codebook, the weighting mechanisms are appropriate to use for any of the Food Supplement variables.

Empirical Analysis

General Demographic Information

The mean age of those of low food security was 30 years old. Of the 17,834 respondents, 47 percent were male and 53 percent female. While there were 17 race categories represented, the four most common make up approximately 96 percent of total respondents; White only, Black only, Asian only and American Indian, Alaskan Native only. Additionally, all respondents were asked if he or she was Hispanic. Twenty-nine percent of White, 4 percent of Black, 3 percent of Asian and 28 percent of American Indian respondents were of Hispanic origin.

Ninety-four percent of those with low food security have three or fewer children in the household, with the mean being 1.3. The average household size is approximately 4 people (3.87). Forty-six percent live in housing that is owned by a household member, while 53 percent rent living quarters. The majority of respondents live in metropolitan areas in the Southern or Western regions of the United States.

Labor Force Data

Labor Force data was collected for survey respondents that were 15 years of age or older. Within the low and very low food security population, approximately 48 percent of people were employed, 14 percent were unemployed and 39 percent were not in the labor force due to retirement, disability or other factors. Of those who

were employed, 94 percent had only one job, while six percent worked two or more employment positions. Of those working more than one job, over 90 percent worked two jobs while approximately 9 percent had three or more. Employed individuals worked an average of approximately 37 hours a week and had weekly earnings of \$511.

Of those in the labor force, but were unemployed, the average duration of unemployment was approximately 30 weeks. In this subpopulation, 10 percent were on layoff and 90 percent were technically looking for a job. Seventy-one percent of those unemployed and looking for a job had lost their previous job, 10 percent quit and 19 percent had a temporary job that came to an end. On average, those that had been unemployed and were looking for a job had been job searching for 32 weeks.

Both the unemployed and those not in the Labor Force were asked when they had last worked a job. Eighty-three percent responded that they had not held a job in over a year, while 5 percent had worked within the past 12 months. The main reasons reported for leaving a job among those not in the Labor Force was to return to school or “slack work/business conditions” (CPS Codebook).

Food Security Data

Those of low food security that were surveyed spent an average of \$119 a week on food. Over half of the respondents said that they need an average of \$70 more a week to simply meet the basic household food needs. Thirty-six percent of households are receiving assistance from the Supplemental Nutrition Assistance Program (SNAP), or food stamps, with an average monthly benefit of approximately

\$292. This data does not provide information on whether or not respondents qualify and/or reasons for which the program is not being used. Sixty-four percent of low food security households with children take advantage of the free or reduced lunch program.

The majority of households responded that there is often enough food in the household, but it is not always the kinds of food wanted. Fourteen percent of respondents have enough of the kinds of food they like to eat, while 23 percent *sometimes* do not have enough food and five percent *often* do not have enough food to eat. Fifty-eight percent of adult respondents (9,048) cut the size of their meals or skipped meals altogether because there was not enough money to buy more food. Moreover, 14 percent of adult respondents (1,748) have gone an entire day without eating due to a shortage of food. Child food insecurity is the most severe because it is understood that parents or guardians are more likely to provide for the needs of their children before their own. The survey data illustrates this in that 5 percent of children skipped a meal and one percent did not eat for an entire day due to a shortage of food and additional resources.

Predictors of Food Bank Usage

Using regression to analyze the PANTRY variable with one other descriptive variable shows interesting findings. According to the data presented in Table 1, as age continues to increase, the probability of food bank usage decreases. There was neither a large nor statistically significant relationship between gender and food bank

usage. This outcome does not allow for a prediction of food bank usage to be made on the basis of a respondent's gender.

Table 1: Simple Linear Regression Results

Variable Description	Estimated Coefficient	Std. Error	t-Statistic	p-Value
Age	-0.7770126	0.352349	-2.21	0.027
Age squared	-51.01111	25.08621	-2.03	0.042
Gender	0.0097011	0.008804	1.1	0.271
<i>Race: Black</i>	0.0329098	0.007157	4.6	0.000
<i>Race: Native American</i>	0.007486	0.002379	3.15	0.002
<i>Race: Asian</i>	-0.0185192	0.002823	-6.56	0.000
<i>Race: Pacific Islander</i>	-0.0030355	0.001179	-2.57	0.01
<i>Race: Mixed</i>	0.0141811	0.002958	4.79	0.000
<i>Race: Hispanic</i>	-0.0277629	0.007947	-3.49	0.000
<i>Marital Status: Spouse Absent</i>	-0.0000284	0.002974	-0.01	0.992
<i>Marital Status Widowed</i>	-0.002534	0.004317	-0.59	0.557
<i>Marital Status: Divorced</i>	0.0230749	0.007253	3.18	0.001
<i>Marital Status: Separated</i>	0.0200713	0.004273	4.7	0.000
<i>Marital Status: Never Married</i>	0.0188641	0.010359	1.82	0.069
Number of children	0.0020104	0.018042	0.11	0.911
Household Sizes	0.2662917	0.034796	7.65	0.000
<i>Region: Midwest</i>	0.0598183	0.007073	8.46	0.000
<i>Region: South</i>	-0.0698098	0.008611	-8.11	0.000
<i>Region: West</i>	0.0278973	0.007625	3.66	0.000
Metropolitan	-0.0360489	0.006401	-5.63	0.000
Income	-9.199882	0.458718	-20.06	0.000
Homeownership	-0.1461247	0.008669	-16.86	0.000
High School Diploma	-.0466748	.0073979	-6.31	0.000
Received Food Stamps	0.2708832	0.008157	33.21	0.000
Free/Reduced Lunch	0.1824954	0.008438	21.63	0.000
Received WIC	0.0632703	0.006486	9.75	0.000
Worried food would run out	-0.1774102	0.00961	-18.46	0.000
Food did not last/no money	-0.2052531	0.010175	-20.17	0.000
Couldn't afford balanced meals	-0.1145653	0.0115	-9.96	0.000
Cut the size/skip meals	-0.116147	0.009295	-12.5	0.000
Ate less than felt one should	-0.1115883	0.008665	-12.88	0.000
Hungry, but didn't eat	-0.1533923	0.007916	-19.38	0.000

Source: Author Analysis of Current Population Survey Data, U.S. Census Bureau, December 2009

Of the main race categories, Black, Native American and Mixed Races were more likely to frequent food banks compared to White respondents. Conversely, Asian, Pacific Islander and Hispanic respondents have a lower probability of food bank usage. It would seem that respondents who are divorced or separated are the most likely to frequent food banks. Further, the number of children in a household is a notably weaker indicator of food bank usage than household size. Thus, it would seem that the number of individuals in a household is more important than its age makeup. Compared to the Northeast, the Midwest and Western regions of the United States are more likely to frequent food banks, whereas the South has a lower probability. Respondents in metropolitan areas were found to be less likely to frequent a food bank or pantry than those in more rural settings.

Income¹ and homeownership appear to be very strong indicators of food bank usage, both with inverse relationships. As either of these variables increases, the likelihood of frequenting a food bank decreases. Moreover, those who graduated high school are less likely to frequent food banks than those who have not earned the degree. All three variables describing food assistance programs were shown to be statistically significant with a positive relationship. Many of the food sufficiency questions attempt to gauge general frequencies, asking if a situation has occurred often, sometimes or never in the past 12 months. When regressed, all show inverse relationships with food bank usage. This illustrates the expected outcome that as

¹ Income was regressed using \$1,000 increments; for every \$1,000 increase in a household's income, the probability of food bank usage decreased by the Estimated Coefficient.

concerns about food become more severe, the probability of food bank usage increases.

Linear Probability Regression Findings

Use of the linear probability model allows for examination of the data with more specificity and greater validity than simply with a linear regression of two variables. The linear probability model provides context by controlling for other variables that might be affecting a particular output.

Given previous research on the subject, it was acknowledged that there may be a non-linear relationship between food bank use and age (Rose, et. al, 1998). Thus, two components were used to analyze this data. A linear expression analyzed alongside a quadratic expression illustrated that there is a positive relationship between age and food bank use up to a point. After a certain age, the likelihood of food bank usage begins to decline.

According to the CPS data, food bank use was not contingent on gender, even when other variables were considered. Race did not appear to be an incredibly strong predictor of food bank usage. Yet, using White as the constant, Black, Asian, Pacific Islander and Hispanic respondents were less likely to frequent food banks. Conversely, there is a greater probability that Native Americans and those of mixed races might seek food bank services.

Overall, marital status does not indicate a likelihood of food bank usage, except for those who are ‘separated.’ It is estimated that individuals in this category are more likely to frequent food banks as compared to married individuals with

spouses present. Further, it would seem that marital status becomes less important when controlling for the number of individuals in the household.

With all else held constant, the size of the household is estimated to be a predictor of food bank usage; as the number of members increases, the probability that someone in the household will frequent a food bank also increases. Moreover, the number of children in the household does not seem to indicate the unit's likelihood of using a food bank. Again, while it seems that the number of people in the household is important, it does not make a significant difference if those individuals are children. The probability of food bank usage among different geographic regions does not significantly change with the use of the linear probability model. Those in the Midwest and West remain more likely to make use of food bank services.

While the relationship was weakened by the inclusion of other variables, income remains a strong predictor of food bank usage.² As illustrated in Table 2, there is an inverse relationship between food bank use and household income; as income rises, a household is less likely to use the services provided by food banks. This predictor is intuitive and supported by past research. As an individual or household has more financial resources with which to use, more money is likely to be allocated for food provision. Additionally, homeownership remained a significant indicator of the use of food banks, having an inverse relationship as well. If the home or living quarters are owned by someone in the household, the family unit is less likely to frequent a food bank. Homeownership is often considered an indication of

² Income was regressed using \$1,000 increments; for every \$1,000 increase in a household's income, the probability of food bank usage decreased by the Estimated Coefficient.

greater financial stability, and thus those that own their own homes may have a greater capacity to provide food for their families.

Table 2: Estimates of the Impact of Respondent Characteristics on Food Bank Use

Explanatory Variable	Est. Coefficient	Std. Error	t-Statistic	p-Value
Age	.0048645	.0014119	3.45	0.001
Age squared	-.0000412	.0000156	-2.64	0.008
Gender	.002475	.0078693	0.31	0.753
Race: Black	-.0035516	.0105542	-0.34	0.736
Race: Native American	.0645079	.029452	2.19	0.029
Race: Asian	-.0255036	.0260938	-0.98	0.328
Race: Pacific Islander	-.1357675	.0562305	-2.41	0.016
Race: Mixed	.0187389	.0269967	0.69	0.488
Race: Hispanic	-.0235759	.0117402	-2.01	0.045
Marital Status: Spouse Absent	-.0108577	.0275933	-0.39	0.694
Marital Status: Widowed	-.0457835	.0217877	-2.10	0.036
Marital Status: Divorced	-.0051098	.0131738	-0.39	0.698
Marital Status: Separated	.0360337	.0204347	1.76	0.078
Marital Status: Never Married	-.0162673	.0121846	-1.34	0.182
Number of children	-.0123496	.0045191	-2.73	0.006
Household Size	.01047	.0027549	3.80	0.000
Region: Midwest	.049745	.0131879	3.77	0.000
Region: South	-.0379551	.0117052	-3.24	0.001
Region: West	.0430938	.012825	3.36	0.001
Metropolitan	-.0264831	.0107798	-2.46	0.014
Income	-.0011621	.000163	-7.13	0.000
Homeownership	-.0652621	.0085253	-7.66	0.000
High School Diploma	-.0395186	.0093137	-4.24	0.000
Received Food Stamps	.1520309	.0092778	16.39	0.000
Free/Reduced Lunch	.0815785	.0100157	8.15	0.000
Received WIC	.0205407	.0128668	1.60	0.110
Worried food would run out	-.0324904	.0082469	-3.94	0.000
Food did not last/no money	-.0583813	.0079606	-7.33	0.000
Couldn't afford balanced meals	-.0104762	.0064082	-1.63	0.102
Cut the size/skip meals	-.0465552	.0092437	-5.04	0.000
Ate less than felt one should	-.0165613	.0093651	-1.77	0.077
Hungry, but didn't eat	-.0532498	.00957	-5.56	0.000
Citizenship Status-foreign born	-.0749086	.0173894	-4.31	0.000
Citizenship Status-non citizen	-.0505103	.0139489	-3.62	0.000
No Father Present	-.0483173	.0150275	-3.22	0.001
More than one job	-.0066932	.0246828	-0.27	0.786
Constant	.558769	.0413993	13.50	0.000
N = 10820				
F-value = 45.75				
R ² = 0.1325		Adj. R ² = 0.1296		

Source: Author Analysis of Current Population Survey Data, U.S. Census Bureau, December 2009

While the magnitude of the relationships of the food sufficiency variables changed from the linear regression to the linear probability model, the direction remained the same. As might be expected, the data supports the assumption that the more severe the concerns about food sufficiency, the more likely one is to frequent a food bank.

In general, those that participate in other food assistance programs are more likely to frequent food banks. As can be observed in Table 2, those that receive SNAP benefits (food stamps) are much more likely to receive food from a food bank. Assistance from the Women, Infants and Children (WIC) program showed a positive relationship, but was not statistically significant. Furthermore, the free or reduced priced lunch program also illustrated a positive relationship; if a family with children is enrolled in the program, they are more likely to frequent food banks.

Implications for Food Banks

The data analyzed in this study serves to reinforce research previously conducted on the topic of food insecurity and food bank usage. The findings provide a reminder that the issue of food insecurity affects people across the United States and continues to impact households and society. Food banks might consider using research of this nature in public relations and advocacy campaigns, as it indicates an ongoing need for food bank services. Additionally, research of this nature can be used to compare local data with national benchmarks. Doing so could aid in program evaluation and the prioritization of resources.

Furthermore, consideration of the CPS data shows that there are potential opportunities available for food banks to partner with food assistance programs in order to build exposure of food banking services. For instance, food banks might consider advocating for partnerships with the local government agencies that administer SNAP benefits, creating a “one-stop-shop” approach. This way, the two organizations could provide the opportunity for individuals to sign up for benefits at food bank and pantry sites. If the funding was available, the food bank might help finance an additional SNAP eligibility representative who could rotate between food bank and pantry sites in order to help interested and eligible clients sign up for the program. The CPS data shows that approximately 60 percent of food stamp recipients do not frequent food banks. While the specific reason a household has not frequented a food bank is unknown, it may be due to issues regarding a lack of knowledge of food bank services or transportation. Making it possible for individuals to sign up or reapply for food stamps at food bank and pantry sites could create a greater ease of access for the eligible client, increase exposure to the presence of food banks and available services and ultimately help food banks accomplish their mission of seeing clients get the food they need to be food secure.

While governmental food assistance programs assuredly play a role in addressing the needs of those without enough food, the research indicates a clear dependence on these benefits by those that frequent food banks. Because food banks are considered an emergency resource, this finding potentially indicates that government programs are not fully addressing the needs of the food insecure.

Moreover, this study presents further evidence that there are other factors besides income that affect food insecurity and food bank use. Thus, there seems to be an ongoing need and opportunity for food banks to connect individuals to non-food support programs in order to foster food security at individual, household and societal levels.

Discussion

Due to an inadequate sample size on the state level, this study has taken on a national perspective. The data used was collected from approximately 60,000 households from across the entire United States. Thus, it is acknowledged that the applicability of the conclusions and implications may vary in different areas of the country due to their unique characteristics and situations.

Food banks should consider gathering data for their service area(s) in order to compare it to national benchmarks and to inform local services of specific needs of the community. Once collected, it is advised that the food bank keep the data on record in a form that allows analysis of the characteristics of individual clients and their families. This will provide the opportunity for the data to be assessed in a variety of ways that can add breadth and depth to aggregate numbers. Moreover, maintaining multiple years of data can also aid food banks in understanding client needs and the success of services over time in addressing those needs.

Using the linear probability regression model to examine the data added specificity and context to the simple linear regressions. Yet, with this model, the dependent variable is categorical, meaning that the results represent a greater or lesser

probability. Constraining the dependent variable to a value of '0' or '1' does not allow for the results to be discussed as a specific change in the dependent variable relative to a one unit change in the independent variable.

Additionally, the Current Population Survey Food Supplement is a survey instrument that reports on the occurrence and frequency of certain events or circumstances. The questions in the survey do not delve into an individual or household's reasoning behind certain answers. For instance, one is unable to gauge from the data whether those who do not frequent food banks or take advantage of food assistance programs fail to do so because they are not eligible or because of outside factors, such as societal stigmas. Conducting further research in this area could help to more accurately explain food bank usage, giving emergency food providers additional information that could aid in service design and outreach.

Summary

Acknowledging that further examination of the Food Supplement data on a local level might present varied outputs; the analysis in this paper has attempted to bring greater clarity to the characteristics of those that make use of food banks versus those who do not. Through use of the Current Population Study Food Supplement, data on respondents with low food security was sorted into the aforementioned groups in order to identify those variables that prompt food bank usage.

Analysis of the data showed that there were several factors that affected the probability of food bank use; income, homeownership, household size and

participation in food assistance programs being among the strongest. This information has the potential to be helpful for food banks in that it further defines characteristics of their target audience, those with issues of food sufficiency. Moreover, while reinforcing previous research, the data indicates a need for a variety of ongoing outreach programs to address the complex need.

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