



The State of Senior Hunger in America in 2017

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The State of Senior Hunger in America 2017: An Annual Report

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CONTENTS

EXECUTIVE SUMMARY	3
I. FOOD INSECURITY IN 2017	4
Table 1. The Extent of Senior Food Insecurity in 2017.....	4
Table 2. The Distribution of Senior Food Insecurity in 2017.....	6
Table 3. State-Level Estimates of Senior Food Insecurity in 2017	7
Table 4. Ten States with the Highest Rates of Senior Food Insecurity in 2017	8
Table 5. Estimates of Senior Food Insecurity in Metropolitan Areas > 1,000,000 Persons in 2017.....	9
II. FOOD INSECURITY OVER TIME.....	10
Table 6. Changes in the Composition of Senior Hunger from 2016 to 2017	11
III. CONCLUSION	16
APPENDIX.....	17
Appendix Table 1: Questions on the Food Security Supplement.....	18
Appendix Table 2: Selected Characteristics of Senior Americans Age 60 and older in 2017 ..	19
Appendix Table 3a. The Extent of Marginal Senior Food Insecurity in 2017	20
Appendix Table 3b. The Distribution of Senior Marginal Food Insecurity in 2017	21
Appendix Table 3c. State-Level Estimates of Senior Marginal Food Insecurity in 2017	22
Appendix Table 3d. Top Ten States in Terms of Senior Marginal Food Insecurity in 2017 ..	23
Appendix Table 3e. Estimates of Senior Marginal Food Insecurity in Metropolitan Areas >1,000,000 Persons in 2017.....	24
Appendix Table 3f. Changes in the Composition of Senior Marginal Food Insecurity from 2016 to 2017	26
REFERENCES.....	27
ABOUT THE AUTHORS	28

EXECUTIVE SUMMARY

In this report, we provide a broad overview of the extent and distribution of food insecurity among seniors in the United States in 2017, along with trends over the past decade and a half using national, state-level, and metropolitan-level data from the December Supplements to the Current Population Survey (CPS).

In this report, we concentrate on two measures of food insecurity: food insecurity and very low food security (VLFS). These are based on the full set of 18 questions in the Food Security Supplement (FSS), the module used by the United States Department of Agriculture (USDA) to establish the official food insecurity rates of households in the United States. We define food insecurity by three or more affirmative responses and very low food security as eight or more affirmative responses in households with children and six or more in households without children.

Specifically, in 2017, we find that:

- 7.7% of seniors are food insecure and 3.1% are very low food secure (VLFS). This translates into 5.5 million and 2.2 million seniors, respectively.
- From 2016 to 2017, there were no statistically significant changes in food insecurity or VLFS. This holds across almost all of the demographic categories as well.
- From 2014 to 2017 there was a statistically significant decline of 1.1 percentage points for food insecurity.
- Compared to 2001, the fraction of food insecure and VLFS seniors increased by 45% and 121%. The number of seniors in each group rose 139%, and 251%, which also reflects the growing population of seniors.
- Continuing with historic trends documented in prior reports, we find that food insecurity is greatest among those who are racial or ethnic minorities, those with lower incomes, those who are younger (ages 60-69), and those who are renters.
- State-level food insecurity rates range from a high of 12.3% (Louisiana) to a low of 2.8% (Minnesota).
- Metro-level food insecurity rates range from a high of 17.3% (Memphis) to a low of 3.0% (Minneapolis/St. Paul).

Despite an improving economy and financial markets, millions of seniors in the United States are going without enough food due to economic constraints. Based on the findings regarding food insecurity and health in Gundersen and Ziliak (2017), this stubbornly high proportion of food-insecure seniors continues to impose a major health care challenge in the U.S. One group of particular policy concern are those seniors experiencing VLFS, the ranks of which have especially swelled since 2001.

I. FOOD INSECURITY IN 2017

We document the state of hunger among senior Americans ages 60 and older in 2017 using data from the most recently available Current Population Survey (CPS). This is part of a series of reports on food insecurity among seniors, which began with Ziliak et al. (2008) and has been produced annually since 2012 with the most recent being Ziliak and Gundersen (2018). In December of each year, households respond to a series of 18 questions (10 questions if there are no children present) that make up the Food Security Supplement (FSS) in the CPS (see the Appendix for more details on the CPS and FSS). Each question is designed to capture some aspect of food insecurity and, for some questions, the frequency with which it manifests itself. Respondents are asked questions about their food security status in the last 30 days, as well as over the past 12 months. Following the standard approach used by the USDA, we focus on the questions referring to the past year.

Based on the full set of 18 questions in the FSS, the module used by the USDA to establish the official food insecurity rates of households in the United States, we concentrate on two measures: food insecurity (three or more affirmative responses) and very low food security (VLFS; eight or more affirmative responses in households with children; six or more in households without). One should note that all VLFS seniors are also included in the food insecure category. Another measure, marginal food insecurity (one or more affirmative responses), that was included in previous reports is now included in Appendix Tables 3a-f.

In Table 1 we present estimates of food insecurity among seniors in 2017. We find that 7.7% were food insecure (5.5 million seniors) and 3.1% were VLFS (2.2 million seniors). The table also presents estimates of food insecurity across selected socioeconomic categories. Here we see great heterogeneity across the senior population. For example, for those with incomes below the poverty line, 28.7% were food insecure and 14.1% were VLFS. In contrast, for seniors with incomes greater than twice the poverty line, these numbers fall dramatically to 3.4%, and 0.8%. Turning to race, White seniors have food insecurity rates that are less than half the rates for Black seniors, though as shown below because Whites are a much larger share of the population, there are more food insecure White seniors than Black seniors. Similarly, Hispanics (of any racial category) have food insecurity rates that are generally twice the rates of non-Hispanics.

Table 1. The Extent of Senior Food Insecurity in 2017

	Food Insecure	Very Low Food Secure
Overall	7.7%	3.1%
By Income		
Below the Poverty Line	28.7	14.1
Between 100% and 200% of the Poverty Line	17.6	7.0
Above 200% of the Poverty Line	3.4	0.8
Income Not Reported	5.8	2.4

By Race		
White	6.5	2.5
Black	17.2	6.8
Other	8.6	3.7
By Hispanic Status		
Hispanic	16.3	5.4
Non-Hispanic	6.9	2.8
By Marital Status		
Married	4.8	1.6
Widowed	9.4	3.9
Divorced or Separated	15.1	7.3
Never Married	13.4	4.8
By Metropolitan Location		
Non-Metro	8.1	3.7
Metro	7.7	2.9
By Age		
60-64	10.0	4.2
65-69	8.4	3.4
70-74	7.1	2.8
75-79	6.1	2.1
80 and older	4.7	1.5
By Employment Status		
Employed	5.1	1.5
Unemployed	21.6	9.3
Retired	6.2	2.4
Disabled	25.0	11.9
By Gender		
Male	6.7	2.6
Female	8.6	3.4
By Grandchild Present		
No Grandchild Present	7.3	3.0
Grandchildren Present	15.7	4.6
By Homeownership Status		
Homeowner	5.2	1.8
Renter	19.6	8.8
By Veteran Status		
Veteran	5.4	2.2
Not a Veteran	8.2	3.2

Source: Authors' calculations from 2017 December Current Population Survey. The numbers in the table show the rates of food insecurity under two measures for various groups. The category of "other race" includes American Indian, Asian, and Pacific Islander.

Food insecurity among divorced or separated seniors is two to three times greater than married seniors. As age increases, food insecurity rates fall. For example, seniors between the ages of 60 and 64 have food insecurity and VLFS rates that are over twice those 80 and older. In terms of employment categories, for both food insecurity measures, rates are four times higher among the disabled in comparison to the retired. For seniors with a grandchild present, food insecurity rates for both measures are substantially higher than when no grandchildren are present. Seniors who

are renters have substantially higher rates of both food insecurity and VLFS in comparison to renters. Non-Veteran seniors have slightly higher food insecurity and VLFS rates than seniors who are Veterans.

Table 1 allows us to see the proportions of persons within various categories who are food insecure and, with this information, we can make statements about who is most in danger of being food insecure. For example, those with lower incomes are substantially more likely to be food insecure than those with higher incomes. Also of interest, though, is the distribution of senior hunger. In other words, out of those who are food insecure, what proportion fall into a particular category? We present these results in Table 2.

As seen in Table 2, the majority of seniors in either food insecurity category have incomes above the poverty line. For example, out of those reporting income, nearly two in three food-insecure seniors have incomes above the poverty line. A similar story holds for race—while Black seniors are at greater risk of food insecurity under either measure than White seniors, over two in three food-insecure seniors are White. Despite the lower food insecurity rates among older seniors, 9.9% of food insecure seniors are over the age of 80; the figure is 7.9% for VLFS. And while the rates of food insecurity are lowest for retired persons, they make up a substantial portion of both categories—49.1%, and 47.5%. However, one area where higher probabilities among a category also results in higher proportions in Table 2 is for VLFS renters— 50.8% of VLFS seniors are renters.

Table 2. The Distribution of Senior Food Insecurity in 2017

	Food Insecure	Very Low Food Secure
By Income		
Below the Poverty Line	27.0%	33.5%
Between 100% and 200% of the Poverty Line	28.8	28.8
Above 200% of the Poverty Line	21.9	13.9
Income Not Reported	22.3	23.8
By Race		
White	69.4	68.9
Black	23.5	23.4
Other	7.1	7.7
By Hispanic Status		
Hispanic	18.9	15.8
Non-Hispanic	81.1	84.2
By Marital Status		
Married	37.	30.6
Widowed	22.1	22.9
Divorced or Separated	29.7	36.2
Never Married	11.3	10.3
By Metropolitan Location		
Non-Metro	17.6	20.6
Metro	82.4	79.4
By Age		
60-64	37.5	40.0
65-69	25.8	26.7

70-74	17.0	17.0
75-79	9.8	8.4
80 and older	9.9	7.9
By Employment Status		
Employed	19.0	14.6
Unemployed	2.9	3.2
Retired	49.1	47.5
Disabled	29.0	34.7
By Gender		
Male	39.4	39.2
Female	60.6	60.8
By Grandchild Present		
No Grandchild Present	90.2	92.8
Grandchildren Present	9.8	7.2
By Homeownership Status		
Homeowner	55.0	49.2
Renter	45.0	50.8
By Veteran Status		
Veteran	10.9	11.1
Not a Veteran	89.1	88.9

Source: Authors' calculations from 2017 December Current Population Survey. The numbers in the table show the distribution of food insecurity under two measures for various groups. The category of "other race" includes American Indian, Asian, and Pacific Islander.

In Table 3, we present state-level estimates of senior food insecurity for 2017 based on averages of 2016-2017 data. The range for food insecurity spans from 2.8% in Minnesota to 12.3% in Louisiana and, for VLFS, from 0.7% in Colorado to 5.4% in Rhode Island.

Table 3. State-Level Estimates of Senior Food Insecurity in 2017

	Food Insecure	Very Low Food Secure		Food Insecure	Very Low Food Secure
AL	10.4	4.9	MT	5.2	2.4
AK	6.0	2.3	NE	5.6	2.8
AZ	9.0	4.0	NV	6.8	2.8
AR	9.0	2.9	NH	5.8	2.0
CA	8.4	3.2	NJ	5.3	1.6
CO	3.2	0.7	NM	11.5	4.0
CT	7.2	2.1	NY	6.7	2.6
DE	4.8	2.6	NC	10.5	4.5
DC	11.1	4.7	ND	3.3	1.4
FL	8.4	2.4	OH	7.8	3.8
GA	8.7	3.4	OK	9.1	3.4
HI	4.4	1.8	OR	5.9	1.9
ID	3.3	1.1	PA	5.7	2.1
IL	7.8	3.5	RI	9.6	5.4

IN	7.9	2.5	SC	9.3	2.9
IA	6.5	3.1	SD	7.3	3.2
KS	9.4	4.9	TN	8.8	4.2
KY	8.4	2.6	TX	10.5	3.4
LA	12.3	4.2	UT	6.3	2.2
ME	8.3	3.3	VT	5.4	2.1
MD	7.6	4.3	VA	4.5	1.6
MA	7.5	2.3	WA	5.0	2.2
MI	7.6	3.7	WV	9.2	3.4
MN	2.8	1.4	WI	4.8	1.9
MS	11.8	4.0	WY	7.1	2.7
MO	7.3	2.4			

Source: Authors' calculations. The numbers are two-year averages found by summing the number of food-insecure seniors in each category by state across the 2016-2017 December Current Population Surveys and dividing by the corresponding total number of seniors in each state across the two years.

In Table 4, we highlight the ten states with the highest rates of senior hunger in 2017. For food insecurity, almost all of the states are located in the South and Southwest, albeit Rhode Island is in the top ten. Looking at VLFS, though, is different insofar as four of the top 10 states are not in those regions. There are some differences across categories, though. For example, Kansas has the third highest level for VLFS, but it isn't in the top ten for the food insecurity category. There is some movement in the top ten classifications from one year to the next both because of changes in economic circumstances within states and variation from survey sample sizes, but overall many of the states consistently appear. For example, six of the ten states with the highest rates of food insecurity were on the list last year and four of the ten states with the highest rates of VLFS were on the list last year.

Table 4. Ten States with the Highest Rates of Senior Food Insecurity in 2017

Food Insecure		Very Low Food Secure	
LA	12.3	RI	5.4
MS	11.8	AL	4.9
NM	11.5	KS	4.9
DC	11.1	DC	4.7
NC	10.5	NC	4.5
TX	10.5	MD	4.3
AL	10.4	TN	4.2
RI	9.6	LA	4.2

KS	9.4	AZ	4.0
SC	9.3	MS	4.0

A new addition to this year's report are estimates of food insecurity and VLFS rates by large metropolitan areas (i.e., more than 1 million in total population). These are based on data from 2013 to 2017. This is found in Table 5. Like with state rates, there is a wide range of estimates. For food insecurity, the highest rate, in the Memphis metro area, is almost six times higher than the lowest rate, in Minneapolis-St. Paul (17.3% versus 3.0%). The relevancy of looking at food insecurity for geographies below the state level is demonstrated by that fact that Tennessee (home to Memphis) isn't even in the top 10 for food insecurity rates. For VLFS, the highest rate is for the Riverside metro area (5.1%) and the lowest is in San Diego (1.2%). That these two metro areas are nearly adjacent and have such dramatically different VLFS rates is further evidence of the usefulness of looking at sub-state level data.

Table 5. Estimates of Senior Food Insecurity in Metropolitan Areas > 1,000,000 Persons in 2017

	Food Insecure	Very Low Food Secure
Atlanta-Sandy Springs-Marietta, GA	7.4	2.3
Austin-Round Rock, TX	6.1	2.0
Baltimore-Towson, MD	8.9	4.1
Birmingham-Hoover, AL	9.0	5.0
Boston-Cambridge-Quincy, MA-NH	7.4	2.7
Buffalo-Niagara Falls, NY	7.7	2.2
Charlotte-Gastonia-Concord, NC-SC	10.4	4.0
Chicago-Naperville-Joliet, IN-IN-WI	8.1	3.7
Cincinnati-Middletown, OH-KY-IN	8.4	3.2
Cleveland-Elyria-Mentor, OH	9.4	4.2
Columbus, OH	6.5	2.5
Dallas-Fort Worth-Arlington, TX	9.7	3.5
Denver-Aurora, CO	5.4	2.1
Detroit-Warren-Livonia, MI	8.1	3.0
Hartford-West Hartford-East Hartford, CT	8.5	1.5
Houston-Baytown-Sugar Land, TX	8.6	3.6
Indianapolis, IN	9.5	4.4
Jacksonville, FL	9.2	2.9
Kansas City, MO-KS	8.2	3.2
Las Vegas-Paradise, NM	6.7	2.6
Los Angeles-Long Beach-Santa Ana, CA	8.9	3.1
Louisville, KY-IN	9.6	4.1
Memphis, TN-MS-AR	17.3	4.4
Miami-Fort Lauderdale-Miami Beach, FL	8.9	2.9
Milwaukee-Waukesha-West Allis, WI	7.2	3.5
Minneapolis-St Paul-Bloomington, MN-WI	3.0	1.4
Nashville-Davidson-Murfreesboro, TN	5.9	3.0
New Orleans-Metairie-Kenner, LA	12.8	4.9

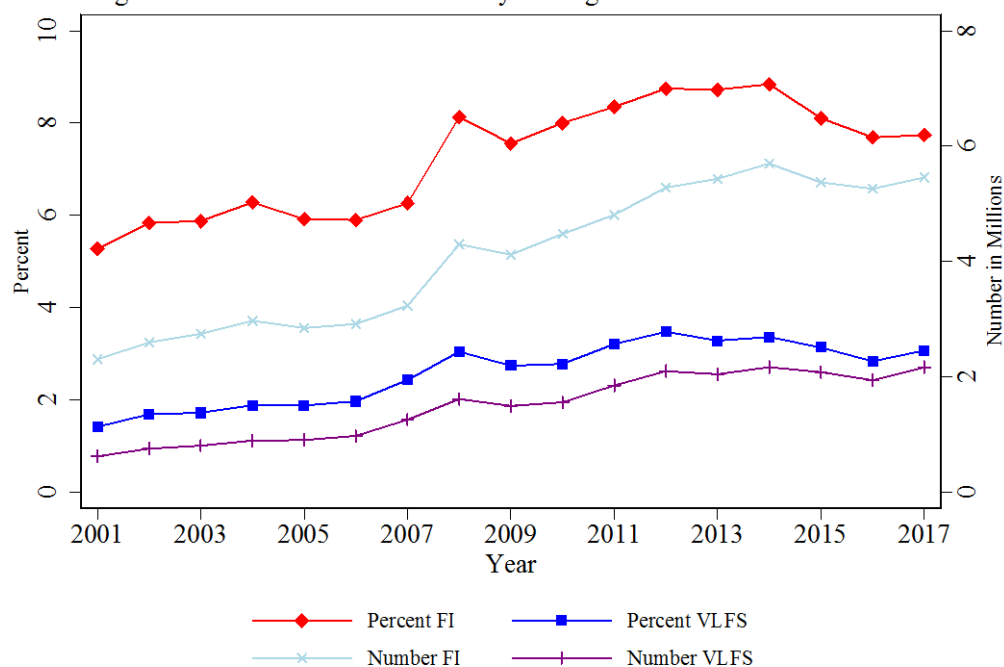
New York-Northern New Jersey-Long Island	8.2	2.5
Oklahoma City, OK	8.2	3.9
Orlando, FL	11.1	3.9
Philadelphia-Camden-Wilmington, PA-NJ-DE	5.1	1.7
Phoenix-Mesa-Scottsdale, AZ	7.3	2.4
Pittsburgh, PA	6.3	2.8
Portland-Vancouver-Beaverton, OR-WA	7.3	3.0
Providence-Fall River-Warwick, MA-RI	7.7	4.4
Raleigh, NC	9.8	3.5
Richmond, VA	4.8	2.0
Riverside-San Bernardino, CA	11.0	5.1
Rochester, NY	6.3	4.0
Sacramento--Arden-Arcade-Roseville, CA	7.0	4.4
St. Louis, MO-IL	10.1	4.2
Salt Lake City, UT	5.6	1.5
San Antonio, TX	8.4	4.4
San Diego-Carlsbad-San Marcos, CA	3.9	1.2
San Francisco-Oakland-Fremont, CA	5.2	1.4
San Jose-Sunnyvale-Santa Clara, CA	11.5	3.8
Seattle-Tacoma-Bellevue, WA	4.8	1.8
Tampa-St. Petersburg-Clearwater, FL	5.8	1.4
Virginia Beach-Norfolk-Newport News, VA-	6.5	2.6
Washington-Arlington-Alexandria, DC-VA-M	4.5	2.2

Source: Authors' calculations. The numbers are five-year averages found by summing the number of food-insecure seniors in each category by metro areas across the 2013-2017 December Current Population Surveys and dividing by the corresponding total number of seniors in each metro area across the five years.

II. FOOD INSECURITY OVER TIME

To place the 2017 estimates into perspective, we now examine trends in food insecurity since 2001. In Figure 1, we display results for the full population in terms of the percentage of seniors (left-hand axis) and number of seniors in millions (right-hand axis). From 2016 to 2017, there were increases in the rate for both measures, albeit neither was statistically significant. In comparison to 2014, though, the decline of 1.1 percentage points is statistically significant; the change is statistically insignificant for VLFS. Despite the recent gain in combating food insecurity, across both measures, food insecurity rates are higher than before the Great Recession that started in December in 2007, and far higher than in 2001—the fraction of seniors experiencing food insecurity and VLFS has increased by 45%, and 121%. The number of seniors in each group rose 139%, and 251%, reflecting both the growing number of seniors and their rising food insecurity rates.

Figure 1. Trends in Food Insecurity among Senior Americans



In Table 6, we take a deeper look into underlying changes in the composition of food-insecure seniors from 2016 to 2017. The table presents percentage point changes in both categories of food insecurity by the same set of socioeconomic characteristics in Table 1. Only a few of these categories saw statistically significant changes in food insecurity. Namely, there were statistically significant increases in both measures of food insecurity for those not reporting income and an increase in VLFS for persons with disabilities and for those in the “other” racial category. Overall, while there were some qualitatively large increases and decreases for some of the subgroups, on balance they cancelled out and thus left food insecurity and VLFS little changed from the prior year.

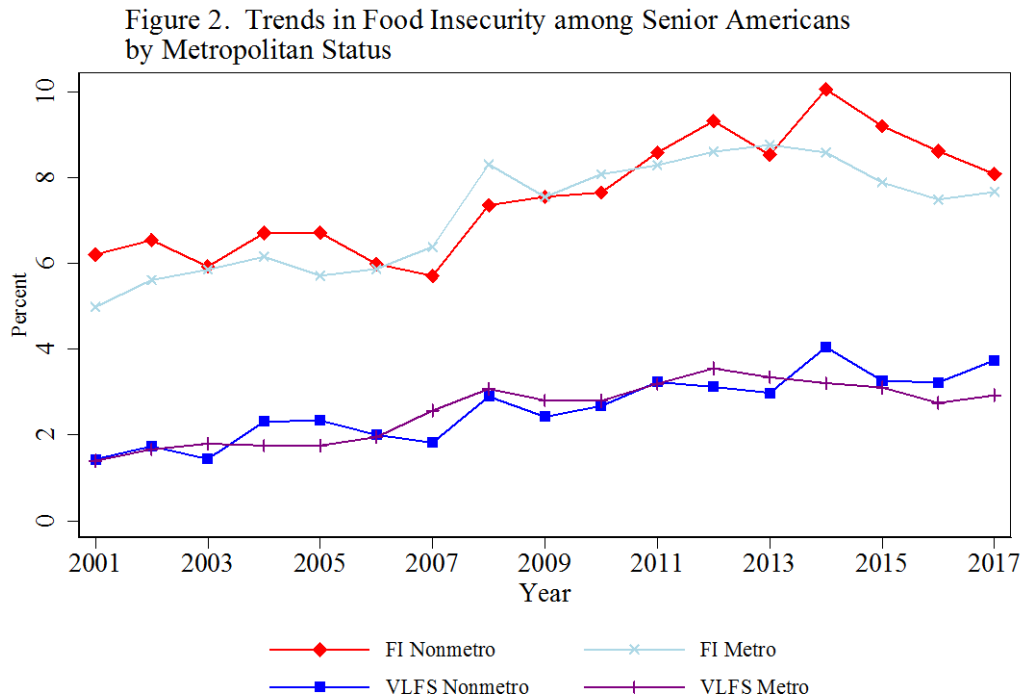
Table 6. Changes in the Composition of Senior Hunger from 2016 to 2017

	Food Insecure	Very Low Food Secure
Overall	0.05	0.23
By Income		
Below the Poverty Line	-2.30	1.16
Between 100% and 200% of the Poverty Line	0.30	0.33
Above 200% of the Poverty Line	0.38	-0.09
Income Not Reported	0.90*	0.90***
By Race		
White	0.16	0.23
Black	-1.10	-0.57
Other	0.20	1.40*
By Hispanic Status		

Hispanic	-1.12	0.75
Non-Hispanic	0.13	0.18
By Marital Status		
Married	-0.01	-0.03
Widowed	0.10	0.30
Divorced or Separated	0.06	1.14
Never Married	-0.73	-0.15
By Metropolitan Location		
Non-Metro	-0.53	0.52
Metro	0.18	0.18
By Age		
60-64	0.22	0.53
65-69	0.12	0.19
70-74	0.00	0.33
75-79	-0.47	-0.27
80 and older	0.12	0.06
By Employment Status		
Employed	-0.13	-0.18
Unemployed	0.67	-1.23
Retired	0.17	0.28
Disabled	0.76	1.89*
By Gender		
Male	-0.20	0.14
Female	0.27	0.31
By Grandchild Present		
No Grandchild Present	0.15	0.28
Grandchildren Present	-2.42	-0.82
By Homeownership Status		
Homeowner	-0.01	0.04
Renter	0.09	1.00
By Veteran Status		
Veteran	-0.27	0.00
Not a Veteran	0.09	0.27

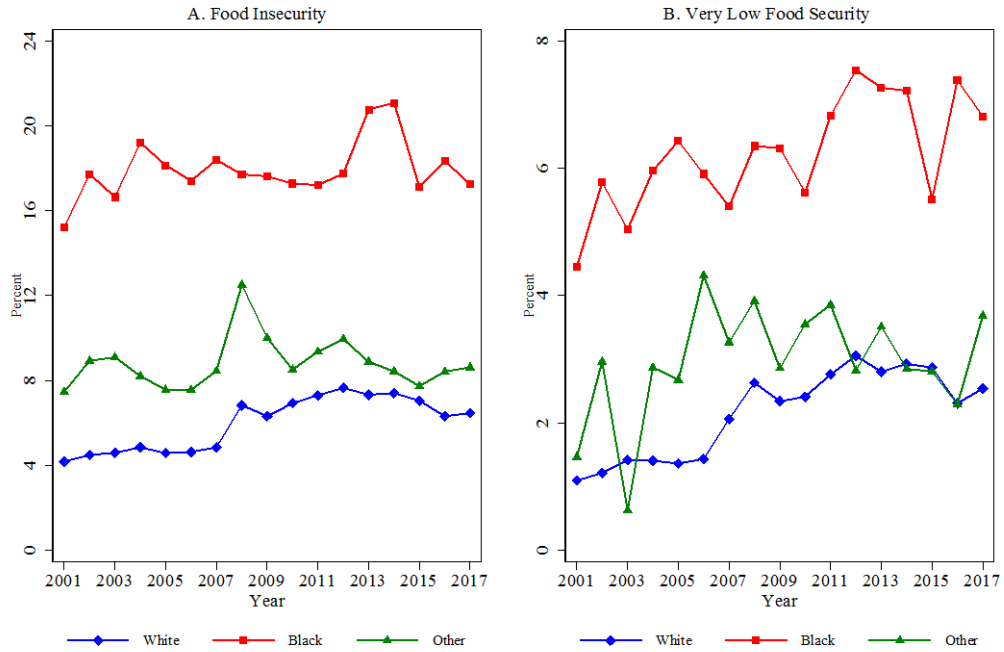
Source: Authors' calculations. The numbers in the table reflect percentage point changes from 2016-2017. The asterisks denote statistical significance at the following levels: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. The category of "other race" includes American Indian, Asian, and Pacific Islander.

In the next set of figures, we examine trends in food insecurity since 2001 across a variety of subpopulations found in Tables 1 and 6. We begin in Figure 2 with trends in food insecurity for seniors living in metropolitan areas versus nonmetropolitan areas. The figure shows that, for most years, but not all, food insecurity rates were higher in nonmetro areas. For VLFS, though, whether the rates are higher or lower in nonmetro areas shows no clear pattern.



Panel A of Figure 3 depicts trends in food insecurity across different races and panel B is for VLFS. As discussed above, food insecurity and VLFS for Black seniors are substantially higher than for White seniors. These figures reveal that these differences were present in each year from 2001 to 2017. Of note, though, is that the rates have, in general, been increasing for Whites while there hasn't been a systematic increase for Black seniors in terms of food insecurity, though there is an upward trend in VLFS. Comparing Whites and the other race category, rates are higher among the other category than among Whites in all years for all measures except four (2003, 2012, 2014, and 2015) for VLFS.

Figure 3. Food Insecurity and Very Low Food Security of Seniors by Race



In Figure 4, we present trends broken down by Hispanic status. For food insecurity, the rates are higher among Hispanics than non-Hispanics in all years. The trends in VLFS are similar, with the exception of 2005, which saw higher rates among non-Hispanics. In 2007, interestingly, the VLFS of Hispanics was higher than the food insecurity rate of non-Hispanics.

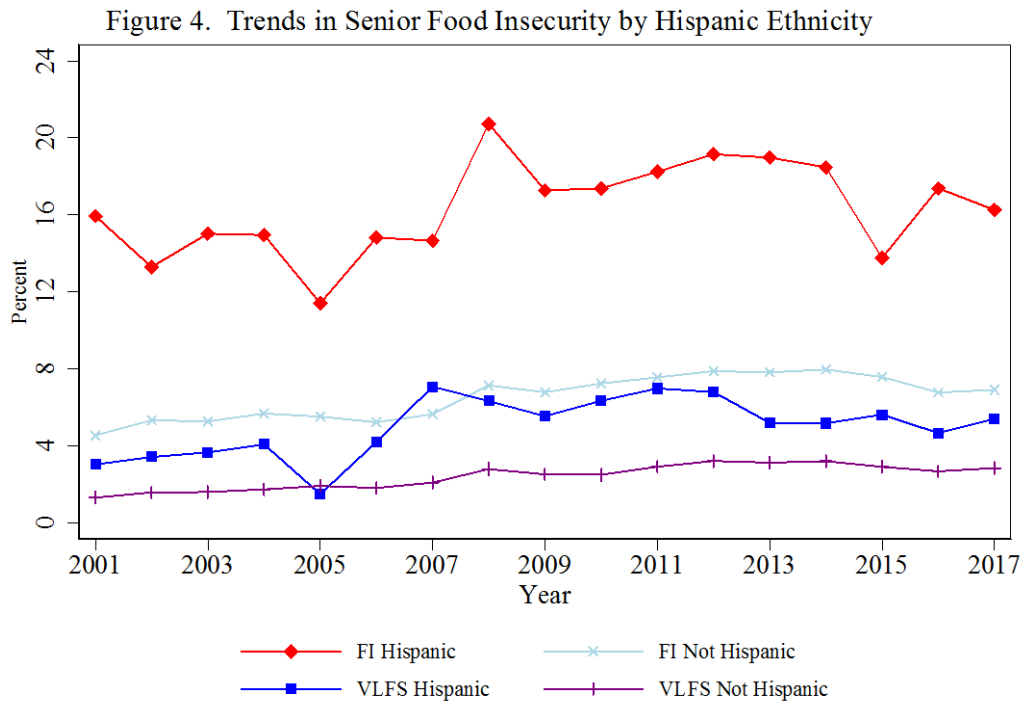
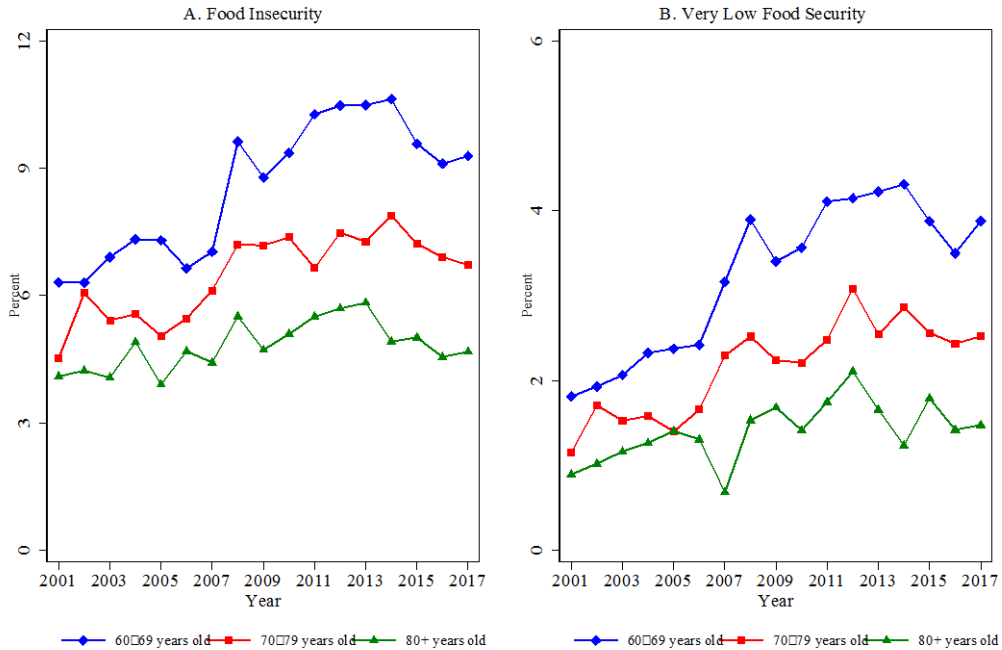


Figure 5 presents a parallel set of results for seniors broken down into three age groups—60-69 years old, 70-79 years old, and age 80 and older. In all years, the rates of food insecurity are highest for those between 60 and 69, followed by 70-79-year olds, and 80+-year olds. The patterns over time do show differences in trajectories and relative gaps between age categories.

Figure 5. Food Insecurity and Very Low Food Security of Seniors by Age



III. CONCLUSION

This report demonstrates that food insecurity among seniors in America is a continuing challenge facing the nation. Despite the end of the Great Recession in 2009, almost 1 in 12 seniors were food insecure in 2017. Even more troubling is the astonishing 251% increase in the number of VLFS seniors in 2017 compared to 2001. Given the compelling evidence in Gundersen and Ziliak (2017) that food insecurity is associated with a host of poor nutrition and health outcomes among seniors, this report implies that the high rates of food insecurity among seniors will likely lead to additional public health challenges for our country. This suggests that a key potential avenue to stem the growth of health care expenditures on older Americans is to ameliorate the problem of food insecurity (Berkowitz et al., 2017).

APPENDIX

The CPS is a nationally representative survey conducted by the Census Bureau for the Bureau of Labor Statistics, providing employment, income and poverty statistics. Households are selected to be representative of civilian households at the state and national levels, using suitably appropriate sampling weights. The CPS does not include information on individuals living in group quarters including nursing homes or assisted living facilities. For this report and previous reports, we use data from the December Supplement which contains the Food Security Supplement (FSS). The questions from the FSS are found in Appendix Table 1. Because our focus is on hunger among seniors, our CPS sample is of persons age 60 and older. In 2017, this results in 22,655 sample observations. Appendix Table 2 presents selected summary statistics for the CPS sample.

Appendix Table 1: Questions on the Food Security Supplement

Food Insecurity Question	Asked of Households with Children	Asked of Households without Children
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?	x	x
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?	x	x
3. “We couldn’t afford to eat balanced meals.” Was that often, sometimes , or never true for you in the last 12 months?	x	x
4. “We relied on only a few kinds of low-cost food to feed our children because we were running out of money to buy food.” Was that often, sometimes , or never true for you in the last 12 months?	x	
5. In the last 12 months, did you or other adults in the household ever cut the size of your meals or skip meals because there wasn’t enough money for food? (Yes/No)	x	x
6. “We couldn’t feed our children a balanced meal, because we couldn’t afford that.” Was that often, sometimes , or never true for you in the last 12 months?	x	
7. In the last 12 months, did you ever eat less than you felt you should because there wasn’t enough money for food? (Yes/No)	x	x
8. (If yes to Question 5) How often did this happen— almost every month, some months but not every month , or in only 1 or 2 months?	x	x
9. “The children were not eating enough because we just couldn’t afford enough food.” Was that often, sometimes , or never true for you in the last 12 months?	x	
10. In the last 12 months, were you ever hungry, but didn’t eat, because you couldn’t afford enough food? (Yes/No)	x	x
11. In the last 12 months, did you lose weight because you didn’t have enough money for food? (Yes/No)	x	x
12. In the last 12 months, did you ever cut the size of any of the children’s meals because there wasn’t enough money for food? (Yes/No)	x	
13. In the last 12 months did you or other adults in your household ever not eat for a whole day because there wasn’t enough money for food? (Yes/No)	x	x
14. In the last 12 months, were the children ever hungry but you just couldn’t afford more food? (Yes/No)	x	
15. (If yes to Question 13) How often did this happen— almost every month, some months but not every month , or in only 1 or 2 months?	x	x
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)	x	
17. (If yes to Question 16) How often did this happen— almost every month, some months but not every month , or in only 1 or 2 months?	x	
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)	x	

Notes: Responses in bold indicate an “affirmative” response.

Appendix Table 2: Selected Characteristics of Senior Americans Age 60 and older in 2017

Income Categories	
Below the Poverty Line	0.07
Between 100% and 200% of the Poverty Line	0.13
Above 200% of the Poverty Line	0.50
Missing Income	0.30
Racial Categories	
White	0.83
Black	0.11
Other	0.06
Hispanic Status	
Hispanic	0.09
Non-Hispanic	0.91
Marital Status	
Married	0.60
Widowed	0.18
Divorced or Separated	0.15
Never Married	0.07
Metropolitan Location	
Non-Metro	0.17
Metro	0.83
Age	
60 to 64	0.29
65 to 69	0.24
70 to 74	0.18
75 to 79	0.12
80 and older	0.16
Employment Status	
Employed	0.29
Unemployed	0.01
Retired	0.61
Disabled	0.09
By Gender	
Male	0.46
Female	0.54
Grandchild Present	
No Grandchild Present	0.95
Grandchild Present	0.05
By Homeownership Status	
Homeowner	0.82
Renter	0.18
By Veteran Status	
Veteran	0.16
Not a Veteran	0.84

Appendix Table 3a. The Extent of Marginal Senior Food Insecurity in 2017	
Overall	13.4%
By Income	
Below the Poverty Line	45.0
Between 100% and 200% of the Poverty Line	30.7
Above 200% of the Poverty Line	6.7
Income Not Reported	9.5
By Race	
White	11.6
Black	28.2
Other	12.4
By Hispanic Status	
Hispanic	26.4
Non-Hispanic	12.1
By Marital Status	
Married	8.7
Widowed	16.5
Divorced or Separated	24.0
Never Married	22.7
By Metropolitan Location	
Non-Metro	14.2
Metro	13.2
By Age	
60-64	16.5
65-69	13.5
70-74	12.3
75-79	11.8
80 and older	10.0
By Employment Status	
Employed	9.3
Unemployed	31.2
Retired	11.5
Disabled	37.1
By Gender	
Male	11.7
Female	14.8
By Grandchild Present	
No Grandchild Present	12.7
Grandchildren Present	27.3
By Homeownership Status	
Homeowner	9.6
Renter	30.9
By Veteran Status	
Veteran	9.5
Not a Veteran	14.1

Appendix Table 3b. The Distribution of Senior Marginal Food Insecurity in 2017

By Income	
Below the Poverty Line	24.5%
Between 100% and 200% of the Poverty Line	29.1
Above 200% of the Poverty Line	25.1
Income Not Reported	21.2
By Race	
White	71.8
Black	22.3
Other	5.9
By Hispanic Status	
Hispanic	17.8
Non-Hispanic	82.2
By Marital Status	
Married	39.2
Widowed	22.3
Divorced or Separated	27.4
Never Married	11.1
By Metropolitan Location	
Non-Metro	17.9
Metro	82.1
By Age	
60-64	35.7
65-69	24.2
70-74	16.9
75-79	11.0
80 and older	12.3
By Employment Status	
Employed	20.2
Unemployed	2.5
Retired	52.4
Disabled	24.9
By Gender	
Male	39.7
Female	60.3
By Grandchild Present	
No Grandchild Present	90.2
Grandchildren Present	9.8
By Homeownership Status	
Homeowner	58.9
Renter	41.1
By Veteran Status	
Veteran	11.1
Not a Veteran	88.9

Appendix Table 3c. State-Level Estimates of Senior Marginal Food Insecurity in 2017

AL	17.0	MT	9.6
AK	12.5	NE	11.4
AZ	14.7	NV	17.5
AR	15.7	NH	10.7
CA	13.8	NJ	9.8
CO	6.6	NM	17.7
CT	13.4	NY	12.1
DE	10.6	NC	17.8
DC	20.1	ND	8.4
FL	12.7	OH	12.9
GA	16.0	OK	15.7
HI	9.2	OR	11.1
ID	8.0	PA	14.7
IL	12.9	RI	13.9
IN	12.3	SC	15.8
IA	12.1	SD	13.6
KS	12.5	TN	14.6
KY	14.8	TX	17.9
LA	19.8	UT	10.4
ME	15.5	VT	10.3
MD	11.7	VA	9.7
MA	11.4	WA	10.6
MI	12.6	WV	17.8
MN	8.9	WI	10.2
MS	17.7	WY	11.5
MO	11.8		

Appendix Table 3d. Top Ten States in Terms of Senior Marginal Food Insecurity in 2017

DC	20.1
LA	19.8
TX	17.9
NC	17.8
WV	17.8
MS	17.7
NM	17.7
NV	17.5
AL	17.0
GA	16.0

Appendix Table 3e. Estimates of Senior Marginal Food Insecurity in Metropolitan Areas >1,000,000 Persons in 2017

Atlanta-Sandy Springs-Marietta, GA	15.2
Austin-Round Rock, TX	10.0
Baltimore-Towson, MD	15.0
Birmingham-Hoover, AL	15.4
Boston-Cambridge-Quincy, MA-NH	10.7
Buffalo-Niagara Falls, NY	12.2
Charlotte-Gastonia-Concord, NC-SC	15.1
Chicago-Naperville-Joliet, IN-IN-WI	14.3
Cincinnati-Middletown, OH-KY-IN	14.0
Cleveland-Elyria-Mentor, OH	16.5
Columbus, OH	12.6
Dallas-Fort Worth-Arlington, TX	15.9
Denver-Aurora, CO	6.9
Detroit-Warren-Livonia, MI	13.9
Hartford-West Hartford-East Hartford, CT	14.1
Houston-Baytown-Sugar Land, TX	15.5
Indianapolis, IN	16.7
Jacksonville, FL	11.9
Kansas City, MO-KS	12.9
Las Vegas-Paradise, NM	15.5
Los Angeles-Long Beach-Santa Ana, CA	14.7
Louisville, KY-IN	17.5
Memphis, TN-MS-AR	22.3
Miami-Fort Lauderdale-Miami Beach, FL	14.4
Milwaukee-Waukesha-West Allis, WI	13.1
Minneapolis-St Paul-Bloomington, MN-WI	8.7
Nashville-Davidson-Murfreesboro, TN	11.5
New Orleans-Metairie-Kenner, LA	18.9
New York-Northern New Jersey-Long Island	15.2
Oklahoma City, OK	15.9
Orlando, FL	16.9
Philadelphia-Camden-Wilmington, PA-NJ-DE	13.1
Phoenix-Mesa-Scottsdale, AZ	12.1
Pittsburgh, PA	13.7
Portland-Vancouver-Beaverton, OR-WA	12.3
Providence-Fall River-Warwick, MA-RI	13.7
Raleigh, NC	15.6
Richmond, VA	9.7
Riverside-San Bernardino, CA	19.3
Rochester, NY	10.3
Sacramento--Arden-Arcade-Roseville, CA	12.1
St. Louis, MO-IL	16.0

Salt Lake City, UT	9.6
San Antonio, TX	19.7
San Diego-Carlsbad-San Marcos, CA	8.3
San Francisco-Oakland-Fremont, CA	8.7
San Jose-Sunnyvale-Santa Clara, CA	18.1
Seattle-Tacoma-Bellevue, WA	9.0
Tampa-St. Petersburg-Clearwater, FL	11.0
Virginia Beach-Norfolk-Newport News, VA-	13.3
Washington-Arlington-Alexandria, DC-VA-M	8.2

Appendix Table 3f. Changes in the Composition of Senior Marginal Food Insecurity from 2016 to 2017

Overall	-0.23
By Income	
Below the Poverty Line	-1.17
Between 100% and 200% of the Poverty Line	-0.67
Above 200% of the Poverty Line	0.43
Income Not Reported	0.57
By Race	
White	-0.05
Black	-0.90
Other	-2.09
By Hispanic Status	
Hispanic	-0.83
Non-Hispanic	-0.22
By Marital Status	
Married	-0.76**
Widowed	-0.14
Divorced or Separated	0.53
Never Married	1.04
By Metropolitan Location	
Non-Metro	-0.57
Metro	-0.15
By Age	
60-64	-0.04
65-69	-0.91
70-74	-0.10
75-79	-0.19
80 and older	0.30
By Employment Status	
Employed	-0.79
Unemployed	1.28
Retired	0.19
Disabled	-0.07
By Gender	
Male	-0.61
Female	0.10
By Grandchild Present	
No Grandchild Present	-0.19
Grandchildren Present	-1.60
By Homeownership Status	
Homeowner	-0.43
Renter	0.30
By Veteran Status	
Veteran	-1.72**
Not a Veteran	0.03

Source: Authors' calculations. The numbers in the table reflect percentage point changes from 2016-2017. The asterisks denote statistical significance at the following levels: *** p<0.01; ** p<0.05; * p<0.1

REFERENCES

- Berkowitz, S., S. Basu, J. Meigs, and H. Seligman. 2017. Food Insecurity and Health Care Expenditures in the United States, 2011-2013, *Health Services Research*, Doi: 10.1111/1475-6773.12730.
- Gundersen, C. and J. Ziliak. 2017. *The Health Consequences of Senior Hunger in the United States: Evidence from the 1999-2014 NHANES*. Report submitted to Feeding America.
- Ziliak, J. and C. Gundersen. 2018. *The State of Senior Hunger in America 2016: An Annual Report*. Report submitted to Feeding America.
- Ziliak, J., C. Gundersen, and M. Haist. 2008. *The Causes, Consequences, and Future of Senior Hunger in America*. Report submitted to Meals on Wheels Association of America Foundation.

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