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Food Insecurity Post COVID-19: Adapting Food Assistance Programs

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ABSTRACT

38 million people, of which 12 million were children, suffered from food insecurity across the United States at the start of 2020. Then the unthinkable happened: the COVID-19 pandemic swept the world, plunging the economy into chaos. Everything from working conditions to market conditions were affected, and a rise in food insecurity came as a consequence. Federally subsidized food assistance programs now aim to further pandemic recovery efforts, however they must adapt in order to be successful in post-pandemic conditions. In this paper, I examine current efforts and possible improvements to efforts to alleviate food insecurity. I first offer a review of existing literature, which outlines a few crucial strategies that food assistance programs must employ to maximize their effectiveness. These strategies include exposing children to the programs before the age of 5 and factoring the current economic climate into the actions of these programs in various ways. Secondly, I conduct empirical analysis of recent data in order to display how economic conditions are reflected in the prevalence of food insecurity and how food insecurity is correlated with conditions such as education level, residential area, and job security. My analysis concludes with ways that food assistance programs can maximize their effectiveness in the post-pandemic climate.

Introduction

At the start of the COVID-19 pandemic, food insecurity plagued over 10.5% of all US households and 14.8% of households with children, meaning that 38 million people, including 12 million children, lacked sufficient and reliable access to food across the country (Coleman-Jensen et al., 2022). However, the economic climate changes caused by the pandemic have only inflamed a problem that has affected the United States since its creation. In the past century, federal funds have been directed into various programs designed to alleviate food insecurity, programs which I will analyze in detail. In this paper, I study what is being done and what can be done to reduce food insecurity, through analysis of existing literature on the topic and empirical analysis of recent data, ultimately drawing conclusions about how these programs can be improved. My analysis is centered around the following questions: How effective are food assistance programs in the US? What are recent trends in food insecurity after the onset of the COVID-19 pandemic? In light of these studies and recent trends, what can we do to improve food assistance programs?

My analysis of existing literature led me to a few key strategies that food assistance programs can employ to maximize their effectiveness, including exposing children to the programs at an optimal age as calculated in the study. In addition, studies published even before the COVID-19 pandemic emphasized the need to factor current economic conditions into the strategic operations of these programs. This need for adaptability has only grown since the pandemic. My empirical analysis is based on examining the correlations between different aspects of today's economic climate and food insecurity. In this paper, I will first introduce background information on food assistance programs, before further explaining my methodology and introducing the full results of my analysis and conclusions.

Background on Food Assistance Programs

With numerous studies demonstrating the impact of food assistance programs on the ability of children growing up in food insecure households to break the cycle of poverty in their adult lives, the federal government has continued to shift increasing resources towards improving these programs and maximizing their productivity. In 2020, federal spending on food assistance programs amounted to $122.1 billion, a 32% increase from 2019 expenditures. About 11% of that money went to new programs created to decrease food insecurity in the ever-changing pandemic climate, but the remaining $107.4 billion was mostly divided between four large programs with proven success rates (Martin, 2022).

The country's largest program, the Supplemental Nutrition Assistance Program or SNAP, has existed in some form since 1939 (National Academy of Sciences, 2013). It was originally called the Food Stamps Program and later expanded under a series of temporary programs enacted by John F. Kennedy, eventually being solidified as part of Lyndon B. Johnson's War on Poverty in the 1960s. The fundamental strategy of the program is to provide families with incomes below 130% of the federal poverty line with federally subsidized vouchers that allow them to purchase food at grocery stores (Bailey et al., 2020, p. 1). In 2018 alone, data reflects that SNAP brought at least 3.1 million people out of poverty. The program has continued to grow with increased devotion of federal resources throughout the pandemic and into the post-Covid era (Martin, 2022). As it is currently the largest food assistance program in the country, a substantial portion of my analysis will be devoted to evaluating its effectiveness.

The second most successful US food assistance program is the National School Lunch Program (NSLP). Funds were first allocated to create the program under the Healthy Hunger Free Kids Act of 2010. It operates under the assumption that providing children with access to better food in school will in turn reduce their risk of poverty in adulthood. The NSLP distributes assistance in the form of cash and commodities to public or nonprofit private schools and residential childcare institutions serving children from kindergarten through high school. It calculates how much assistance is given to each school based on the number of students in need of reduced-price or free meals, with subsidies per meal ranging from 30 cents to $3.00 as needed. Children living in households with income between 130% and 185% of the federal poverty line are automatically eligible for the program, as well as children who are part of SNAP and other food assistance programs (Morgan, 2015). NSLP also provides schools with the ability to serve free meals to all students if 40% or more of their student body qualifies for free meals. However, the program has one major condition of participation for schools: the meals served must meet a standard of nutrition based on the most recent dietary guidelines. In 2014, 30.3 million students received benefits from the NSLP, with 19.1 million receiving meals completely free.

The third largest federally funded food assistance program is the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (Morgan, 2015). This program was founded in 1974 and serves around half of all infants born in the United States annually through the distribution of federal funds to states. These funds grant supplemental foods, healthcare referrals, and nutrition education to low-income women at various stages of childbirth, from pregnancy to postpartum. They also provide assistance to children at nutritional risk below the age of five (WIC, 2022).

The fourth and final of America's major federal food assistance programs are the School Breakfast Program (SBP) and the Child and Adult Care Food Program (CACFP) respectively. SBP operates similarly to NSLP, providing federal funds to elementary and secondary schools that serve breakfast to students, as the SBP and CACFP were also established under the Healthy Hunger Free Kids Act of 2010. Through the Child and Adult Care Food Program, the federal government is able to subsidize meals at childcare centers, family day care centers, afterschool programs, and other centers that serve meals to children, the elderly, and people with chronic disabilities. Subsidies per meal range from 25 cents to $2.80, with the same eligibility requirements

applying to childcare centers as were set forth by SBP and NSLP. For adult care centers, all elderly people or people with chronic disabilities are eligible, whether their treatment center is for profit or not. The program holds its participating centers to maintain the same nutritional standards as the NSLP, in order to ensure that people receiving the meals are both fed and properly nourished. In 2014, CACFP served over 3.8 million people on a daily basis, with 3.7 million being children in care centers.

The success of these programs has been reflected in multiple studies. For example, one paper finds that "If the data are treated as perfectly accurate, the [NSLP] is estimated to decrease the prevalence of food insecurity between 2.3 and 9.0 percentage points" (Gundersen et al., 2011, p. 295). And even with limited success, children participating in the programs are still better off than the alternative. Children growing up in food insecure households without access to these programs have been shown to have an increased risk of developing mental or physical health issues later in life, as well as an increased risk of remaining below the poverty line in their adult lives. However, there is always room for growth. In order to better serve US citizens and alleviate food insecurity, these programs would benefit from policy reforms that take into account the current economic climate and improve the programs in ways that will not decrease participation.

Methodology

The analysis in this paper consists of two components: a review of existing studies on the efficiency of food assistance programs and an empirical analysis of recent data on food insecurity.

First, in reviewing existing studies on the topic, I focus on two studies in particular. The first one is titled "The Economics of Food Insecurity in the United States" and is authored by economists Craig Gundersen, Brent Kreider, and John Pepper. It examines the determinants of food insecurity, impacts of food insecurity on the health of those it affects, and evaluates food assistance programs such as SNAP and the NSLP. The second study, titled "Is the Social Safety Net a Long-Term Investment? Large-Scale Evidence From the Food Stamps Program" and is authored by economists Martha J. Bailey, Hilary W. Hoynes, Maya Rossin-Slater, and Reed Walker. It features a focus on SNAP, containing empirical analysis on the optimal age at which SNAP should be introduced for maximum benefit. The authors perform empirical analysis to determine how the Food Stamps program affects children's long term outcomes in terms of economic productivity and well-being, additionally calculating and analyzing the cost benefit ratio of the program.

In the second part of the analysis, I conduct an empirical analysis on recent trends in the association between food insecurity and education level, residential area, and working conditions altered by the COVID-19 pandemic in order to draw conclusions on how current programs can be improved and adapted to be more successful in the current economic climate. I utilize data from the United States Department of Agriculture (USDA) Economic Research Service and Food and Nutrition Service. The data includes statistics on the prevalence of food insecurity among people who have different levels of education and live in different types of residential areas. It covers the prevalence of food insecurity among people whose work conditions were impacted by the pandemic compared with people whose work conditions were unaffected. Additionally, I have compiled data on SNAP participation levels over the last 20 years in order to display patterns that surround the program's largest increases in participation.

Analysis

Review of Existing Literature

The first existing study I will present is "The Economics of Food Insecurity in the United States", authored by economists Gundersen, Kreider, and Pepper. The paper addresses three main questions on the topic of food

insecurity that can be answered with economic analysis: "What are the determinants of food insecurity?; What are the causal effects of food insecurity on health outcomes?; and What is the impact of food assistance programs on food insecurity?" (Gundersen et al., 2011, p. 281).

First, to study the determinants of food insecurity, the paper analyzes factors such as economic climate, assets, and other determinants less tied to income. Studies show that food insecurity is not as deeply connected to income as one might expect, but rather that plenty of poor households are food secure while households that wouldn't fall below the poverty line are food insecure. Secondly, multiple negative effects of food insecurity on the health of members of a household are presented, with possible health outcomes ranging from higher probability of birth defects to higher probability of mental illness.

The main focus of the paper lies in the answer to the third question. Two case studies of food assistance programs are presented and analyzed with suggested policy-based reforms. The first one is the Supplemental Nutrition Assistance Program, the leading program in decreasing food insecurity. Proposals to improve the program have included increased focus on nutrition enhancements, however the authors warn that such changes could discourage some participation in the program if food options are more restricted, which would, in turn, detract from the fundamental purpose of the program. The second program, the National School Lunch Program, is presented in contrast to SNAP in a couple of ways: it focuses on children and its primary purpose is to meet specific nutritional goals. Although it was created for nutritional purposes, studies have demonstrated its potential to help alleviate food insecurity.

The authors conclude that policy reforms intended to alleviate food insecurity must reflect the current economic climate, as economic climate is an important factor in food insecurity, even with limited research existing on the subject. They also conclude that more research on the success of smaller scale assistance programs might allow lawmakers to make more specific and beneficial policy reforms.

The second existing study that I focus on is "Is the Social Safety Net a Long-Term Investment? Large-Scale Evidence From the Food Stamps Program", which takes a deeper dive into the long-term effectiveness of SNAP. Authored by economists Bailey, Hoynes, Rossin-Slater, and Walker, this paper studies the impacts of introducing the Food Stamps program at different periods in the lives of children. It tackles the questions of how the Food Stamps program affects children's long term outcomes and what the age at which initial exposure to the program will lead to the most lasting benefit is. The paper additionally analyzes the cost benefit ratio of the program.

In order to analyze the impacts of childhood exposure to Food Stamps on productivity and overall well-being later in life, the authors have compiled data from the combined 2000 Census, 2001 to 2013 American Community Surveys, and Social Security Administration's NUMIDENT. These sources provide large scale data that allows the authors to calculate the program's long-term benefits in areas ranging from economic productivity to neighborhood quality with greater accuracy than any previous study. Larger sample sizes also counter a potential problem of endogeneity, factoring in both political changes at the state-level in the 1960s and the drastic economic changes that occurred between 2000 and 2014. This data is then factored into calculations using event-study, linear-spline, and difference-in-difference models that take advantage of the staggered rollout of the Food Stamps program in order to present findings about the optimal age of exposure in order to maximize later benefits.

The authors have calculated the Marginal Value of Public Funds (MVPF), which measures the fiscal externalities of the program, or the ratio of the program's benefit to its participants to its net cost to the government. The MVPF addresses the ways in which long-term benefits of the program outweigh the costs. It utilizes estimates of four benefits child recipients experience in adulthood to quantify long-term benefits to children, those benefits including increased labor income, increased survival rates, reduced likelihood of incarceration, and reduced need for public income assistance. These calculations have produced an MVPF of $56, highlighting the value of SNAP through the specific lens of its economic benefit to government spending. The MVPF reflects

that the program is not only an investment into the futures of children exposed, but also the future of social welfare programs, as early exposure produces reduced need for such programs in adulthood.

Presented findings from studies on the ideal exposure age to the program confirm the belief that exposure to the program before the age of 5 leads to greater benefit in the child's adult life. The authors produce a composite index of benefit in overall well-being, longevity, and incarceration rates, finding that exposure before the age of 5 leads to a benefit of almost .002 index units, whereas exposure between ages 6-11 leads to a benefit of less than .001 units. More specific indices bolster this conclusion; with regards to human capital acquired later in life, exposure before age 5 shows an estimated benefit of slightly over .002 units while exposure between ages 6-11 shows a benefit of about .0005 units (Bailey et al., 2020, p. 25). When the authors factored participation rates into this data, they were able to obtain a treatment-on-the-treated (TOT) effect of .06 standard deviation units on the adult composite outcomes index. The authors then provide cumulative estimates of the benefits of full exposure to the program between conception and age 5 on different indices, scaling the effects in units of standard deviation based on intent-to-treat (ITT) estimates (Bailey et al., 2020, p. 26). This data displays effects such as an increase of 0.010 standard deviation units in human capital, an increase of 0.004 standard deviation units in economic self-sufficiency, and an increase of 0.012 standard deviation units in neighborhood quality.

Overall, both studies find some positive results of food assistance programs, specifically SNAP. But the programs clearly have room for improvement. Bailey et al. offers a way to maximize the effectiveness of SNAP: exposure before the age of 5. Gundersen et al. suggests that policy reforms could be the key to maximizing the effectiveness of SNAP, specifically policy reforms that reflect the current economic climate. In order to further examine the association between food insecurity and various aspects of the current economic climate and living conditions, I have performed empirical analysis on recent USDA data.

Data Analysis

Through my empirical analysis, I focused on the association between food insecurity and conditions such as education level and area of residence and the impacts of the COVID-19 pandemic on these associations and the association between food insecurity and other economic conditions, specifically working conditions and job security.

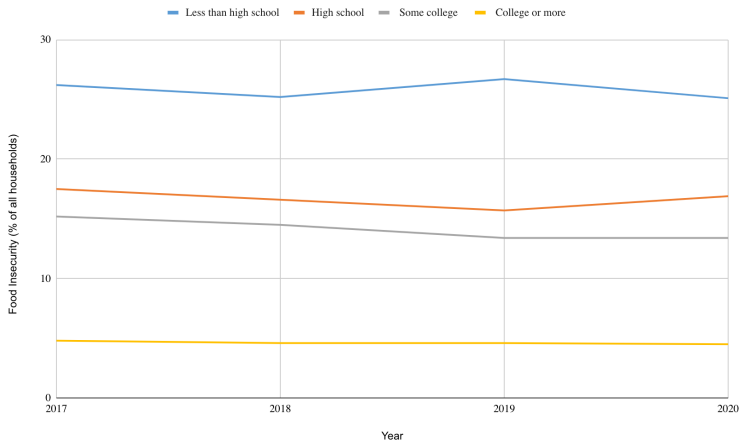

Figure 1. Association Between Education Level and Percentage of Food Insecurity. Source: Author's computation based on data from USDA, Economic Research Service, using data from the Current Population Survey Food Security Supplement, 2017 - 2020.

Figure 1 utilizes data on the prevalence of food insecurity among people with different levels of education between 2017 and 2020 to display the association between education level and food insecurity. This figure shows that higher levels of educational achievement are correlated with lower levels of food insecurity. For example, about 25% of individuals with less than high school are food insecure, but only about 5% of individuals with college or more suffer from food insecurity. Additionally, Bailey et al. explains that exposure to social welfare programs, such as Food Stamps, at a young age leads to higher educational attainment later in life (Bailey et al., 2020, p. 10). With this in mind, I form a conjecture that exposure to Food Stamps earlier in life will lead to a reduced likelihood of food insecurity in adulthood, due to opportunities afforded by higher education. However, the data concludes that individuals with less access to education are certainly more vulnerable to food insecurity.

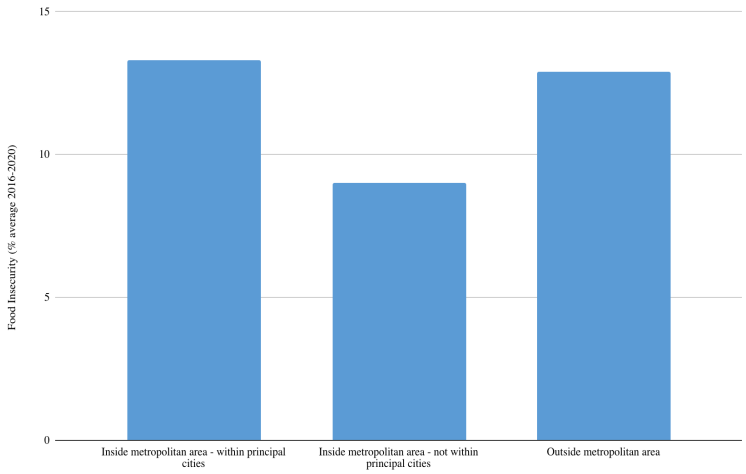

Figure 2. Association Between Residential Area and Percentage of Food Insecurity. Source: Author's computation based on data from USDA, Economic Research Service, using data from the Current Population Survey Food Security Supplement, 2001 - 2020.

Next, I examine the association between food insecurity and type of residential area. Figure 2 is a rendition of this association; I used the USDA Economic Research Service's Current Population Survey Food Security Supplement to compute the average food insecurity levels within each different type of residential area across the period between 2016 and 2020. The figure shows that food insecurity is most prevalent within principal cities (13.3% on average between 2016-2020), which is surprising as that seems a most likely area to concentrate efforts of social welfare programs. However, this data can be useful in looking to maximize the effectiveness of programs designed to alleviate food insecurity or create new programs, showing which residential areas need the most attention.

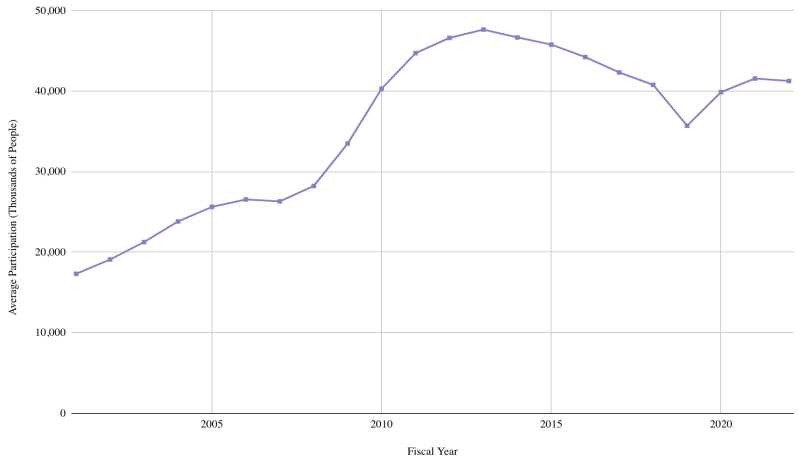

Figure 3. SNAP Participation 2001-2022. Source: Author's computation based on data from USDA, Food and Nutrition Service, using data from the Supplemental Nutrition Assistance Program Participation and Costs, 2001 - 2022.

Jumping off the point Gundersen et al. made about the importance of factoring current economic conditions into efforts to alleviate food insecurity, I then explored SNAP participation rates over the past two decades. My findings are presented in Figure 3. The figure displays levels of SNAP participation over 20 years, allowing patterns between change in participation levels and current economic conditions to be noted. For example, the largest increase in SNAP participation over one year is around the Great Recession of 2008-09, where an increase of about five million people occurs. After that, participation stays largely stagnant until it begins decreasing, with this trend only reversing at the onset of the COVID-19 pandemic in 2020, where the data reflects an increase of about 4 million people. As programs such as SNAP are forced to adjust to today's post-COVID, recovering economy, trends like this are important factors that must be taken into account when adapting the program for maximum efficiency. The increase in SNAP participation in 2020 is a reflection of greater problems with the economy that caused people to lose the resources to feed their families, and analyzing those specific problems can shine light on ways to bolster SNAP and restore food security to pre-pandemic levels.

Table 1. Correlation Between Food Security Status and Impacts of the COVID-19 Pandemic on Work Conditions. Source: USDA, Economic Research Service, December 2020 Current Population Survey Food Security Supplement.

Category	Total - 1,000	Food secure - 1,000	Food secure - Percent	Food insecure - 1,000	Food insecure - Percent
All households	130,459	122,971	94.3	7,488	5.7
Telework because of pandemic:					
All Employed	76,867	73,643	95.8	3,224	4.2

Yes, able to telework because of pandemic	22,390	21,908	97.8	482	2.2
No, not able to telework or worked entirely at home before pandemic	54,477	51,735	95.0	2,742	5.0
Not employed (unemployed or not in labor force)	53,032	48,771	92.0	4,261	8.0
Unable to work because of pandemic:					
Yes	8,267	6,909	83.6	1,358	16.4
Yes, and yes, received pay for hours not worked	1,196	1,075	89.9	121	10.1
Yes, but no, did NOT receive pay for hours not worked	7,071	5,833	82.5	1,238	17.5
No	121,618	115,491	95.0	6,127	5.0
Pandemic prevented looking for work:					
Yes	2,132	1,697	79.6	435	20.4
No	45,906	43,030	93.7	2,876	6.3
In labor force	81,861	77,687	94.9	4,174	5.1

Table 1 compiles data that more closely examines one likely factor in the 2020 SNAP participation increase: changes in working conditions caused by the onset of the COVID-19 pandemic. The table shows the correlation between food security status and impacts of the COVID-19 pandemic on work conditions, using each household's reference person's work activities during the 30 days prior to a food security survey. It documents trends between work conditions and food security, showing that food security amongst employed individuals who were able to work remotely during the pandemic was 98%, whereas households with individuals whose work was disrupted or were unemployed during the pandemic report lower levels of food security (95% and 92% respectively). Clearly, there is a positive correlation between job security and food security, which sheds light on one underlying economic problem that arose during the pandemic to threaten food security levels, likely even leading to the increase in SNAP participation in 2020 shown in Figure 3. In order to adapt programs like SNAP and design new programs aimed to recover food security after the pandemic, underlying causes such as job security are important to note.

As food assistance programs such as SNAP attempt to provide relief to those who have suffered at the hands of the pandemic, they must utilize findings in previous literature as well as findings derived from recent data. With these in mind, I conclude with a few key areas these programs must keep in mind. The program must place focus on the infants born during the pandemic who are currently eligible for optimal exposure. It must also place focus on populations more vulnerable to food insecurity; two of which include, as per the findings of my empirical analysis, those with lower levels of education attainment and those residing in principal cities. Finally, as Gundersen et al. suggests, it must factor the current economic climate into policy-based reforms of the program. Recent data insinuates that various pandemic-induced changes to working conditions have a correlation with food insecurity, leading me to conclude that programs designed to assuage food insecurity must align their efforts with aiding the recovery of the economy and in turn restoring job security.

Conclusion

In this paper, I combined my evaluation of existing studies related to the prevalence of food security and success of programs designed to alleviate it with empirical analysis of recent data on the prevalence of food insecurity in different subgroups of the population. Long before the onset of the COVID-19 pandemic, studies such as Gundersen et al. had reported the need for policy reforms of food assistance programs that factored in current economic conditions. I thus used empirical analysis to delve deeper into aspects of such conditions.

With these findings in mind, I conclude with a few ways food assistance programs can maximize their effectiveness in this post-pandemic climate, whether those programs are existing government programs with proven success rates or smaller scale programs being created to thrive in these circumstances. Food assistance programs are as much an immediate relief plan as they are an investment into the future, and in order to fulfill their investment capabilities they must focus on the population with which they can achieve the most success. Based on my findings, that population is children currently below the age of 5, a population which includes children born during the chaos of the pandemic. These children are at the age where exposure will have the most impact on their ability to evade food insecurity in their adult lives and must be helped. In order to fulfill their relief capabilities and improve present figures of food insecurity, programs must focus on the vulnerable populations mentioned in my findings. In addition, policies designed to alleviate food insecurity must also factor in aspects of the pandemic economic climate that have increased the prevalence of food insecurity, namely a decrease in job security. Giving attention to increasing job security is just one way to indirectly decrease food insecurity, and it will achieve success when combined with continuing attempts to directly increase food insecurity. At the present juncture, the success of food assistance programs is contingent on their ability to adapt to changing circumstances.

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