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Impact of SNAP on Food Insecurity: A Michigan and Indiana Case Study

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INTRODUCTION: WHAT IS FOOD INSECURITY?

Food insecurity is one of the most pervasive and concerning problems in the United States. Approximately 1 in every 13 households within the United States was food insecure at some point during 2022 (Rabbitt et al., 2023) Food insecurity occurs when households have a limited ability to access nutritious foods, there is a limited supply of safe, healthy foods, or they are unable to obtain food in socially acceptable ways (Anderson, 1990). Low food security is associated with adverse health outcomes like type 2 diabetes, cardiovascular disease, and poor mental health, which contributes to the severity of the problem (Thomas et al., 2021). Conversely, food security means that households always have access to nutritious foods in socially acceptable ways (Anderson, 1990).

United States Department of Agriculture (USDA) officials documented the food insecurity rate of 11.9 percent in 1995, 10.5 percent in 2019, and 10.2 percent in 2021 (Hamilton et al., 1997 & Rabbitt et al., 2023). The fluctuating yet overall stable rate of food insecurity is especially concerning as the US is one of the most developed countries in the world. As the economy grows, one would expect higher rates of food security. However, this is not the reality, and the US is not alone in experiencing this problem. A UN report (2023) estimates roughly 1 in 3 people worldwide were food insecure in 2022. This statistic suggests that every country, including the US, needs to enact interventions ensuring access to healthy food for all households. Without substantial research at the state level, achieving food security will remain a distant goal.

This analysis documents the challenge of food insecurity. First, I examine the measurements and determinants of food security. Then, I explore programs within the US designed to mitigate food insecurity, notably the Supplemental Nutrition Assistance Program (SNAP), given its significance in scope and funding. SNAP programs vary from state to state, which prompts

questions regarding differences in state policy. How do SNAP programs differ between states, and does it result in outcome disparities that may justify policy changes? I will conduct a case study between Michigan and Indiana from 2010 to 2021 to answer these questions. It focuses on Michigan and Indiana because their sociodemographic characteristics and geographic proximity are comparable. Including COVID-19 offers insights into how sudden changes in policy impact food security and SNAP receipt. By exploring differences in food security and SNAP receipt in both states, this analysis aims to inform future policy, add perspective on the interactions between food stamps and food insecurity, and motivate further state-level research.

Measuring Food Security

Food security is challenging to measure on its own. Due to its subjective nature, researchers cannot directly ask individuals to rate their food security status. Because measuring the problem is necessary for improvement, researchers have found alternative forms of quantifying food security.

USDA researchers started to study the problem in the 1980s (National Research Council, 2006). In 1995, the USDA Economic Research Service conducted its first report by adding the Food Security Supplement every December to the monthly Current Population Survey conducted by the US Census Bureau (Hamilton, 1997). Researchers collected data by interviewing approximately 45,000 households to measure food security conditions over two periods: the year before and 30 days after the survey. These questions range in topics related to food insecurity, such as access and resources to obtain food and socioeconomic characteristics. From these food condition questions, they established a food security scale ranging from food secure, food

insecure without hunger, food insecure with moderate hunger, and food insecure with severe hunger to measure the well-being of individuals and households.

Researchers refined the measurement scale a few years later by reorganizing the food supplement questionnaire utilizing more standardized calculations (Cohen et al., 2002). Experts further narrowed the measurement scale to exclude the word “hunger” and include the terms “low food security" and "very low food security” as the food insecure category (Nord et al., 2007). Low food secure households cope with disrupted eating by consuming less varied diets or using food pantries. The very low food secure population cannot avoid disrupted food patterns and eats less due to financial constraints (Rabbitt et al., 2023). The yearly survey includes ten questions for childless households and 18 questions for households with children. In the low food security category, respondents identify affirmatively for three or more food insecure conditions. To classify as very low food secure, households without children respond affirmatively to six or more food insecure conditions, while households with children respond affirmatively to eight or more conditions (Nord et al., 2007). Given these measures of food security, we can consider the determinants of food insecurity more thoroughly.

Determinants of Food Insecurity

There are several contributing factors to the prevalence of food insecurity. One such factor is financial constraints. For example, Bartfeld and Dunifon (2006) find that food insecurity poses a significant risk to economically vulnerable households. Because these households are unstable financially, economic conditions like unemployment can lead to higher rates of food insecurity. Similarly, higher living costs from taxes and housing lead to lower food security (Bartfeld and Dunifon, 2006). Constraints on financial resources can further harm food security during weather

fluctuations. As Bhattacharya et al. (2003) point out, there are higher costs to heat homes and consume non-food necessities during winter, which leads to decreased food expenditure. Thus, disposable income limits households as their expenditure decisions come with opportunity costs in food consumption.

One may also consider the supply side of food security. USDA researchers seek to understand the impact of grocery stores and transportation access on food security (Ver Ploeg et al., 2009). Their findings show that certain households have limited access to nutritious food due to their distance from supermarkets and their limited means of transportation. The results suggest that the higher prices of closer, smaller grocery stores increase spending at convenience stores that offer less nutritious food choices.

Another critical factor that can lead to food insecurity is structural racism. Data findings (Linde et al., 2023) show that redlining, a 1930s policy designed to segregate cities by labeling minority neighborhoods as hazardous to lenders, harmed food security. Ethnic and racial minorities are more likely to live in hazardous-rated areas and, as a result, have less access to supermarkets and higher food insecurity. These are a few determinants leading to significant disparities regarding food insecurity between groups.

Disparities in Food Insecurity

Annual USDA reports document significant trends in food insecurity. There are stark differences in food insecurity rates due to race, ethnicity, household composition, education, employment, and region. There is a higher percentage of Black (non-Hispanic) and Hispanic households suffering from food insecurity at 19.8% and 16.2%, respectively, compared to White (non-Hispanic) populations at 7% (Coleman-Jenson et al., 2022). The National Center for Health

Statistics Data Brief (2021) highlights similar findings for Black (non-Hispanic) and Hispanic households with children.

Households with children, particularly women-only headed households, had more food insecurity at 24.3%, comparable to the 2021 national average of 10.2%. This pattern repeats for those with less than a high school education, those unemployed, and those disabled (Coleman-Jenson et al., 2022). The same report shows that states suffering from higher rates of food insecurity are in the South at 11.4%, while there are no Northern states above the US food insecurity average. Annual USDA reports also acknowledge a strong association between food insecurity and those living below the official poverty line (Coleman-Jenson et al., 2021 & Coleman-Jenson et al., 2022). These statistics highlight the complexity of the problem. Certain groups are at higher risk, which can further deepen demographic inequalities. These inequalities raise the concern of how to tailor public policy to counter food insecurity efficiently.

POLICIES TO COUNTER FOOD INSECURITY

Policymakers implement programs designed to mitigate food insecurity. The USDA Food Nutrition Service (2024) has 16 programs to decrease food insecurity and hunger. Three of the most relevant are the Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and the National School Lunch Program. While acknowledging the positive impact of food assistance programs, some scholars suggest changes that expand outreach and make the existing programs more stable and accessible (Hines et al., 2021 & Miller et al., 2020). Specifically, these same scholars identify SNAP as playing a significant role in reducing food insecurity. For example, SNAP expenditure by the

federal government totaled around $111 billion in 2021 (CBPP, 2023). Due to the program's size, SNAP is the most relevant policy addressing food insecurity.

Supplemental Nutrition Assistance Program

SNAP is the largest food supplement program, with participation totaling around 41 million people in 2021 (The Center on Budget and Policy Priorities [CBPP], 2022). The program has a long history in America's public policy realm. The first Food Stamp Program began in 1939, during a time of significant food surplus and unemployment (USDA, 2023). It ended within four years, in 1943. In 1961, legislators created the Pilot Food Stamp program, which led to the Food Stamp Act of 1964 (1964). Under the Act, eligible persons received a food coupon, now operated by electronic benefit transfer cards, allowing them to purchase qualified food items monthly (CBPP, 2022).

Policymakers divide program responsibilities between the state and federal governments. The state government's responsibilities are issuance and governance, while the federal government provides funding and authorization. The program has changed over the years in terms of accessibility and federal standards. Specifically, the Food Stamp Act Amendment of 1970 (1971) laid out work and eligibility requirements.

One unique aspect of SNAP is the variance in policy implementation between states. Congress gave states more control over SNAP policies in 2002 with the Farm Security and Rural Investment Act (The Farm Bill, 2002). The government continues to allow states a high level of flexibility. States have discretion in choosing gross and net monthly income and asset limits (CBPP, 2022). However, the federal government requires every household to meet the specified criteria. Therefore, implementing the program can be time-consuming and complex, especially

during an economic shock. However, before exploring the impact of economic shocks on food insecurity, this analysis draws from existing literature to illustrate SNAP's association with food security.

SNAP's Impact on Food Security

Multiple researchers examine the relationship between SNAP participation and food insecurity. Cohen et al. (1999), Jenson (2002), and Wilde and Nord (2005) find that SNAP participation has a significant impact on the likelihood that the participant is food insecure. Gibson-Davis (2006) suggests that not all participants buy eligible foods or budget correctly. They highlight that it is difficult to measure because once food insecure households enter the program, their food insecure status may change. Studies also consider self-selection in the program. Nonetheless, it is reasonable to conclude that SNAP impacts food insecure populations.

Other studies highlight the limitations of SNAP. For example, while Cook et al. (2004) find that SNAP reduces food insecurity and adverse health outcomes for children, they suggest that the program is too limited and requires expansion to improve pediatric health further. Oberholser, Tuttle, and Reeves (2004) also critique the program, highlighting a program gap that results in unmet nutritional and economic needs. Other studies have mixed results. Wilde and Nord (2005) find that food insecurity increases while SNAP participation rises. Yet, they conclude that it is not a causal relationship, merely confounding variables, as the program could not plausibly increase food insecurity. While these studies find a limited impact of SNAP, other research corroborates SNAP's significant impact on improving food security.

Numerous studies have found SNAP recipiency effective in reducing food insecurity (Gundersen, Kreider & Pepper, 2017; Ratcliffe & McKernan, 2010; Shaefer & Gutierrez, 2013).

These more recent studies consider the errors of earlier research models. Ratcliffe and McKernan (2010) find that the most notable impact of SNAP is reducing food insecurity prevalence in households with children. This study measures the program's effectiveness using the Survey of Income and Program Participation Panels (SIPP) and state-level SNAP data while controlling for selection bias. Findings reveal that SNAP receipt is linked to higher food insecurity, and the benefits from SNAP reduce food insecurity and very low food insecurity.

Likewise, Shaefer and Gutierrez (2013) also use SIPP data as an instrument to account for non-random self-selection. Results indicate that SNAP lowers food insecurity in households by 12.8%. This study considers the impact on non-food measures. The researchers find that SNAP receipt allows households greater flexibility in spending on non-food material essentials. Thus, SNAP impacts food security as well as other components of life.

Gundersen, Kreider, and Pepper (2017) use partial identification methods and SIPP to account for errors in prior research that could not identify the casual effects of SNAP on food insecurity without making strong assumptions. This study utilizes SIPP data to assess the robustness of earlier results. They find that SNAP reduces childhood food insecurity prevalence by a range of six to eleven percent.

Ettinger, Chilton, Bovell-Ammon, and Knowles (2019) explore how losing SNAP benefits may result in lower food security. They find that once a household's income exceeds the eligibility threshold, the loss of SNAP benefits results in reduced food security. The negative outcomes from this loss show the challenge presented to households when SNAP benefits abruptly end. This is relevant currently as SNAP participants adjust to the fluctuations of benefits in the aftermath of the COVID-19 pandemic.

THE COVID-19 SHOCK

The emergency conditions of the COVID-19 pandemic demanded quick policy solutions. Multiple studies show a significantly higher food insecurity rate early in the pandemic due to job losses (Niles et al., 2020 & Kim-Mozeleski et al., 2023). However, findings demonstrated that the levels declined after the initial shock in 2020 (Kim-Mozeleski et al., 2023). This suggests that government intervention and policy possibly reduced food insecurity.

While this seems promising, a closer inspection reveals disparities between populations. For example, Coleman-Jenson (2021) and his team demonstrated an unchanged food security rate of 10.5% from 2019 to 2020, yet specific subgroups experienced an increase in food insecurity. Most notably, the study highlights the increase in Black (non-Hispanic) households and households with children. The COVID-19 shock also initiated changes in public policy.

Government Response to COVID-19

SNAP acts as a channel to aid families already experiencing food-related hardships promptly and efficiently as the largest food assistance program in the US. Policymakers responded quickly to the pandemic by increasing benefits and reducing requirements to participate in SNAP. One could posit that the added flexibility during the pandemic curbed a more drastic incline in the nation's overall food insecurity.

In 2020, Congress passed the Families First Coronavirus Response Act (FFCRA, 2020). First, it raised SNAP benefits to the maximum amount, depending on household size. However, this did not affect those already receiving the maximum benefit, also defined as the lowest-income households. In a policy revision, the USDA increased funding by 1 billion dollars a month to the

lowest-income households in 2021 (Rosenbaum, 2021). Secondly, the Act waived work requirement reporting time limits to help those unemployed during the pandemic (FFCRA, 2020). For example, if an individual lost work, they did not have to report their new unemployment status, so they could continue to receive benefits. Lastly, the Act added more flexibility for states because state leaders could apply for waivers and exemptions to increase benefits and ease the application process.

Congress passed the Coronavirus Aid, Relief, and Economic Security Act, providing an additional $15.8 million to SNAP administration (Hodges et al., 2021). In addition, the Consolidated Appropriations Act of 2021 expanded benefits to college students meeting specific work-study requirements (US Department of Education, 2021). Concurrently, there was a non-pandemic-related increase in SNAP benefits by 21% in 2021 due to a revision in the Thrifty Food Plan (Llobrera et al., 2021).

The government implemented other non-SNAP-related policies during the pandemic. P-EBT, the American Rescue Plan, and Child Tax credits are the most relevant to this study. Congress created P-EBT, allowing children in households with or without SNAP to receive benefits if eligible for free or reduced lunch during school closures (FFCRA, 2020). Additionally, President Biden signed the economic stimulus package, the American Rescue Plan (2021). This package provided funds to those struggling due to the pandemic through tax credits, programs, and waivers. These proactive measures also impacted food insecurity levels as they gave residents more resources for necessities.

Food Insecurity During the Pandemic

Many households that are food insecure participate in SNAP. In the Coleman-Jenson report (2021), authors find that 55% of food insecure households participate in one or more programs: SNAP, WIC, and the National School Lunch Program. This high participation from food insecure households and increased benefits from policy changes could be the reason for an unchanged national rate.

The 2021 food security report highlights the complexity of food security because food levels are constantly changing between demographics. For example, it showed a decline in food insecurity for households with children, those with Black (non-Hispanic) household heads, Southern households, and low-income households (Coleman-Jenson et al., 2022). Contrarily, the report highlighted decreased food security for childless and elderly households. While the food security rate was similar in 2019, 2020, and 2021, it decreased significantly in 2022. However, food insecurity rates increased among specific subgroups, including households with children and single-headed women households (Rabbitt et al., 2023). Outcomes are constantly changing.

It is reasonable to assume policy changes in SNAP impact food security. However, it is difficult to assess the effectiveness of certain SNAP policies because of program variations due to economic shocks and individual state's administrative autonomy. A state-by-state approach considers the disparities within states as they have their own policies, leaders, and structural histories. The following case study of Indiana and Michigan highlights the variances at the state-level. State leaders chose to implement waivers and allow for more flexibility at varying times during the pandemic. This analysis is possible with emerging data on food insecurity during the

pandemic years. 2019 to 2021 represent the most considerable fluctuations in funding, benefits, and state control.

A MICHIGAN AND INDIANA CASE STUDY

States have the authority to tailor SNAP eligibility and waivers, which leads to variance in participation. Previous research acknowledges that economic conditions and age composition could cause these differences. However, the same researchers highlight that state-by-state policy could be more significant (Newby & Xi, 2022). Brian et al. (2018) document significant state program distinctions through an extensive policy index. The authors narrow down the index to 10 state policies impacting participation. The policies relate to eligibility, transaction costs, stigma, and outreach efforts. The index revealed that SNAP programs became more accessible from 1996 to 2014, yet the divergence in accessibility between states increased overall (Brian et al., 2018). The index demonstrates that there is significant variability in policy across the United States.

Michigan and Indiana experience these policy differences yet are geographically adjacent with similar demographics. In the case study, I compare their SNAP policies to answer two essential questions. First, how does SNAP implementation differ in the two states? Second, what do the results indicate about the policy research needs of each state?

Methodology

I divided the case study into two components: a policy analysis and a quantitative analysis. I focus on Michigan and Indiana separately from 2010 to 2021 in both sections. I then compare policy and outcomes between these states in my analyses.

The policy analysis compares SNAP eligibility in Michigan and Indiana before and after the pandemic. Michigan and Indiana's policy manuals outline eligibility. I focus on the broader eligibility categories, including income and asset limits, work requirements, and transaction costs. The official USDA (2023) website also has data on state waivers during COVID-19. The analysis reveals the SNAP policy pathways of the state agencies from 2010 to 2021.

The quantitative analysis conducted in R shows changes in food security based on SNAP participation, demographics, and food security status. I use the Food Security Supplement data, a subset of the Current Population Survey (Flood, 2023). The US Census Bureau conducts this survey annually. The subset of survey data from the Food Security Supplement contains 44,630 observations over the eleven years. The data includes unique individual demographic characteristics and food conditions from 2010 to 2021 in Michigan and Indiana populations.

This analysis consists of key food condition variables, including food security status, food stamp value, SNAP recipiency status, and characteristics data. I utilize the food security status variable to calculate food security levels, which takes values from 1 to 3 for food secure, low food secure, and very low food secure and I remove missing values. Another key variable is the food stamps variable, in which 1 indicates non-SNAP recipients and 2 indicates SNAP recipients. When calculating the total population on SNAP, I drop missing values yet keep responses not in the universe to ensure the percentage of the population in SNAP is with respect to the total population. I also include food stamp dollar amounts in 2019 USD adjusted for CPI to ensure consistency. I use the survey weights for food supplement data provided by CPS to be representative of Michigan and Indiana's total population.

I also combine race and ethnicity into one variable containing four mutually exclusive categories: White (non-Hispanic), Black (non-Hispanic), Hispanic, and Other. I include only the

White (non-Hispanic) and Black (non-Hispanic) categories for analysis. The sample size for Hispanics is insufficient to represent the entire Hispanic population in these states accurately.

Policy Analysis Result

Income and Asset Limits

In terms of eligibility, the federal government sets a limit of $2,750 in assets or $4,250 if a household member is elderly or disabled (CBPP, 2023). Gross monthly income must be under 130% of the Federal poverty line, net monthly income must be under 100% of the Federal poverty line, and net monthly income must be under 165% for disabled and elderly persons. Indiana (Family and Social Services Administration, 2023) and Michigan (Department of Health and Human Services, 2023) policy leaders use the same income criteria set by the federal government. It differs because Michigan has no asset limit, whereas Indiana remains with the federal asset limit (USDA, 2024).

Further changes are evident with Broad-Based Categorical Eligibility (BBCE), in which those participating in other assistance programs automatically enroll in SNAP and do not have to follow SNAP's stricter income and asset requirements (Rosenbaum, 2019). One such program is Supplemental Security Income. It pushes Michigan's gross income limit to under 200% of the federal poverty line, but Indiana's cutoff remains unchanged. Additionally, under BBCE, there is no asset limit in Michigan. Table 1 summarizes critical differences between Michigan and Indiana.

Table 1

Two Key Differences in Michigan and Indiana Eligibility

Eligibility Criteria	Michigan	Indiana
Asset Limit	$15,000	$2,750 (4,250 if elderly or disabled member in household)
Income Limit with Broad-Based Categorical Eligibility	Under 200% of the Federal Poverty Line	Under 130% of the Federal Poverty Line (165% for Elderly/Disabled)

Note: Both states follow the same federal work requirement of 30 hours per week plus 80 hours per month if participants meet the Able-Bodied And Without Dependents guidelines.
Note: Both states have income limits without broad-based categorical eligibility of under 130% of the federal poverty line (165% if elderly or disabled)

Transaction Costs

There is another set of policies determined by state leaders regarding transaction costs. Logically, if the application and recertification are less time-consuming and costly, there will be fewer barriers to participating in SNAP. One way the transaction costs differ between states is the recertification period. While these periods can range, Indiana and Michigan require recertification after 12 months with minor exceptions (Benvie, 2023). Likewise, both states use simplified reporting, which increases participation because households only need to report changes in income, allowing extended recertification periods. Additionally, two optional programs ease the application and certification process for the elderly and disabled. Michigan implements one of the two, while Indiana utilizes neither (Benvie, 2023).

While it is simplier to apply with an online application and simplified reporting, this fails to ensure full access to those eligible. Moynihan et al. (2023) show a loss of SNAP benefits due to the lack of understanding of identity categories on the application. Similarly, one study (Barnes, Michener, & Rains, 2023) highlights that SNAP's agency priority is application processing efficiency, which could be another reason for lower participation rates. The authors conduct

interviews with beneficiaries in which they discuss their adverse experiences with caseworkers and the application process. These experiences can lead to a negative perception of SNAP.

Work Requirements

Another component of SNAP is work requirements. Federal standards include a general work requirement of 30 hours per week for those 16-59 who can work. If the applicant is 18-52 years old, able to work, and does not have dependents, they must work an additional 20 hours per week under Able-Bodied Adult guidelines (Benvie, 2023). However, due to poor economic conditions stemming from the 2008 recession, the federal government allowed states to waive work requirement time limits at a certain employment rate. Michigan waived the work requirement time limit in low-employment areas until the federal government rolled back the waiver in 2018 (Department of Health and Human Services, 2018). On the contrary, Indiana revoked the waiver in 2015 (Kuhlman, 2015). Differences in income and asset eligibility and work requirement waivers could develop variance in SNAP participation across Indiana and Michigan.

State Flexibility During Pandemic

In response to the pandemic, Michigan and Indiana policymakers modified SNAP to ease food-related hardship. As previously mentioned, the FFCRA (2020) allowed states to apply for P-EBT. Both Indiana and Michigan received approval to implement P-EBT during the 2020-2022 school years and summers. Similarly, the states applied for emergency allotments from 2020 to 2022. However, Indiana stopped applying for emergency allotments in June 2022, while Michigan continued to apply in 2023 (CBPP, 2022).

Starting in April 2020, FFCRA (2020) also waived work requirement time limits for able-bodied adults without dependents. This condition allowed SNAP recipients to stop reporting their work

status so that they could still receive benefits during the state of emergency. After the federal suspension ended in June 2023, Indiana reinstated time limits while Michigan still applies (Benvie, 2023). In addition, the Continuing Appropriations Act suspended the quality control system from June 2020 to June 2021 (USDA, 2021). As such, there were no face-to-face interviews required during this period.

SNAP policies during the pandemic were nuanced. The federal government automatically issued certain waivers at the beginning of the pandemic, yet other waivers required applications and approval state-by-state. Indiana and Michigan had variations. For example, Indiana extended fair hearing timelines from April to June 2020, and Michigan extended the time limits from April 2020 to June 2023. Fair hearings are a state-level review that applicants can request if they are no longer deemed eligible or denied additional benefits. Applicants must request them within a specific time (Title 7, 2024). One can find more examples of less influential yet relevant waivers on the USDA's website (USDA, 2023). SNAP agencies can continue flexibilities, creating a heterogeneous application process across states.

The states have substantial policy differences before and during COVID-19 despite proximity and similar sociodemographic characteristics. This suggests that there could be more significant differences between other states if they have dissimilar backgrounds and demographics. Depending on the state, it could be more challenging to receive SNAP. How do these differences impact Michigan and Indiana food security outcomes and policy needs? In the next section, I explore food security and SNAP outcomes to demonstrate similarities and differences between Michigan and Indiana.

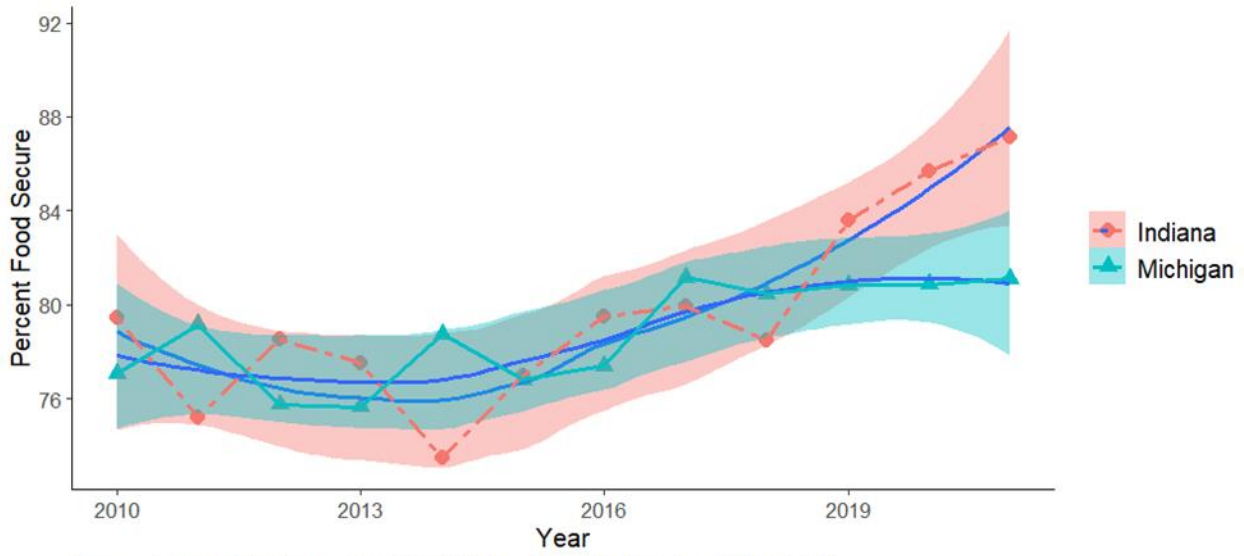
Quantitative Analysis Results

Food Security Levels

Figure 1 shows similar levels of adult food security between Michigan and Indiana until 2018. There is a more noticeable, yet subtle, increase in food security in Indiana during 2021. The shaded areas, demonstrating a 95% confidence interval, overlap each year.

Figure 1

Percentage of Adults that are Food Secure in Michigan and Indiana from 2010 to 2021

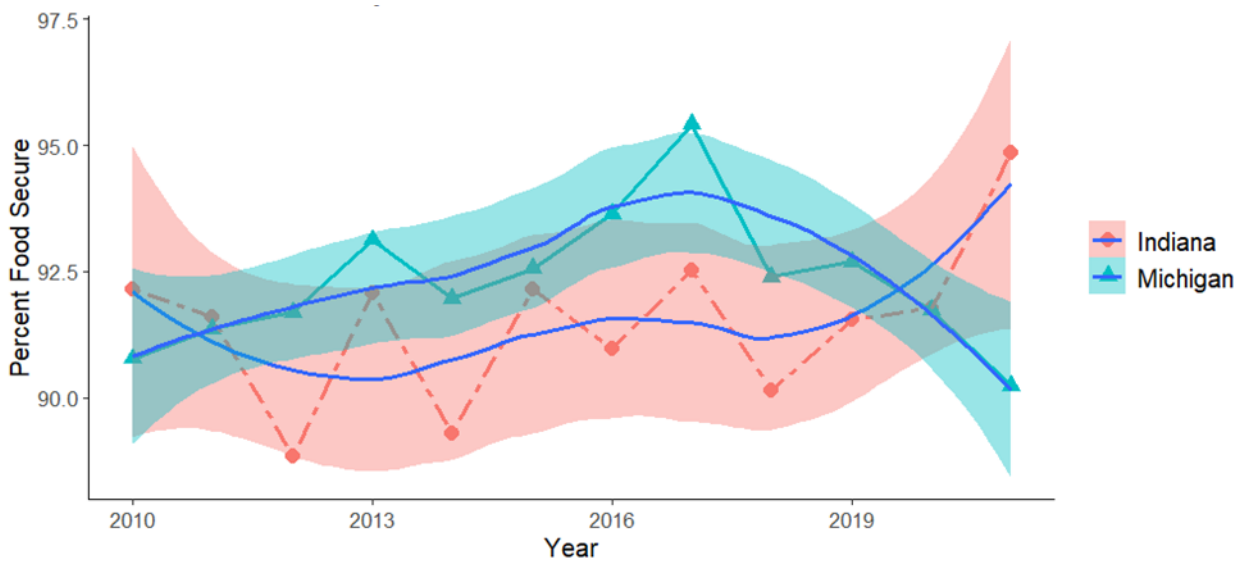


Source: Author calculations using CPS Adult Food Security data from 2010 to 2021

Figures 2 and 3 show minor fluctuations in child and household food security from 2010 to 2021, respectively. Child food security remains in an eight percent range in Figure 2. However, there is more divergence after 2018. Figure 3 shows a pattern of stable trends in household food security. The figures show that states can experience differences in food security and that food security levels are not improving with time.

Figure 2

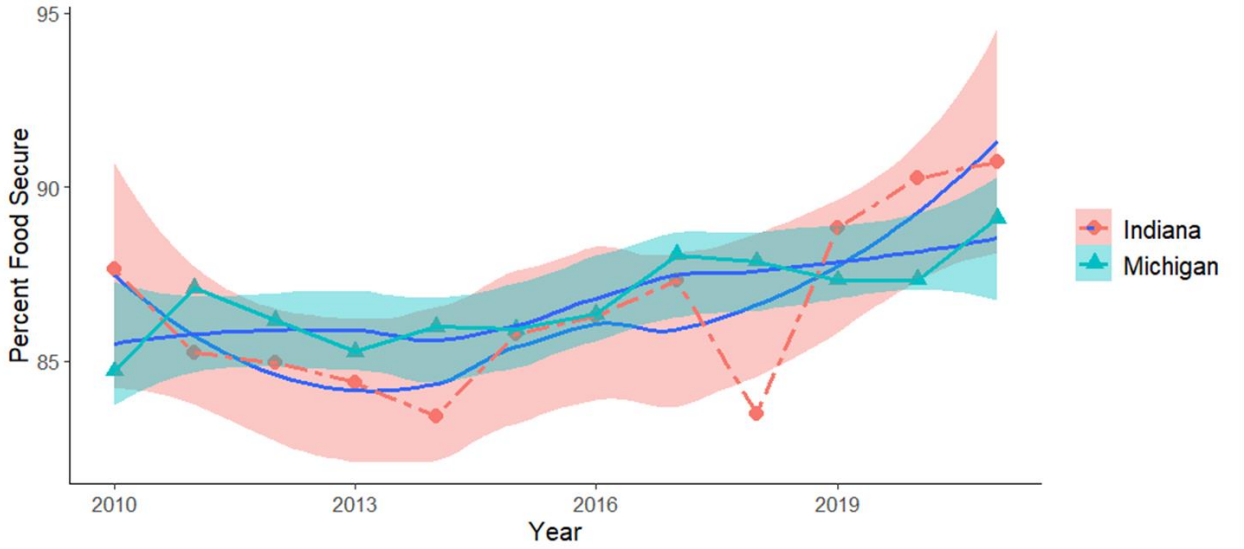
Percentage of Children that are Food Secure in Michigan and Indiana from 2010 to 2021



Source: Author calculations using CPS Child Food Security data from 2010 to 2021

Figure 3

Percentage of Households that are Food Secure in Michigan and Indiana from 2010 to 2021



Source: Author calculations using Michigan and Indiana CPS Household Food Security data from 2010 to 2021

Food Security Levels During COVID-19

Below, in Table 2, is a more in-depth analysis focused on 2019 and 2021 to ascertain the extent of COVID-19's impact on food security. Noticeably, child food security levels are high compared

to adult food security levels in both years. Adult food security is stagnant in Michigan but increases in Indiana from 2019 to 2021. Child food security decreases in Michigan from 2019 to 2021 while it increases in Indiana. Lastly, Household food security increases for both states.

Table 2

Food Security Levels in Michigan and Indiana during 2019 and 2021

	Michigan		Indiana	
	2019	**2021**	**2019**	**2021**
Household Food Security				
Food Secure	*87.6%*	*89.6%*	*88.9%*	*91%*
Low Food Security	*8.5%*	*6.7%*	*6.5%*	*4.9%*
Very Low Food Security	*3.8%*	*3.8%*	*4.6%*	*4.1%*
Adult Food Security				
Food Secure	*84.2%*	*84.2%*	*88.1%*	*91.5%*
Low Food Security	*7.7%*	*8.7%*	*6.7%*	*4.2%*
Very Low Food Security	*8.1%*	*7.1%*	*5.2%*	*4.3%*
Child Food Security				
Food Secure	*92.7%*	*90.2%*	*91.5%*	*94.8%*
Low Food Security	*7.3%*	*8.3%*	*6%*	*3.6%*
Very Low Food Security	*0*	*1.5%*	*2.5%*	*1.6%*

Source: Author calculations using Michigan and Indiana CPS Food Supplement data from 2019 & 2021

Table 3 shows the characteristics of those who are food insecure. The data reveals the complexity of the problem as there are differences between each state. The first key finding is the percentage of households that are food insecure. The percentage of food insecure households decrease for both states from 2019 to 2021. The second finding is in the SNAP recipiency data. There is a clear difference between Michigan and Indiana. Of those who are food insecure in Michigan, more are SNAP recipients in 2021. Contrarily, of those who are food insecure in Indiana, fewer are SNAP recipients in 2021.

Table 3

Percentage of Food Insecure Population that belongs to each of the Groups Listed in the First Column

	Michigan		Indiana	
	2019	**2021**	**2019**	**2021**
Total Household Food Insecure Population	*12.4%*	*10.4%*	*11.1%*	*9%*
Gender				
Women	*51.1%*	*55.6%*	*60.1%*	*53.7%*
Men	*48.9%*	*44.4%*	*39.9%*	*46.3%*
Race/Ethnicity				
White (non-Hispanic)	*45.2%*	*56.1%*	*62.1%*	*66.6%*
Black (non-Hispanic)	*30.9%*	*34.3%*	*23.2%*	*9.6%*
Hispanic	*10.5%*	*4.5%*	*1.5%*	*15.8%*
Other	*13.4%*	*5.1%*	*13.3%*	*8%*
SNAP Status				
Recipient	*49.6%*	*64.4%*	*42.5%*	*37.5%*
Employment Status				
Employed	*54.5%*	*44.2%*	*44.9%*	*47.3%*
Unemployed	*5.6%*	*6.9%*	*6%*	*2.3%*
Not in Labor Force	*39.9%*	*48.8%*	*49.1%*	*50.4%*
College Status				
In College	*6.6%*	*13.5%*	*4.5%*	*12.7%*

Note: The first row shows the percentage of the state population that is food insecure in each year. The remaining yearly indicators in this table show the percentage of food-insecure population that belong to each of the groups listed in the first column.

Source: Author calculations using Michigan and Indiana CPS Food Supplement data from 2019 & 2021

Table 4 shows the percentage within population groups that receive food stamps. Michigan and Indiana have differences in those who receive SNAP. For example, the total household population receiving SNAP increases in Michigan, whereas it decreases in Indiana during COVID-19. It is important to note that these are calculations at the household level, so there is a greater number of those not in the labor force due to being underage or retired.

Table 4

Percentage of SNAP Recipients that belong to each Group Listed in the First Column

	Michigan		Indiana	
	2019	**2021**	**2019**	**2021**
Total Household Population Receiving SNAP	*9.5%*	*13.7%*	*8.5%*	*7.7%*
Gender				
Men	*46.3%*	*48.0%*	*48.9%*	*39.7%*
Women	*53.7%*	*52.0%*	*51.1%*	*60.3%*
Race/Ethnicity				
White (non-Hispanic)	*51.7%*	*60.7%*	*60.9%*	*56.4%*
Black (non-Hispanic)	*28.8%*	*32.2%*	*27.7%*	*18.9%*
Hispanic	*15.2%*	*2.4%*	*2.7%*	*13.5%*
Other	*4.2%*	*4.7%*	*8.7%*	*11.1%*
Household Income				
Household Income below $10,000	*19.1%*	*12.9%*	*15.0%*	*12.6%*
Household Income $10,000 - 24,999	*38.1%*	*34.5%*	*18.6%*	*39.2%*
Household Income $25,000 - 49,999	*37.0%*	*22.4%*	*37.5%*	*35.6%*
Household Income $50,000 and above	*5.8%*	*13.6%*	*27.9%*	*12.5%*
Employment Status				
Employed	*51.7%*	*58.0%*	*58.5%*	*66.3%*
Unemployed	*9.1%*	*10.6%*	*4.9%*	*0%*
Not in Labor Force	*39.2%*	*31.5%*	*36.6%*	*33.7%*
Food Stamp Value				
In 2019 USD	*$316*	*$373*	*$228*	*$445*

Note: The first row shows the percentage of the state population that receives SNAP in each year. The remaining yearly indicators in this table show the percentage of SNAP recipients that belong to each of the groups listed in the first column.

Source: Author calculations using Michigan and Indiana CPS Food Supplement data from 2019 & 2021

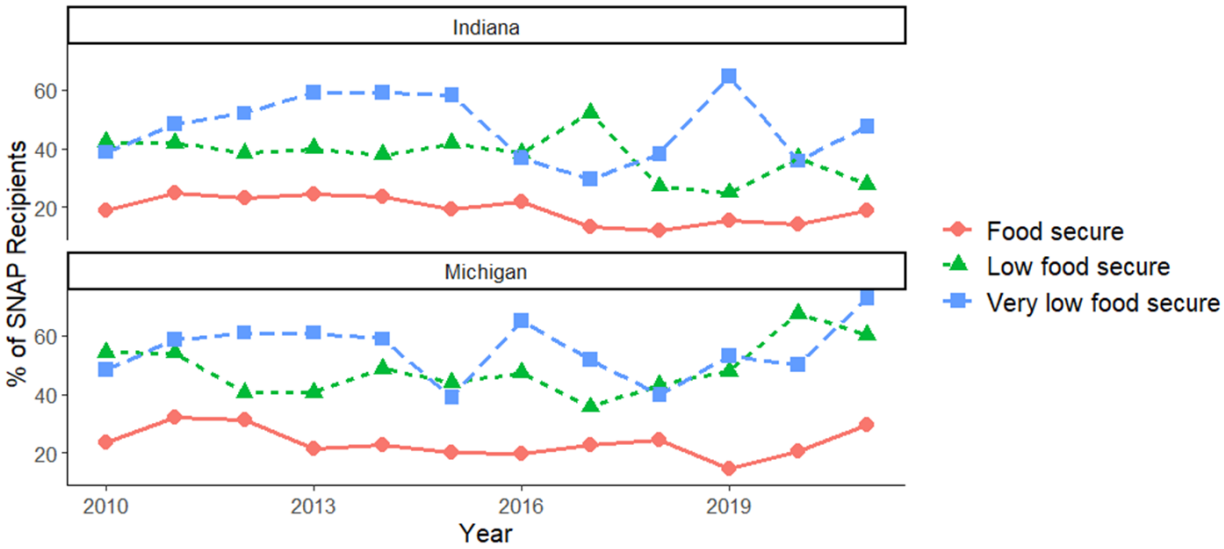
Differences in SNAP Recipiency Between States

Figure 4 documents a considerable difference in SNAP recipiency between Michigan and Indiana. More food secure, low food secure, and very low food secure households receive SNAP in Michigan than in Indiana. The SNAP receipt decreases in both states for the low food secure;

however, the percentage is noticeably higher in Michigan at around 60% compared to Indiana at around 30%.

Figure 4

SNAP Recipiency by Food Security Status in Michigan and Indiana from 2010 to 2021

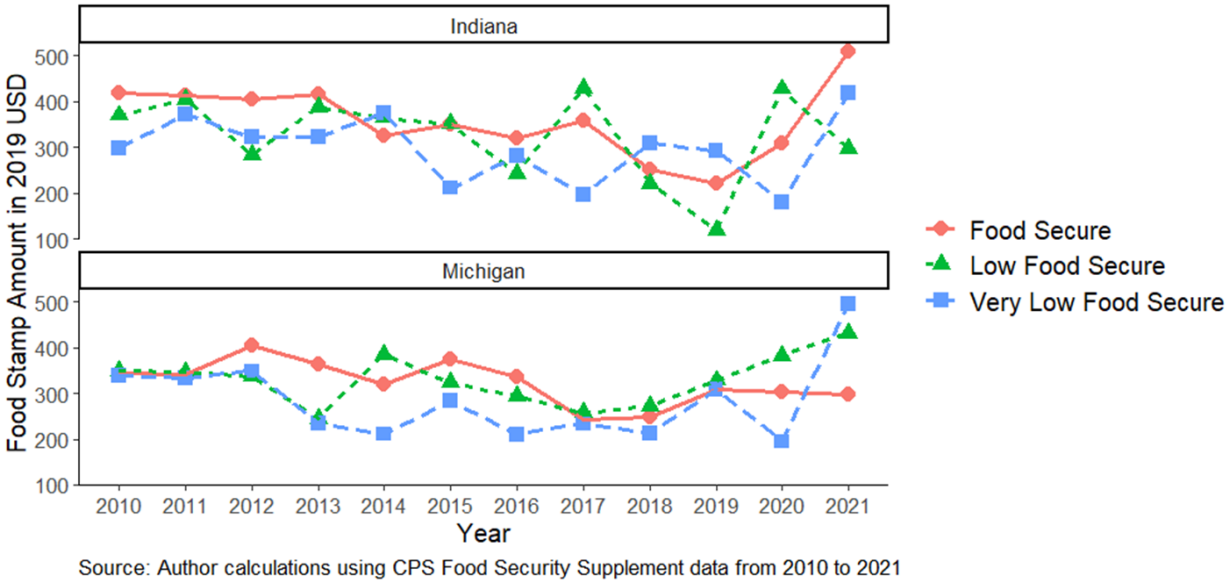


Source: Author calculations using Michigan and Indiana CPS Food Security Supplement data from 2010 to 2021

Figure 5 data shows the food stamp amount by food security status. It demonstrates another key difference in policy implementation between the states. The difference between Michigan and Indiana is which population received the highest benefit in food stamps in 2021. The very low food secure population receives the most in Michigan. In contrast, the food secure population receives the most in Indiana.

Figure 5

Food Stamp Amounts by Food Security Status in Michigan and Indiana from 2010 to 2021



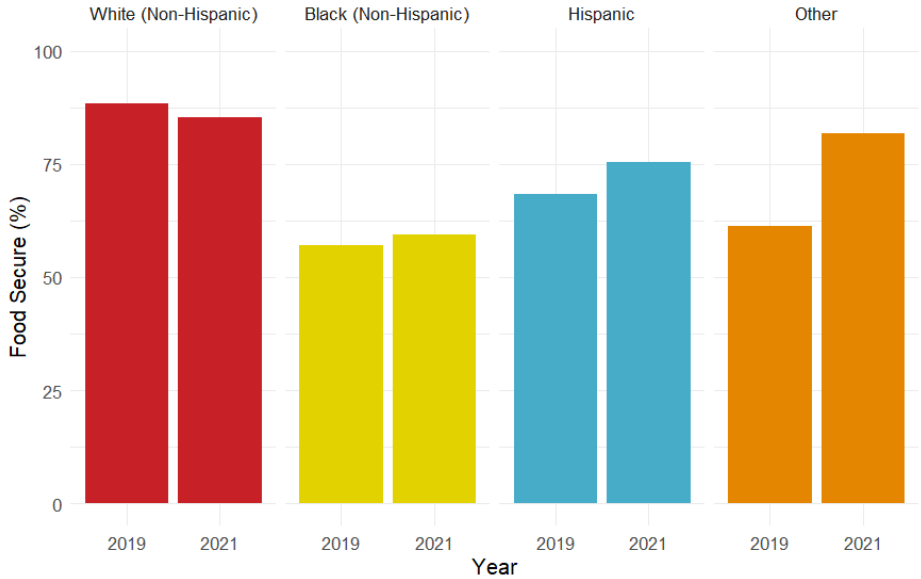
Source: Author calculations using CPS Food Security Supplement data from 2010 to 2021

Food Insecurity Disparities by Race and Ethnicity

Figure 6 visually depicts adult food security status by race and ethnicity. It shows relevant disparities in food security by race and ethnicity. The White (non-Hispanic) population experienced higher rates of food security than the Black (non-Hispanic) population in 2019. The disparity continues in 2021.

Figure 6

Percentage of Food Secure Adults by Race and Ethnicity in Michigan during 2019 and 2021

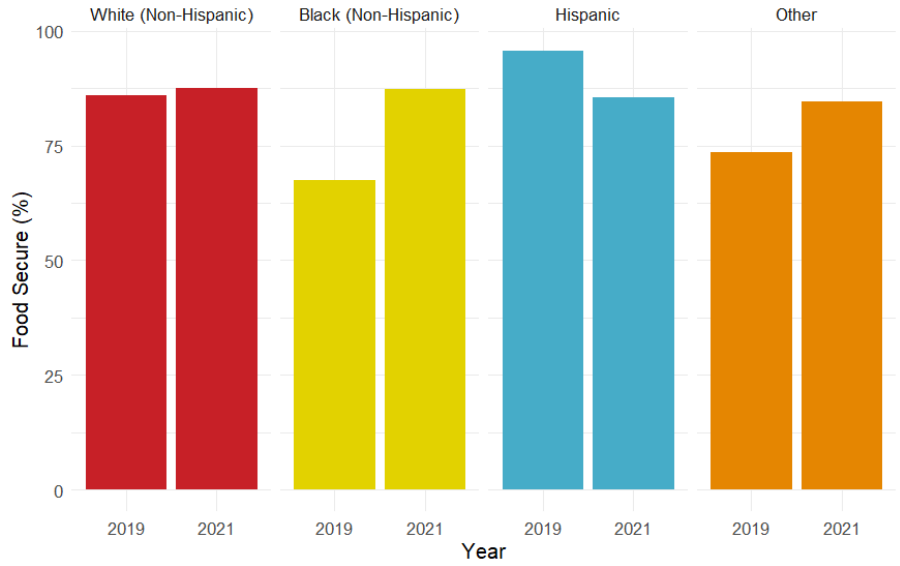


Source: Author calculations using Michigan CPS Household Food Security data from 2019 and 2021

Figure 7 demonstrates the disparities by race and ethnicity in Indiana. The figure highlights an interesting change in disparity between White (non-Hispanic) and Black (non-Hispanic) populations. The Black (non-Hispanic) population disproportionately experiences food insecurity compared to the White (non-Hispanic) population in 2019. However, the disparity appears to cease in 2021.

Figure 7

Percentage of Food Secure Adults by Race and Ethnicity in Indiana during 2019 and 2021

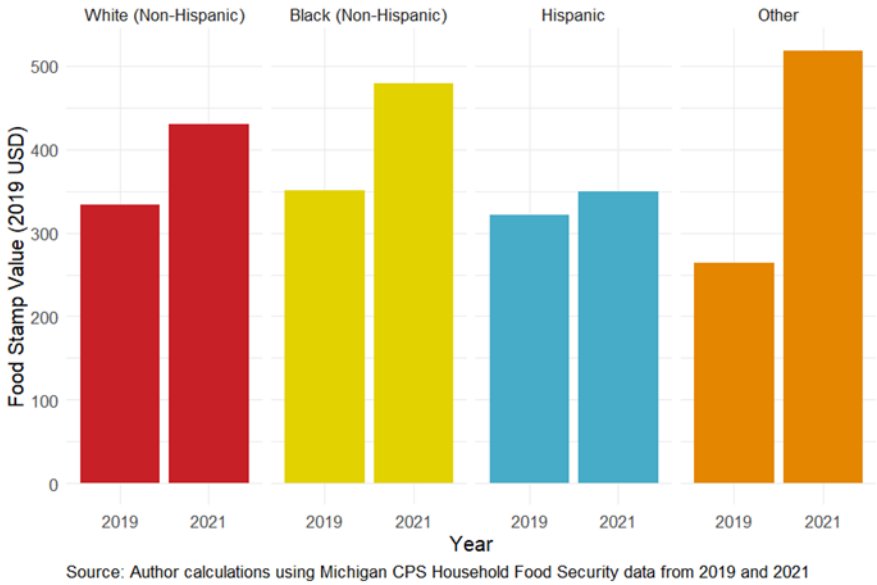


Source: Author calculations using Indiana CPS Household Food Security data from 2019 and 2021

Figure 8 highlights changes in food stamp value by race and ethnicity in Michigan. SNAP benefits increase for White (non-Hispanic) and Black (non-Hispanic) populations. In 2021, the White (non-Hispanic) population receive similar amounts in both states.

Figure 8

Food Stamp Amounts by Race and Ethnicity in Michigan during 2019 and 2021

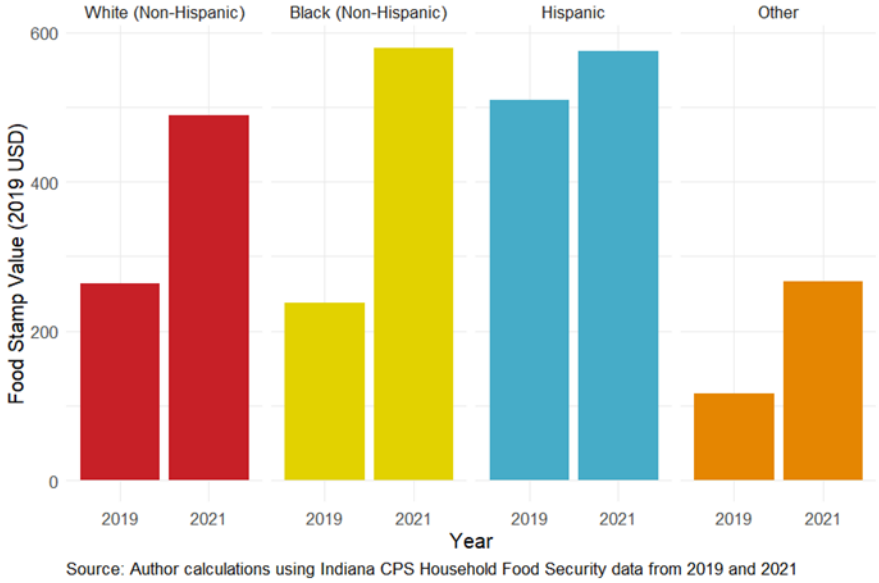


Source: Author calculations using Michigan CPS Household Food Security data from 2019 and 2021

Figure 9 shows food stamp amounts by race and ethnicity in Indiana. White (non-Hispanic) and Black (non-Hispanic) populations receive similar amounts in 2019. Both populations experience significant increases in benefits in 2021. However, the Black (non-Hispanic) population has a more drastic increase in benefits than the White (non-Hispanic) population.

Figure 9

Food Stamp Amounts by Race and Ethnicity in Indiana during 2019 and 2021



Discussion

The analysis shows that food insecurity is a complex and prevalent challenge in the United States. The data findings demonstrate the apparent changes between Michigan and Indiana. The states vary in SNAP policy, benefits, and food security levels. Accordingly, policy needs to be tailored to meet the specific needs of regions and communities. For example, in Michigan, the government could direct more policies toward the Black (non-Hispanic) population rather than just increasing benefits for those receiving SNAP. The Black (non-Hispanic) SNAP recipients

received a similar increase in benefit amount as the White (non-Hispanic) population. Yet, the across-the-board benefit increase did not reduce racial disparities in Michigan. Conversely, in Indiana, a significant decrease in racial disparities and an increase in food security for Black (non-Hispanic) populations followed the pandemic benefit increase. This difference suggests that Indiana should continue to pursue this policy route, unlike Michigan.

Table 3 and Figure 4 show that more households received SNAP in Michigan while fewer households received SNAP in Indiana. This is noteworthy because federal policymakers implemented methods to ease the application process during COVID-19. The methods had varying degrees of success because states hold considerable power in implementing SNAP. Because states respond differently to such significant federal changes, researching SNAP at a national rather than a state-level provides less insight.

As shown in Figure 5, the food secure population received the most benefits in Indiana, while the very low food secure received the most benefits in Michigan in 2021. These contrasting outcomes introduce questions regarding SNAP's effectiveness. For example, should all SNAP recipients be food secure? If so, the figures should only display the food secure receiving SNAP. However, policymakers designed SNAP to target food insecurity. If no food insecure populations receive SNAP, but food insecurity still exists, then vulnerable populations are without SNAP.

Similarly, is the same true regarding food stamp amounts? For example, is the food secure population receiving the highest amount in Indiana because high stamp amounts contribute to their food security? Or is the food insecure population receiving the most in Michigan because they require the most help? These complexities require more targeted state-level and causal analyses.

Limitations

These descriptive statistics highlight differences in states but do not necessarily answer whether SNAP is effective in each state. Further research is needed to answer these questions. A more thorough econometric analysis of SNAP and food insecurity would document the impacts of specific policy components on food security. Also, a longitudinal study would document how food stamp recipiency changes the food security status of a group over multiple years. Methods should focus on individual states to determine if their unique SNAP program is effective.

Another limitation is the scope of the CPS data. It is a nationally representative survey that is less effective at capturing nuances between states. It can be difficult to perform state-by-state analyses of specific subgroups because observations must be divided into too many categories. For example, after separating the observations into race and ethnicity, it is no longer accurate for the Hispanic population. Fortunately, the data is representative of larger populations yet is still vulnerable to variability in results. It is problematic not to consider minority populations in analyses. It is one reason there are disparities between White populations and minorities today. Moving forward, leaders should strive to create more state databases on food security and SNAP. It would be beneficial to have a standardized database in each state. Standardization would ensure that the data is comparable between states and contains enough observations to be representative of every population.

Conclusion

SNAP is an intricate program due to variations in state histories, structures, and leaders, which requires a focused research approach. However, annual food security reports by the USDA remain limited at a national level. This analysis's limitations and unanswered questions

demonstrate that more work must be done to clarify and inform public policy. This study aims to direct research toward the state level and support more studies regarding SNAP's impact on food security.

This study addresses how SNAP implementation varied and what are the resulting differences in each state. The policy analysis shows that Michigan and Indiana's programs differ considerably. The quantitative analysis reveals substantial outcome disparities in subgroup food security levels, SNAP recipiency, and benefit amounts. The differences indicate that SNAP research should focus on more state, rather than national, level analyses. The policy and quantitative analysis demonstrate that states respond independently from one another, and subsequently, require tailored policy solutions. This work provides a helpful framework for more research and studies at the state level.

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