SNAP Work Requirement and Food Insecurity[*]

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Abstract

In this paper, I examine the effect of Supplemental Nutrition Assistance Program (SNAP) work requirement reinstatement on food insecurity outcomes of able-bodied adults without dependents (ABAWDs). The policy restricts SNAP benefits of ABAWDs to 3 months in a 36 month period if they are not working or participating in any work program for at least 20 hours a week. In the aftermath of the 2008 recession, the American Recovery and Reinvestment Act of 2009 waived work requirements nationwide, and many states reimplemented the work rule at different times beginning in 2011. I employ a difference-in-differences approach utilizing this cross-state variation in the reimplementation of the policy. Using rich information on food affordability and food intake behavior from the Food Security Supplement of the Current Population Survey (CPS-FSS), I find that promoting work for food assistance improved the overall food security status of ABAWDs by reducing disruptions in food intake, anxiety over food affordability and dependency on emergency food receipt. Subsample analyses indicate that effects are stronger for never married and less educated ABAWDs.

Keywords: Food assistance; SNAP; Food Security; Work Requirement
JEL Classification Codes: D12, I12, I38

1 Introduction

In recent years, the resurgence of work requirements in means-tested transfer programs has attracted the attention of policymakers and researchers alike. This policy makes engagement in work or work-like activities (such as job training, community service) a requirement for being eligible to receive welfare benefits. In response to the economic downturn in 2008, the American Recovery and Reinvestment Act (ARRA) of 2009 relaxed the Supplemental Nutrition Assistance Program (SNAP) work requirement on able-bodied adults without dependents (ABAWDs) nationwide.[1] In subsequent years, the states began to reimpose the mandatory work restriction along with the recovery of the labor market.[2] The reimplementation of the SNAP work requirement rule kindled substantial debate over the consequences of such policy since the objective of the SNAP is to reduce the chances that participants experience food insecurity and support low-income households in consumption of a nutritionally adequate diet. This paper contributes to this debate by examining the empirical consequence of the SNAP work requirement reinstatement on food hardship outcomes of ABAWDs.

As emphasized by the advocates of this policy, the objective of imposing work requirements for welfare benefits is to help low-income individuals attain self-sufficiency and reduce dependency on government assistance. Another rationale for promoting work in welfare assistance is to distribute scarce federal resources effectively. The requirement would screen out those who do not have actual need of the assistance, and it would free up resources for those who are truly needy (Falk, McCarty, & Aussenberg, 2014). On the other hand, critics argue that the work requirement rule would increase institutional complexities as this policy would give discretion to individual caseworkers in local welfare offices in deciding who is able to work and who is not. This would lead to inequitable treatment across the welfare population who are observationally identical (Barth & Greenberg, 1971). Moreover, demonstrating an average of 20 hours of work per week can be burdensome for SNAP enrollees, even for people with jobs, especially those working in low-wage shift positions with irregular schedules. Failure to get all the paperwork done could lead to loss of food assistance. In

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[1]There are two types of work requirement policies in SNAP: one is a general work requirement on most able bodied adults (in 18-59 age group) unless otherwise exempted, and the other one specifically applies to ABAWDs (in 18-49 age group). In this paper, I focus on the later work requirement policy, also known as the "time limit rule", as failure to meet work requirement restricts benefits for a certain time. For more details on the general SNAP work requirement policy, see Falk, McCarty, and Aussenberg (2014).

[2]Due to the far-reaching economic and health effects of COVID-19, the Families First Coronavirus Response Act of 2020 suspended the work requirement on ABAWDs nationwide beginning April 2020. The suspension of the work requirement rule lasts through the end of the month following the month when the Secretary of Health and Human Services lifts the COVID-19 public health emergency declaration. For more details, see Moss et al. (2020).

a recent paper, Low, Meghir, Pistaferri, and Voena (2018) argued that as a consequence of work restriction, some welfare beneficiaries might have to switch from a status of "not working and on welfare" to "not working and not on welfare". In line with this argument, if some ABAWDs were denied food assistance and did not find employment, such "negative exit" from SNAP could potentially increase food insecurity among the welfare-leavers (Harris, 2021). However, if recipients meet work requirements by either retaining SNAP eligibility or by finding employment with much higher earnings such that they become self reliant, this "positive exit" from SNAP could in fact improve the food security status of ABAWDs. Understanding the trade off between costs and benefits of the "work for welfare" policies is the central motivation of this paper.

In this paper, my goal is to quantify the impact of SNAP work requirement reinstatement on food security outcomes of ABAWDs. "Food security" is defined as access to enough food by all people at all times for an active, healthy life. SNAP provides low-income households with an electronic benefit transfer (EBT) card that can be used to spend on approved food items for at-home consumption at authorized food stores. An important feature of SNAP is that benefit levels are set in a manner that benefits should be equivalent to cash transfers for meeting food expenditure needs. Hoynes and Schanzenbach (2009) point out that in-kind transfer payments for food items may lead recipients to purchase more of the goods being subsidized. Along similar lines, a recent study by Hastings and Shapiro (2018) finds that marginal propensity to consume food out of SNAP exceeds that of equivalent cash amount. Therefore, it is crucial to understand to what extent the reinstatement of mandatory work restrictions on the provision of food vouchers may have an impact on household resources to purchase food items. To address this concern, I examine whether and to what extent the food security of ABAWDs changed following the reimposition of the SNAP work requirement rule. I also analyze whether the policy has any impact on the available funds to meet food needs and total spending on food. An adverse effect on adequate food affordability will be more likely if people lose SNAP eligibility without finding a job.

In order to estimate the causal effect of SNAP work requirement reinstatement on these outcomes, I use a quasi-experimental approach based on the policy-induced geographic and temporal variation. I implement a standard difference-in-differences research design where the treatment is at the state level. This identification requires adopting and non-adopting states to experience similar changes in outcomes in the absence of the policy. Several exercises lend support to this identifying assumption. I provide graphical evidence that the outcomes of the two groups were not diverging prior to the policy reinstatement. In addition, I show that the inclusion of state-specific linear time trends does not affect my estimates.

For the analysis, I use the Food Security Supplement of the Current Population Survey

(CPS-FSS) for the years 2009-2017. The survey collects information on food access and adequacy, food spending, and sources of food assistance for the US population annually. In fact, this data serves as a primary information source for monitoring effective operation of the Federal nutrition assistance programs (such as SNAP) as well as private food assistance programs and other government initiatives aimed at reducing food insecurity (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2016). Thus, the richness of the questions in the CPS-FSS is ideal for examining the effect of mandatory work restrictions across different measures of food insecurity.

The main results of the paper indicate that the reinstatement of the work requirement rule caused a 1.25 percentage point reduction in SNAP participation and a 1.92 percentage point decrease in the probability of being food insecure. The results suggest that ABAWDs are less likely to be food insecure in response to the policy such that they are less worried about food affordability, less likely to cut their meal size due to lack of funds to spend on food, and rely less on external food assistance. The utilization of SNAP also decreased significantly and persistently in response to the policy. I do not find any significant effect on food spending. However, I find strong evidence of a reduction in the likelihood of running short of money for food. Collectively, I view these findings as compelling evidence that the reimposition of the SNAP work requirement rule improved the food security status of ABAWDs. These findings are robust to a variety of specification checks. I further present subsample analyses to validate that these estimates are qualitatively similar across different subsamples. I also perform a placebo exercise showing that the reimplementation of the work requirement policy does not affect older ABAWDs of age 50-59 who are not the target of the policy.

This paper contributes to a growing literature that explores how economic conditions and policies affect SNAP enrollment and food security. Ganong and Liebman (2018) utilize geographic variation in SNAP policy changes and find that increases in unemployment can explain about two-thirds of the increment in SNAP enrollment during the Great Recession. However, their geographic variation approach does not incorporate the nationwide waiver of time limits for ABAWDs that occurred in the aftermath of the Great Recession. Nord and Prell (2011) assessed the effect of the ARRA's expansion of SNAP eligibility for job-less adults without children on food security of low-income households. My paper extends this literature by exploring the effect of restoring the SNAP time limits for ABAWDs following the expiration of the expansions introduced by the ARRA. In doing so, my paper also fits into a broader literature on the effects of work requirement rules, time limits, and loss of welfare eligibility. A large number of research studies have consistently found that reinstating ABAWDs time limits reduce SNAP participation. Using individual-level SNAP

administrative data from Virginia, Gray, Leive, Prager, Pukelis, and Zaki (2021) show that SNAP participation among older ABAWDs reduces by 58% after implementation of a work requirement. Using a two-way fixed effects model, Ku, Brantley, and Pillai (2019) find that expansions of work requirements caused about 600000 participants to lose SNAP benefits from 2013 to 2017 and caused a reduction of about $2.5 billion in federal SNAP benefits in 2017. Several studies examined the effect of the SNAP work requirement on participation and labor market outcomes of ABAWDs and found mixed results due to differences in methods and data (Cuffey, Beatty, & Mykerezi, 2021; Han, 2020; Harris, 2021). Harris (2021) and Han (2020) utilize data from the American Community Survey (ACS) and employ a difference-in-differences approach. Han (2020) finds that work exemption does not decrease employment among ABAWDs and it leads to a reduction in hours of work by older prime-age workers, whereas Harris (2021) finds that the reimplementation of work requirements increased employment for ABAWDs. My paper complements this strand of literature by investigating the effect of restoring SNAP work requirement on food security outcomes of ABAWDs.

This paper also builds on an existing body of work that studies the relationship between SNAP benefits and food security. Several studies find evidence that SNAP is associated with reduced food insecurity or insufficiency (Bartfeld & Dunifon, 2006; DePolt, Moffitt, & Ribar, 2009; Nord & Golla, 2009; Ratcliffe, McKernan, & Zhang, 2011), while other studies have found that SNAP participation has no statistically significant effect on food insecurity or insufficiency (Gundersen & Oliveira, 2001).[3] My paper advances this literature by studying how promoting work for food assistance affects the relationship between SNAP participation and food-related hardship experienced by economically vulnerable child-less adults. The results also highlight the importance of carefully considering the impact on household resources to purchase food items. As pointed out by Almada and McCarthy (2017), reallocation of household resources following an exogenous reduction in nutrition assistance benefits has implications for a low-income household's ability to provide a healthy diet.

The remainder of the paper is organized as follows. In section 2, I review the history and key facts on the reinstatement of the SNAP work requirement on ABAWDs. In section 3, I describe the data, and I discuss my empirical strategy in section 4. Section 5 presents the results and discusses them in the context of the prior studies. Section 6 concludes.

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[3]For more details on why results produced from an observational empirical analysis might differ from the theoretical prediction that SNAP participation has a positive effect on food security, see Gregory, Rabbitt, and Ribar (2015).

2   Institutional Background

2.1   SNAP Work Requirement Policy

The Supplemental Nutrition Assistance Program (SNAP), originally known as the Food Stamps program, is one of the largest social safety net programs in the United States.[4] In 2019, USDA reported that 13.7 million households were food insecure, and 5.6 million experienced very low food security, and the program provided an average of $258 in monthly benefits to 18 million households (Gregory & Todd, 2021). Legislated by Congress in 1964, the program is designed to increase food purchasing power of the low-income households. In a recent series of papers, Hoynes, Schanzenbach and co-authors provide a comprehensive review of the introduction and early expansion of SNAP.[5] In comparison to other welfare programs, SNAP reaches a broad range of economically disadvantaged populations as the eligibility for receiving SNAP benefits does not generally depend on family structure, age, health or disability status (Dickert-Conlin, Fitzpatrick, Stacy, & Tiehen, 2021). The basic eligibility criteria require the household gross income to be 130 or less of the federal poverty level (FPL) and the household net income to be 100 percent or less of the FPL.[6]

Since 1996, the program went through a number of changes in terms of basic eligibility standards and program administration. The Personal Responsibility and Work Opportunity Act (PROWRA) of 1996 imposed strong restrictions on SNAP benefits to the able-bodied adults without dependents (ABAWDs), amended work registration requirements, but expanded assistance to the low-income families with children, particularly to the single-mother-headed households. In the post-1996-reform period, a sharp decline in SNAP caseload occurred at the same time as increases in employment among single mothers and decreased in poverty among children (Falk et al., 2014).

In the 2000s, even before the onset of the Great recession of 2008, the household incomes became relatively stagnant, and the economic conditions of people with low income and low education deteriorated. States were then authorized to extend SNAP eligibility and increase program access. Several states removed the federal SNAP asset restriction and increased the income limit for most lower-income households by adopting "broad-based categorical eligibility". The recertification periods were lengthened to reduce the difficulty of continued program participation of low-income working families. During the 2008 recession, both the 2008 Farm bill and the 2009 American Recovery and Reinvestment Act (ARRA) expanded

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[4]The 2008 Farm Bill changed the name of the program from the "Food Stamps Program" to the "Supplemental Nutrition Assistance Program". I use "SNAP" throughout the paper to refer to the program.

[5]For more details on the effect of SNAP introduction, see (Hoynes & Schanzenbach, 2009, 2012)

[6]For more details on eligibility criteria for receiving SNAP benefits, see Ganong and Liebman (2018)

most of the social safety net programs, including SNAP, in many dimensions. SNAP benefit levels were raised, and eligibility requirements were relaxed.[7]

Prior to the 2008 recession, ABAWDs who were not working or participating in any work program for at least 20 hours a week were subject to a time limit, which restricted their SNAP benefit receipts to 3 months in a 36 month period. This work requirement policy is also known as "ABAWD Time limits" as this policy not only makes engagement in work activity a condition for SNAP eligibility, but it also limits eligibility for benefits to a specific duration when the work condition is not fulfilled. Under the prevailing law, states could get an exemption up to 15 percent of such population or request a waiver in areas with an unemployment rate over 10 percent. In response to the 2008 recession, the 2009 ARRA waived the time limit nationwide through October 2010 but allowed states to retain it if they offered work opportunities for people subject to the limit.[8] This national waiver of time limits for ABAWDs increased participation in SNAP by 1.9 million people by 2011 (Ganong & Liebman, 2018).[9] During this period, the states were not required to request a waiver; however, after the end of the suspension of the work restriction, most states continued to qualify for statewide or partial waivers.

In addition, the Supplemental Appropriations Act of 2008 included "Emergency Unemployment Compensation" (EUC) legislation that temporarily expanded unemployment compensation to qualifying jobless workers during periods of high unemployment in the economy. As the economy began to recover, EUC expired in December 2013. A majority of states qualified for statewide waivers up to January 2016 based on a "trigger notice". For many states, the expiration of the EUC program directly translated into the reimplementation of the work rule. However, despite qualifying for statewide waivers under EUC, some states voluntarily reimposed the rule based on their political ideologies.[10]

2.2 State-level Policy Changes

In order to determine if and when states restored the SNAP work requirement on ABAWDs, I searched news releases and other sources such as the US Department of Agriculture (USDA),

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[7]Mulligan (2012) and Ganong and Liebman (2018) documented details of post-2008-recession changes in SNAP.

[8]Delaware never received waiver since 1996 welfare reform. Even when ARRA waived the rule nationwide, some counties in Colorado, Texas, and South Dakota retained the work requirement. These four states are always treated in my baseline analysis.

[9]Using the USDA Quality Control data, Mulligan (2012) estimated that the waiver of ABAWD time limits increased SNAP enrollment by 2.3 percent.

[10]For more details on state's political incentives, see Harris (2021).

the Center on Budget and Policy Priorities (CBPP).[11] Table 1 shows the effective year when respective states reestablished the SNAP work requirement on ABAWDs either in some counties or in the entire state.[12][13] I summarize the evolution of state-level SNAP work requirement policy reimplementation in Figures 1 and 2.
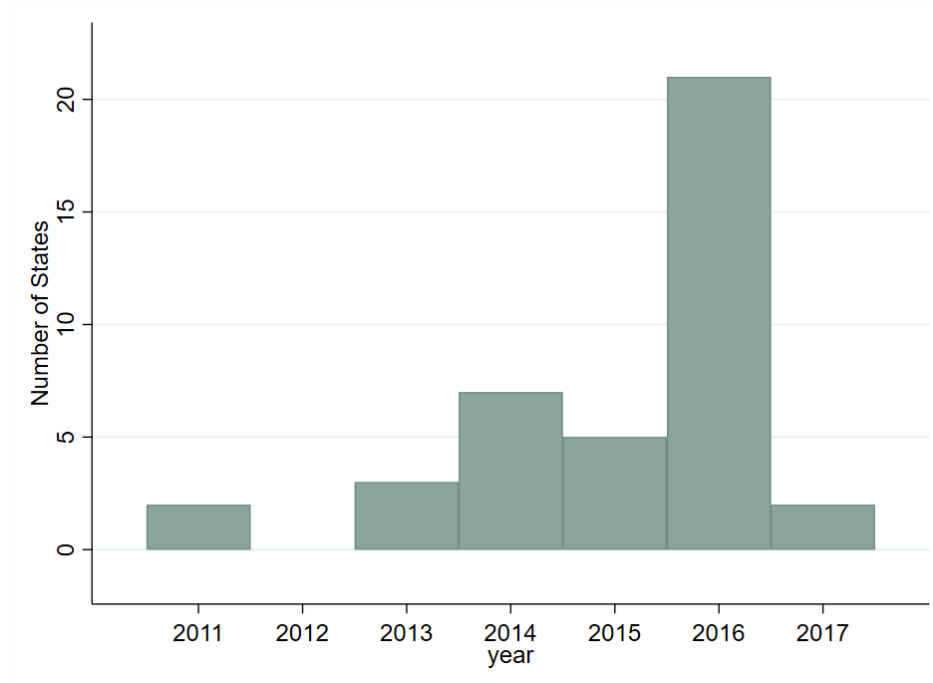

Figure 1: Distribution of SNAP Work Requirement Reinstatement Years (2011-2017)

Notes: Figure 1 plots the distribution of years in which states reimposed the SNAP work requirements on ABAWDs either partially in some counties or statewide. Source: Author's calculation based on data from the USDA Database (https://www.fns.usda.gov/snap/abawd-waivers) and the CBPP Database (https://www.cbpp.org/research/food-assistance/states-have-requested-waivers-from-snaps-time-limit-in-high-unemployment).

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[11]See https://www.fns.usda.gov/snap/abawd-waivers for waiver status of states for SNAP work requirement for ABAWDs from FY2015 till FY2018. Note that the USDA reports the timeline of the policy reinstatement by Fiscal Year (FY), which runs from October 1 to September 30. Since the survey data follows the calendar year, i.e., from January 1 to December 31, I report the policy reinstatement dates in terms of the calendar year in Table 1.

[12]I did not report partial waivers which were shorter than six months in Table 1. For instance, Indiana discontinued its waiver, which began in October 2014, in July 2015. Wisconsin had a full-year waiver for the federal fiscal year 2014 but began implementing the time limit statewide in April 2015 at certification for new participants and recertification for continuing participants. North Carolina had a waiver from January through June 2016. New Jersey had a full-year waiver for February 2016 through January 2017 but began implementing time limits statewide in August 2016 at certification for new participants and recertification for continuing participants. South Carolina was approved for a statewide waiver from January through December 2016 but discontinued the waiver at the end of March 2016. For more details, see https://www.cbpp.org/research/food-assistance/states-have-requested-waivers-from-snaps-time-limit-in-high-unemployment.

[13]West Virginia had a partial waiver in 2011, but it had a statewide waiver from 2012 till 2015, and from 2016 onwards, it has a partial waiver. 2011 waiver is not shown in Table 1.

Table 1: List of states that reinstated SNAP Work Requirement on ABAWDs, 2011- 2017

States	Effective Year	
	In Some Counties	Statewide
Alabama	2016	
Arizona	2016	
Arkansas		2016
Connecticut	2016	
Florida		2016
Georgia	2016	
Hawaii		2015
Idaho	2016	
Indiana		2015
Iowa		2014
Kansas		2014
Kentucky	2016	
Maine		2015
Maryland	2016	
Massachusetts	2016	
Michigan	2017	
Minnesota	2014	
Mississippi		2016
Missouri		2016
Montana	2015	
Nebraska	2011	
New Hampshire	2014	
New Jersey	2016	
New York	2016	
North Carolina	2016	
North Dakota	2011	
Ohio	2014	
Oklahoma		2014
Oregon	2016	
Pennsylvania	2016	
Rhode Island	2017	
South Carolina		2016
Tennessee	2016	
Utah	2015	2013
Vermont	2014	2013
Virginia	2014	
Washington	2016	
West Virginia	2016	
Wisconsin	2015	2016
Wyoming		2013

Notes: Delaware never received waiver since 1996 welfare reform. Some counties in Colorado, Texas and South Dakota retained the work requirement even when ARRA waived the rule nationwide. Alaska, California, District of Columbia, Illinois, Louisiana, New Mexico, Nevada received waiver for the entire period of my analysis. Partial waivers which were shorter than six months are not reported. Source: USDA Database (https://www.fns.usda.gov/snap/abawd-waivers) and CBPP Database (https://www.cbpp.org/research/food-assistance/states-have-requested-waivers-from-snaps-time-limit-in-high-unemployment).

(a) 2011

(b) 2013

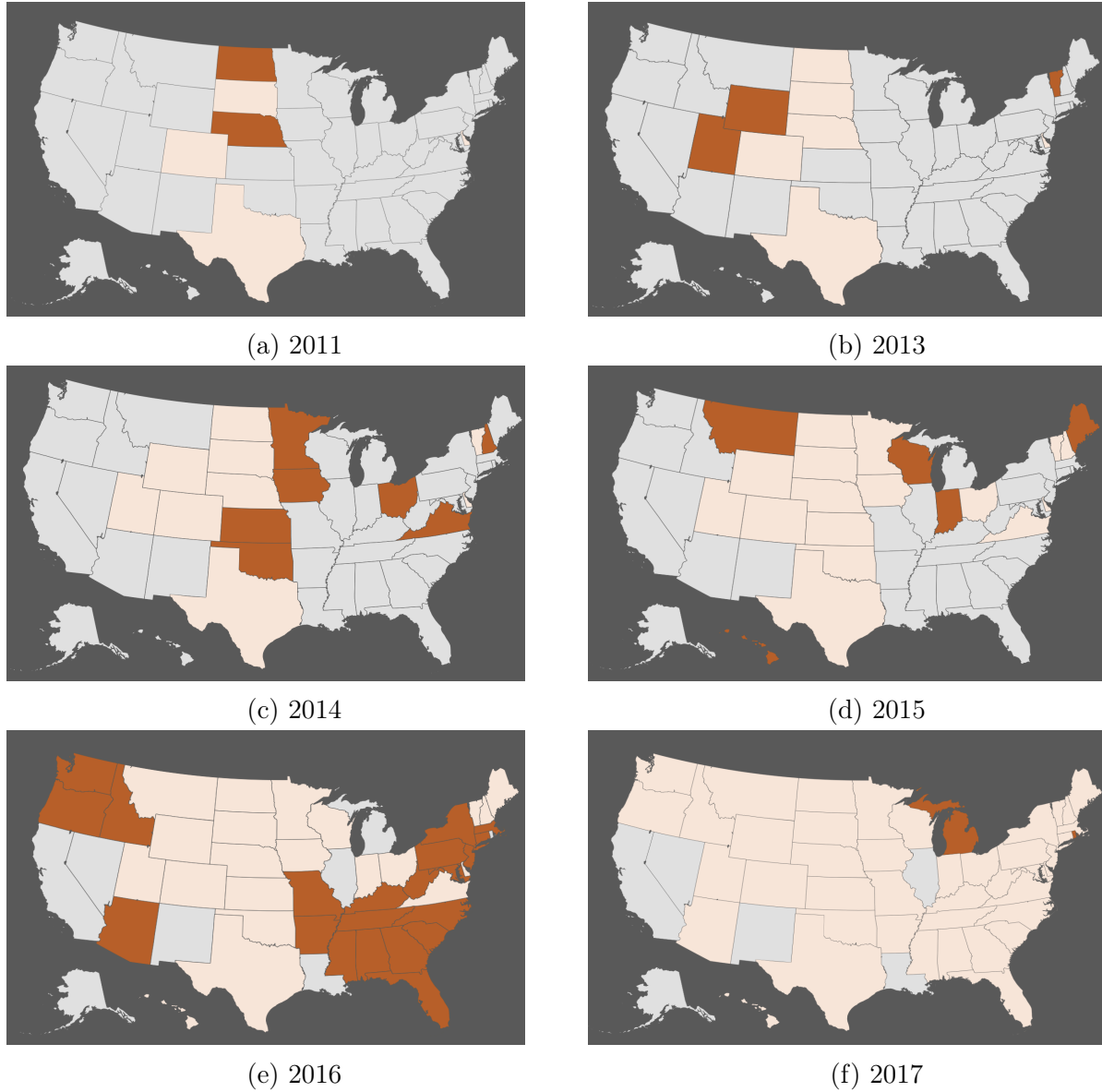(c) 2014

(d) 2015

(e) 2016

(f) 2017

Figure 2: Geographical Distribution of SNAP Work Requirement Reinstatement, 2011-2017

Notes: Each figure illustrates the geographical variation of the legal changes in a specific year (for example, panel (a) illustrates changes in year 2011). The states that reimplemented the rule in the specific year are marked in dark brown, and those in prior years are marked in light brown. The never treated states are marked in gray in the maps. Source: Author's illustration based on data from the USDA Database (https://www.fns.usda.gov/snap/abawd-waivers) and the CBPP Database (https://www.cbpp.org/research/food-assistance/states-have-requested-waivers-from-snaps-time-limit-in-high-unemployment)

Figure 1 plots the distribution of years in which states reimposed the SNAP work requirements on ABAWDs either partially in some counties or statewide. Figure 2 shows the geographic variation and the timing of the work rule restoration from 2011 till 2017.[14]

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[14]For more insight on the geographic variation and the degree of within-state variation of SNAP work requirement reinstatement dates, see https://www.cbpp.org/research/food-assistance/states-have

In the baseline analysis, I consider the treated states to be those 41 states which received waiver for all counties during the 2008 recession and reinstated the time limit after expiration of the ARRA. Throughout the main analysis, I assume a state to be treated if it reinstated the policy either in some states or in the entire state. I consider Texas, Delaware, Colorado, and South Dakota as the always treated states, and Alaska, California, District of Columbia, Illinois, Louisiana, Nevada, and New Mexico as the never-treated states. I restrict the time period of the analysis till 2017 since starting from 2018 the federal government started to implement work requirements for some adult Medicaid enrollees as a condition for continued Medicaid eligibility or coverage in some states. Moreover, beginning April 2020, the Families First Coronavirus Response Act of 2020 suspended the work requirement on ABAWDs nationwide in response to the far-reaching economic and health effects of COVID-19.

3   Data

The main data source for the analysis is the Current Population Survey Food Security Supplement (CPS-FSS), also known as the December CPS. The CPS is a monthly survey conducted by the Census Bureau for the Bureau of Labor Statistics. The survey collects information on demographic characteristics, labor market behavior, and welfare programs participation of about 50,000 households. Since 1995, the Food Security Supplement has asked the same household a series of questions on food expenditures, food security, and the use of food assistance programs annually in the month of December. To determine the household's food security status, the food security module of the supplement asks a total of 18 questions: 3 questions about food conditions of the entire household, 7 questions about food security conditions of adults in the household, and 8 questions about food conditions of children of age 0-17 if they are present in the household. Table 2 summarizes the questions I used to construct the food security outcome variables for this analysis.[15] These questions are designed to assess a spectrum of food insecurity ranging from stress about the affordability of basic food needs to disruptions in eating patterns. The households are categorized into different levels of food insecurity based on their responses to these questions. Households that affirm 0 to 2 conditions or report no food access problems or limitations are classified as food secure. Households affirming more than 2 conditions are characterized as having low or very low food security. For households without children, low food security means

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-requested-waivers-from-snaps-time-limit-in-high-unemployment.

[15]I do not study the 8 questions indicating food hardship among children. Since the analysis focus on ABAWDs, the households with minor children are excluded from the main sample. Moreover, Moellman (2020) shows that food hardships for adults are much higher than those indicating food hardships among children.

that respondents have affirmed 3–5 conditions in the module; very low food security implies affirmation of 6 or more items. Households with marginal food security may have had anxiety over food sufficiency or shortage of funds to afford food items; households with low food security generally report reduced nutritional quality, variety, or desirability of diet without changes in diet or food intake behavior; and households with very low food security generally report multiple indications of disrupted eating patterns and reduced food intake. For the baseline analysis, I construct binary food insecurity variables for each of the 10 conditions, which take value 1 if households report affirmation for that particular condition at some time during the last 12 months.[16]

Beyond food security variables which are the focus of the CPS-FSS, the supplement also asks questions about household food expenditures, such as usual weekly spending on food, the amount spent on food at restaurants or cafeterias last week, etc. I deflate these food expenditure variables in terms of 2010 dollars using Personal Consumption Expenditures Price Index from the Federal Reserve Economic Data (FRED).

I merge the 2009-2017 surveys to form one set of repeated cross-sections. I restrict the timeframe for the post-policy period to 2017 because, in January 2018, the Centre for Medicare and Medicaid Services (CMS) allowed states to implement work and community engagement requirements for certain Medicaid enrollees.[17] Although this choice of sample periods reduces available post-treatment periods for my analysis, this eliminates the anticipatory effects from Medicaid work requirement, which could confound the estimated effects.

To identify the ABAWDs who are subject to the policy, I restrict the sample for my baseline analysis to individuals who belong to the age group 18-49 years, who are not living with minors in the household, and who are not disabled. One advantage of CPS is that it provides individuals' work disability status along with their labor market performance. Starting in 1981, the March CPS began collecting information on whether the respondents have any health problems leading to work limitations. I use respondents' self-reported answers on their disability status to identify the able-bodied individuals. Moreover, I drop non-citizens, individuals serving in the military, and those who are in foster care. I also exclude individuals who are enrolled in college or other institutions of higher education as they are generally not eligible for SNAP benefits. Table 3 describes the sample selection in

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[16]As pointed out by Schanzenbach, Bauer, and Nantz (2016), it is worth noting that for many households the difficulty to meet basic food needs could be for temporary periods. Thus, the annual food insecurity rates do not uncover the extent of the actual food insecurity problem.

[17]As of July 2019, Indiana is the only state to have implemented a work requirement waiver. Arkansas, Kentucky, and New Hampshire have had such waivers aside by the courts as a result of litigation challenging work requirement. For more details on state-level Medicaid work requirement waiver status, see https://www.kff.org/medicaid/issue-brief/medicaid-waiver-tracker-approved-and-pending-section-1115-waivers-by-state/.

Table 2: CPS-FSS Food Security Questions

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?

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?

3. "We couldn't afford to eat balanced meals." Was that often, sometimes, or never true for you in the last 12 months?

4. 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)

5. (If yes to question 4) How often did this happen? Almost every month, some months but not every month, or in only 1 or 2 months?

6. 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)

7. In the last 12 months, were you ever hungry, but didn't eat, because there wasn't enough money for food? (Yes/No)

8. In the last 12 months, did you lose weight because there wasn't enough money for food? (Yes/No)

9. 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)

10. (If yes to question 9) How often did this happen? Almost every month, some months but not every month, or in only 1 or 2 months?

Source: CPS-FSS, 2009-2017. Notes: To determine the household's food security status, the food security module of the supplement asks total 18 questions: 3 questions about food conditions of the entire household, 7 questions about food security conditions of adults in the household, and 8 questions about food conditions of children of age 0-17 if they are present in the household. I do not report the 8 questions on food security status of children in this table as the focus of my analysis is on adults who are not living with children of age 0-17.

detail. Further, I check the sensitivity of the main results to additional sample restrictions.

All analyses use the Food Security Supplement weights so that the estimates are nationally representative. The US Census Bureau calculates the survey sample weights to indicate how many households were represented by each household that responded to the survey. In order to correct the bias that can result from nonresponse to the supplement by households that responded to the labor-force questions, the supplement weight considers income and other relevant information about these households which took part in the labor-force part of the survey but didn't respond to food security questions (Coleman-Jensen et al., 2016). In

my sample, the Food Security Supplement weight is zero for the households which did not respond to food security questions. As a result, when I run the baseline regression, these zero-weighted observations are dropped. To address this concern, I further exclude food supplement non-responders from my working sample. After this adjustment, my baseline regression includes a total of 142,073 annual observations.

Table 3: Sample Selection for the Main Analysis

	Observations
Everyone over 18	906,622
exclude if age > 49	482,075
exclude if not in labor force, unable to work	464,250
exclude if living with minor children	254,759
exclude if in armed forces	253,082
exclude if non-citizen	231,647
exclude if registered in school	182,717
exclude if in foster care	182,653
exclude if didn't respond to food security questions	142,073

Notes: Data from CPS-FSS, 2009-2017.

Table 4: Summary Statistics: Outcome Variables

Variables	Mean	Standard Deviation
Program Participation		
Received SNAP Benefits	0.073	0.262
Food Insecurity & Affordability		
Adult, not food secure	0.216	0.412
Worried about food affordability	0.175	0.279
Couldn't afford balanced diet	0.145	0.352
Ran out of food or couldn't afford more	0.142	0.349
Ran short of money for food	0.255	0.436
Received food from food bank	0.044	0.204
Lost weight	0.029	0.167
Food Intake Behavior		
Eating less	0.085	0.279
Skip meals	0.085	0.279
Stayed hungry	0.047	0.214
Observations		142,073

Notes: Data from the CPS-FSS, 2009-2017.

Table 4 and 5 present descriptive statistics of SNAP utilization, food security outcome variables and food spending of the study population. A caveat of the CPS-FSS is that the program participation rates are systematically underreported (Meyer, Mittag, & George,

Table 5: Summary Statistics: Food Expenditure Variables

Variables	Mean	S.D.	Observations
Total expenditure on food, last week ($2010)	139.68	105.46	141,006
Usual amount spent on food, last week ($2010)	126.77	83.53	133,388
Amount spent on food at restaurants, last week ($2010)	41.12	50.77	135,039

Notes: Data from the CPS-FSS, 2009-2017.

Table 6: Summary Statistics: Demographic Variables

Variables	Mean	Standard Deviation
Age Groups		
Age 18-24	0.208	0.406
Age 25-29	0.217	0.412
Age 30-34	0.148	0.355
Age 35-39	0.107	0.309
Age 40-44	0.125	0.331
Age 45-49	0.194	0.395
Sex		
Female	0.452	0.498
Male	0.548	0.498
Race		
White	0.810	0.392
Black	0.112	0.315
Other Race	0.078	0.268
Education		
Less than HS	0.065	0.247
HS Graduate	0.308	0.462
More than HS	0.627	0.484
Marital Status		
Married, Spouse Present	0.295	0.456
Married, Spouse Absent	0.014	0.118
Separated	0.023	0.148
Divorces	0.098	0.298
Widowed	0.007	0.083
Never Married/Single	0.563	0.496
Observations	142,073	

Notes: Data from the CPS-FSS, 2009-2017.

2020). As shown in Table 4, more than 20 percent report that they are food insecure, and around 25 percent report that they ran short of money to afford food, but only 7.3 percent report that they received SNAP benefits. Despite this limitation, I show in later sections

that the main findings of the analysis are consistent with prior studies. Table 5 reports that the mean weekly households spending on food items is \$139.68 (in 2010 dollars).

Table 6 reports demographic characteristics of the sample of ABAWDs. In the baseline sample, approximately 81 percent are white, and 11 percent are black. Around 56 percent of my sample are never married or single, but around 30 percent are married. These married households are the ones that do not have children, or the age of the youngest child in these households is 18 or higher.

In addition, I obtain data on several time-varying state-level characteristics. Ganong and Liebman (2018) and Dickert-Conlin et al. (2021) show that business cycle fluctuations, state-level policy expansions, and changes in local unemployment rate explain the trends in SNAP take-up rate over the past two decades.[18] To control for these state-specific effects, I use annual state unemployment rates (the Bureau of Labor Statistics, Local Area Unemployment Statistics, various years), the political affiliation of the state governor (the Council of State Governments: Knowledge Centre, Book of the States 2017), and state population estimates (US Census Bureau, Population Estimates, 2017). Finally, I merge the CPS-FSS dataset with the state labor market and political variables using state identifiers.

4 Empirical Strategy

In this section, I first describe the main empirical strategy before discussing alternative specifications to address the potential threats to the identification. By exploiting the within-state variation in the work requirement reinstatement between 2009 and 2017, I empirically investigate the effects on the food insecurity outcomes of non-elderly non-disabled adults who are not living with minor children. Intuitively, I compare the within-state changes in food insecurity outcomes of ABAWDs residing in states where the SNAP work requirement was restored partially or statewide to within-state changes in food insecurity outcomes of ABAWDs residing in states where the work requirement was waived during the period of analysis.

I employ a difference-in-differences specification by estimating the following regression model:

$$y_{ist} = \alpha + \beta Policy_{st} + \lambda_s + \eta_t + \gamma X_{it} + \tau Z_{st} + \epsilon_{ist} \tag{1}$$

where y_{ist} is the outcome variable for an individual i living in state s in year t. The treatment variable $Policy_{st}$ is an indicator variable equal to one if state s has reimplemented

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[18]Ganong and Liebman (2018) further points out that state eligibility for ABAWD time limit waivers expands and shrinks with the unemployment rate. In that sense, these waivers play the role of conventional automatic stabilizers, although state interventions are required for these waivers to be effective.

the SNAP work requirement partially or statewide in year t. Vectors of parameters are included to control for state fixed effects (λ) and year fixed effects (η). The state fixed effects account for any systematic differences across states and the year fixed effects to control for shocks to outcome variables that are common to all states in a year. Individual characteristics are contained in X_{it}, which includes dummies for age groups, sex, race, marital status, and education. Z_{st} includes state-specific time-variant controls. Specifically, I use state-year unemployment rates in order to distinguish the effect of the policy from the lingering effects of the recession and other economic conditions. I control for the political affiliation of state governor as some states, based on their political ideology rather than state finances, voluntarily reimposed work requirements in spite of being qualified for a statewide waiver under EUC.[19] I also control for state population estimates to control for inter-state mobility in response to the policy. ϵ_{ist} represents the error term. The coefficient of interest that captures the average causal effect of work requirement reinstatement is β. As in Hoynes and Schanzenbach (2009), I will interpret β as an intention-to-treat (ITT) effect. As suggested by Bertrand, Duflo, and Mullainathan (2004), the standard errors are robust and clustered at the state level to allow for shocks to be correlated within state over time.

The key identifying assumption of the difference-in-differences specification is that the change in the outcome of interest before and after the policy reinstatement would have been the same for both the treatment and the control groups in the absence of the policy. To test this assumption of parallel trends, I look for graphical evidence of whether the two groups diverged prior to the treatment using the event study approach. In particular, I obtain the coefficient estimates from the following equation:

$$y_{ist} = \alpha + \sum_{j=-4}^{4} \pi_j 1(\theta_{st} = j) + \lambda_s + \eta_t + \gamma X_{it} + \tau Z_{st} + \epsilon_{ist} \tag{2}$$

where θ_{st} denotes the year relative to the reinstatement of the SNAP work requirement in state s, and the coefficient π_j captures the effect of work requirement restoration on the outcome variable at j years passage. In the year of policy enactment, j is zero, and π_0 captures the immediate effect of treatment. In order to satisfy the identifying assumption, π_j coefficients associated with pre-reform time periods should equal zero such that the control and the treatment groups were on the same trajectory before treatment. I include lagged indicator variables for each of the first 4 years after reinstatement. These lagged indicators allow us to check for delayed effects of the policy. The estimated effects are interpreted relative to the year prior to the reimposition of the work requirement rule as I measure the

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[19]As of 2017, 14 states voluntarily reimposed the ABAWD time limits while they were qualified for statewide waiver (Harris, 2021).

coefficients relative to the omitted dummy variable ($\theta_{st} = -1$).

In order to check that the food insecurity outcomes are not spurious, I run a battery of robustness checks which assure that my research design is reasonable. To the extent that the estimates remain unaffected, it confirms that the estimates I obtained are not biased.

5 Results

5.1 Main Results

In this section, I present evidence on the short-run effects of SNAP work requirement reinstatement on food security outcomes of the ABAWDs. I begin by estimating Eq. (1) on the full sample of ABAWDs, and report the estimated coefficients of $Policy_{st}$ dummy in Table 7. Panel A of Table 7 shows that welfare dependency has decreased as a direct consequence of SNAP work requirement reimposition. The policy caused a reduction in the probability of being on food stamps by 1.25 percentage points (pp.). Even though CPS-FSS suffers from under-reporting of SNAP participation, this estimate is consistent with findings based on larger datasets such as the American Community Survey (ACS). For instance, using data from the ACS, Harris (2021) shows ABAWDs have a 1.9 pp. lower probability of claiming SNAP benefits after the work requirement reinstatement.

Panel B of Table 7 reports the corresponding impact on food security outcomes of the ABAWDs. The probability of being food insecure reduces by 1.92 pp. Overall, in the post-policy period, the prevalence of food insecurity reduced among ABAWDs. ABAWDs are less likely to reduce food intake or make any adverse change in their diets due to a lack of funds for food purchases. On average, they have less chance of receiving emergency food from external sources (such as food banks), and they are less likely to be anxious about affording food items. I do not find any significant effect on the likelihood of staying hungry, not being able to afford a balanced diet and losing weight due to lack of resources to meet food needs. The signs of the coefficients are, however, consistent with other food security outcomes.

Next, I turn to the estimates corresponding to spending on food in Table 8. All point estimates are statistically insignificant and imprecise. CPS-FSS may not be the best data to analyze the effect on food expenditure as it collects weekly food expenditure only once every year. This data could be subject to "recall bias". Panel datasets such as the Panel Study of Income Dynamics (PSID) and the Consumer Expenditure Survey (CEX) would be ideal as they contain richer information on food expenditure.

Table 7: Impact on SNAP Utilization and Food Security Outcomes

	(1)
A: SNAP Utilization	
Received Food stamps	-0.0125***
	(0.0038)
B: Food Security Outcomes	
Adult, not food secure	-0.0192***
	(0.0057)
Skip meals	-0.0141***
	(0.0040)
Eating less	-0.0104**
	(0.0041)
Stayed Hungry	-0.0051
	(0.0043)
Worried about food affordability	-0.0188***
	(0.0040)
Ran out of food or couldn't afford more	-0.0158***
	(0.0045)
Ran short of money for food	-0.0143**
	(0.0057)
Received food from food bank	-0.0068**
	(0.0029)
Couldn't afford balanced diet	-0.0069
	(0.0048)
Lost weight	-0.0017
	(0.0030)
Observations	142,073
Demographic Controls	yes
State-specific Controls	yes
State FE	yes
Year FE	yes

Notes: Data from the CPS-FSS, 2009-2017. Sample of individuals age 18-49 who are not disabled and do not live with minor children. Each parameter is from a separate regression. Demographic controls include dummies for age groups, marital status, sex, education, and race. State-specific time-varying controls are annual state unemployment rates, political affiliation of the state governor, and state population estimates. Robust standard errors are in parentheses, clustered at the state level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Impact on Food Expenditure

|	(1)
Total expenditure on food last week	-1.358
	(1.692)
	[141,006]
Usual amount spent on food per week	-0.866
	(1.392)
	[133,388]
Amount spent on food at restaurants, last week	0.233
	(0.884)
	[135,039]
Demographic Controls	yes
State-specific Controls	yes
State FE	yes
Year FE	yes

Notes: Data from the CPS-FSS, 2009-2017. Sample of individuals age 18-49 who are not disabled and do not live with minor children. Each parameter is from a separate regression. Demographic controls include dummies for age groups, marital status, sex, education and race. State-specific time-varying controls are annual state unemployment rates, political affiliation of the state governor, and state population estimates. Robust standard errors are in parentheses, clustered at the state level. Number of observations are reported in square brackets. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.2 Event Study Results

In this section, I conduct an event study analysis to directly examine the timing of shifts in food security outcomes of ABAWDs relative to SNAP work requirement reinstatement. Figure 3 plots the estimated lags and leads from Eq. (2), with 95% confidence interval bands in dotted lines. The post-treatment effects are measured relative to $\theta = -1$, meaning that the effects are expected to begin in period zero. This graphical analysis tests for the divergence in trends between treatment and control groups prior to the policy reinstatement. The coefficients for the pre-treatment period are close to zero, and the 95% confidence interval bands contain zero in the pre-treatment periods. This indicates there are no systematic differences in state trends prior to the policy change. This lends some support for the validity of my identification strategy.
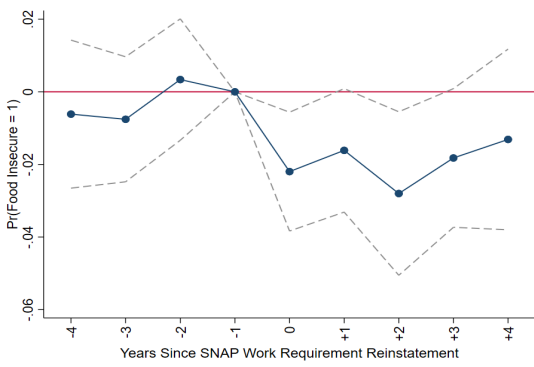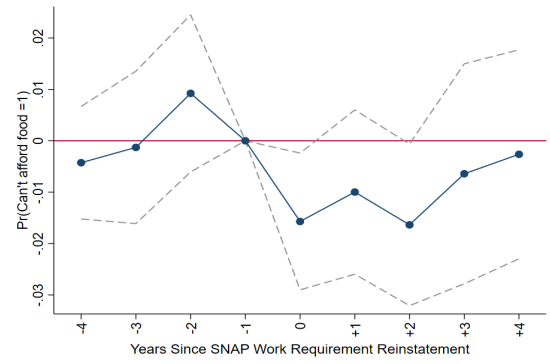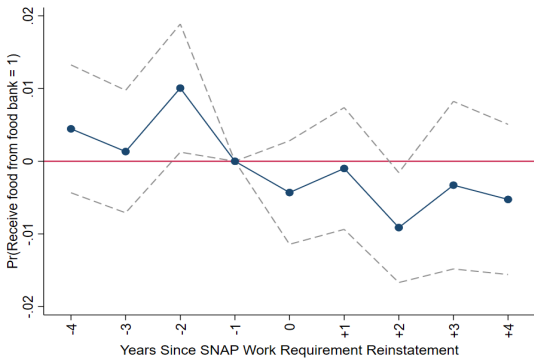
(a) Adult Food Insecurity
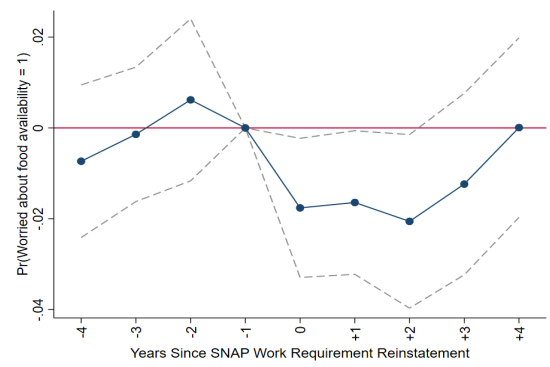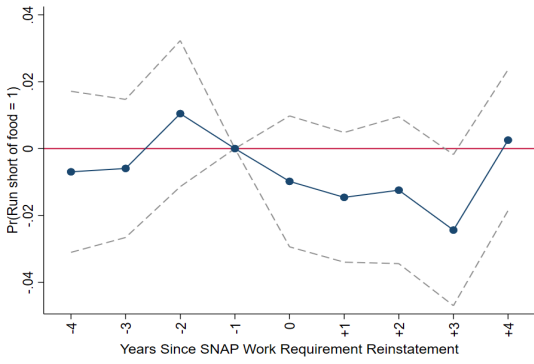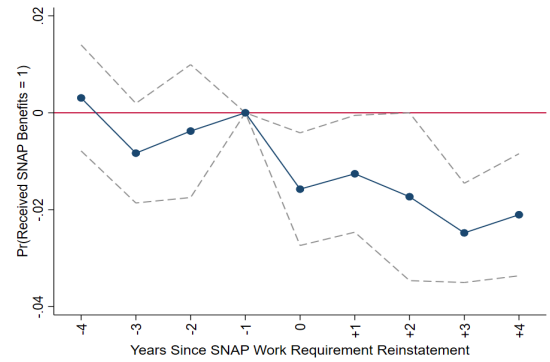
(b) Worried about Food Availability

(c) Run Short of Food
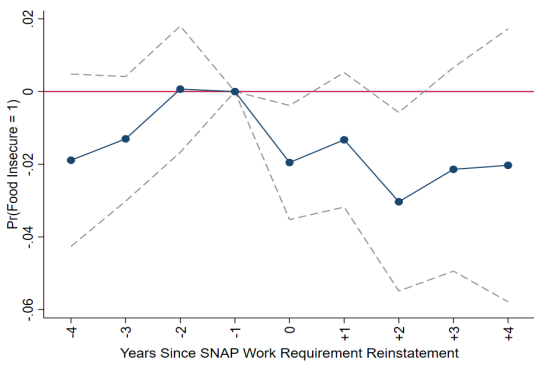
(d) Food Affordability

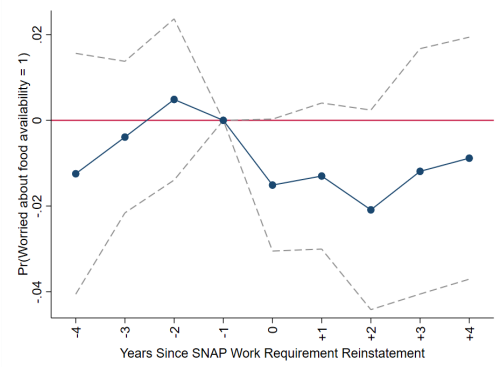(e) Emergency Food Receipt from Food Bank

(f) Received SNAP Benefits

Figure 3: Dynamic Effects of SNAP Work Requirement Reinstatement

Notes: Each figure plots the coefficients and their 95% confidence intervals from an event study analysis. Coefficients are defined as years relative to years the SNAP work requirement is reinstated in the state. The specifications includes demographic controls, time-varying state-specific controls, fixed effects for state and year.

(a) Adult Food Insecurity

(b) Worried about Food Availability

(c) Run Short of Food

(d) Food Affordability
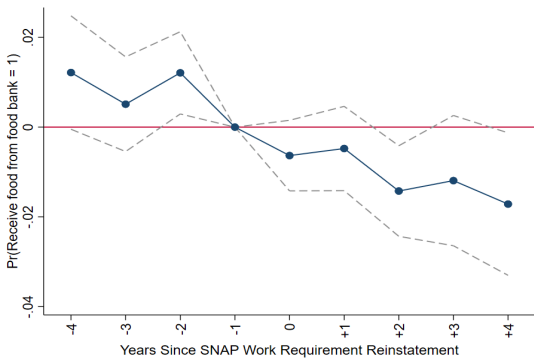
(e) Emergency Food Receipt from Food Bank
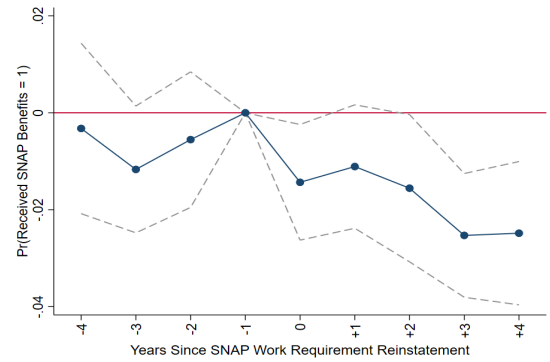
(f) Received SNAP Benefits

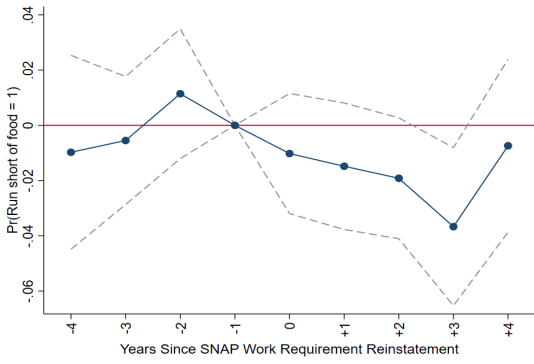Figure 4: Event Study Analysis with State-Specific Linear Time Trends

Notes: Each figure plots the coefficients and their 95% confidence intervals from an event study analysis. Coefficients are defined as years relative to years the SNAP work requirement is reinstated in the state. The specifications includes demographic controls, time-varying state-specific controls, state-specific linear time trends, fixed effects for state and year.
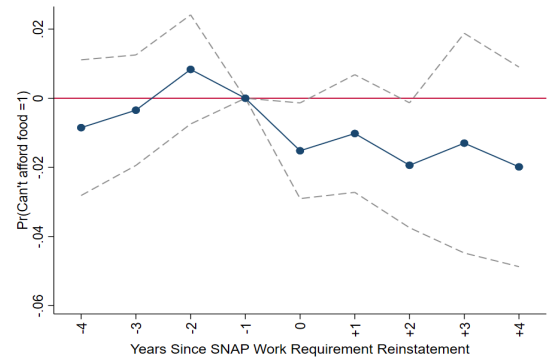
The event study analysis also allows to examine dynamics of policy effects. The graphs indicate that there is a striking change in the relative outcome of the treatment and the comparison groups after the reform. ABAWDs in the treated states are less likely to face food hardships due to lack of resources in the post-treatment periods. Although the graphs show effects are attenuated around 2 or more years after policy change, this could be due to the lack of post-treatment data for most of the treated states. Overall, the food security outcomes improve temporarily in response to the policy. Further, I find that the test results for parallel trends are not sensitive to the inclusion of state-specific linear time trends. Figure 4 graphs event study coefficients for specification controlling for linear time trends. The plots reassure that the trends are not systematically deviating in the pre-policy period.

5.3   Robustness Checks

The main results show a strong negative effect of work requirement rules on short-run food insecurity outcomes, decreasing the likelihood of experiencing difficulty to afford basic food needs and lifting people out of food assistance dependency. However, estimating the average effect for the treatment group as a whole may not uncover important differences in the consequences of the policy across subgroups. In this section, I estimate the baseline model for different subsamples and check whether the main findings are consistent across different specifications.

5.3.1   Effects on Prime Age Workers and Older ABAWDs

A standard practice in policy studies is to restrict the sample to prime-age workers since individuals aged 18-24 usually take human capital investment decisions and other life cycle decisions (such as marriage, fertility) during this period. To address this concern, I run the baseline regression on ABAWDs of age 25-49. Although the estimates (reported in the second column of Table 9) for prime-age workers are slightly smaller compared to the full sample estimates, the statistical significance and the directions of the effects echo the full sample effects.

Next, I use the benchmark estimation structure to study the effects on ABAWDs in the 50-59 age group and summarize the result in the third column of Table 9. As I note in footnote 1, the general SNAP work requirement applies to ABAWDs of age 50-59, but they are not subject to the time limit which strictly targets adults in the age group 18-49. As expected, I find no direct effect of the policy reinstatement on ABAWDs belonging to the relatively older age group 50-59. The coefficients on SNAP benefit receipt as well as on food security outcomes are imprecise, statistically not significant, and smaller compared to

baseline results reported for the 18-49 age group and 25-49 age group in the first and second column of Table 9, respectively. This analysis on the 50-59 age group serves as a placebo test. The no treatment effect on groups that are unlikely to have received treatment lends further credibility to my research design.

Table 9: Subsample Analysis by Age Groups

	Full Sample	Prime working-age, 25-49	Older, 50-59
A: SNAP Utilization			
Received Food stamps	-0.0125***	-0.0097***	0.0012
	(0.0038)	(0.0032)	(0.0043)
B: Food Security Outcomes			
Adult, not food secure	-0.0192***	-0.0167**	-0.0039
	(0.0057)	(0.00667)	(0.0081)
Skip meals	-0.0141***	-0.0101**	-0.0032
	(0.0040)	(0.0049)	(0.0055)
Eating less	-0.0104**	-0.0066	-0.0044
	(0.0041)	(0.0046)	(0.0058)
Worried about food affordability	-0.0188***	-0.0174***	-0.0066
	(0.0040)	(0.0056)	(0.0056)
Ran out of food or couldn't afford more	-0.0158***	-0.0114**	-0.0003
	(0.0045)	(0.0053)	(0.0087)
Ran short of money for food	-0.0143**	-0.0115*	-0.0134
	(0.0057)	(0.0066)	(0.0085)
Received food from food bank	-0.0068**	-0.0056**	0.0022
	(0.0029)	(0.0026)	(0.0045)
Observations	142,073	112,459	92,598
Demographic Controls	yes	yes	yes
State-specific Controls	yes	yes	yes
State FE	yes	yes	yes
Year FE	yes	yes	yes

Notes: Data from the CPS-FSS, 2009-2017. Each parameter is from a separate regression. Demographic controls include dummies for marital status, sex, education and race. State-specific time-varying controls are annual state unemployment rates, political affiliation of the state governor, and state population estimates. Robust standard errors are in parentheses, clustered at the state level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.3.2   Heterogeneous Effects by Education

Generally, low-skilled workers are typical recipients of food assistance and other social safety nets. (Harris, 2021) shows that the largest share of ABAWD SNAP recipients is high school graduates (53.5 percent in 2016), and the next largest group are high school dropouts (24.6 percent in 2016) in the SNAP Quality Control data.[20] I examine the impacts for "HS dropouts and HS graduates" and for "More than HS" education groups in the second and third columns of Table 10 respectively.

Overall, I find food security outcomes of "HS dropouts and HS graduates" are more responsive to the policy change. They are less likely to adjust their eating behavior, such as skipping meals. The probability of receiving emergency food from food bank, lacking funds for food needs being stressed about food affordability decrease at a much larger rate compared to the full sample. In contrast, for highly educated groups, the effects are much weaker in terms of magnitude and precision.

As expected, I find no statistical relationship between the food security outcomes and the work requirement policy for the married sample. The coefficients are either wrong-signed or imprecise with sizeable standard errors. This is sort of a placebo exercise, as married ABAWDs are unlikely to have received the treatment. For single ABAWDs, I observe much stronger effects in comparison to estimates obtained for the full sample. As shown in Panel A of Table 11, single families are 1.79 pp. less likely to claim food assistance. All food insecurity coefficients have negative signs indicating improvement in food security status for singles after the work rule was reimplemented.

5.3.3   Heterogeneous Effects by Marital Status

In most cases, married households have higher family income than single or never married households as the married household may have two earning members. Families with higher earnings are generally unlikely to be eligible for SNAP benefits. On the other hand, single or never married ABAWDs usually rely on one earning source and have a higher chance of depending on external food assistance. I rerun regression Eq. (1) on samples of "never married" and "married" ABAWDs separately to rule out this contamination. The results are summarized in the second and third columns of Table 11.

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[20]Quality Control (QC) data is public use microdata on SNAP recipients collected by USDA.

Table 10: Heterogeneous Effects, by Education

	Full Sample	≤ HS	> HS
A: SNAP Utilization			
Received Food stamps	-0.0125***	-0.0153	-0.0104***
	(0.0038)	(0.0095)	(0.0037)
B: Food Security Outcomes			
Adult, not food secure	-0.0192***	-0.0241**	-0.0155**
	(0.0057)	(0.0104)	(0.0066)
Skip meals	-0.0141***	-0.0215**	-0.0092***
	(0.0040)	(0.0083)	(0.0029)
Eating less	-0.0104**	-0.0119	-0.0088*
	(0.0041)	(0.0073)	(0.0044)
Worried about food affordability	-0.0188***	-0.0212***	-0.0169***
	(0.0040)	(0.0078)	(0.0049)
Ran out of food or couldn't afford more	-0.0158***	-0.0253**	-0.0094*
	(0.0045)	(0.0101)	(0.0048)
Ran short of money for food	-0.0143**	-0.0212*	-0.0096
	(0.0057)	(0.0121)	(0.0072)
Received food from food bank	-0.0068**	-0.0133*	-0.0026
	(0.0029)	(0.0075)	(0.0021)
Observations	142,073	53,031	89,042
Demographic Controls	yes	yes	yes
State-specific Controls	yes	yes	yes
State FE	yes	yes	yes
Year FE	yes	yes	yes

Notes: Data from the CPS-FSS, 2009-2017. Each parameter is from a separate regression. Demographic controls include dummies for age groups, marital status, sex and race. State-specific time-varying controls are annual state unemployment rates, political affiliation of the state governor, and state population estimates. Robust standard errors are in parentheses, clustered at the state level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Heterogeneous Effects, by Marital Status

	Full Sample	Single	Married
A: SNAP Utilization			
Received Food stamps	-0.0125***	-0.0179***	0.0033
	(0.0038)	(0.0049)	(0.0041)
B: Food Security Outcomes			
Adult, not food secure	-0.0192***	-0.0171*	-0.0186
	(0.0057)	(0.0088)	(0.0113)
Skip meals	-0.0141***	-0.0202***	0.0000
	(0.0040)	(0.0043)	(0.0069)
Eating less	-0.0104**	-0.0126***	-0.0036
	(0.0041)	(0.0047)	(0.0077)
Worried about food affordability	-0.0188***	-0.0161**	-0.0197*
	(0.0040)	(0.0065)	(0.0117)
Ran out of food or couldn't afford more	-0.0158***	-0.0165**	-0.0121
	(0.0045)	(0.0069)	(0.0073)
Ran short of money for food	-0.0143**	-0.0139*	-0.039
	(0.0057)	(0.0078)	(0.0097)
Received food from food bank	-0.0068**	-0.0087**	-0.0043
	(0.0029)	(0.0043)	(0.0037)
Observations	142,073	80,017	43,853
Demographic Controls	yes	yes	yes
State-specific Controls	yes	yes	yes
State FE	yes	yes	yes
Year FE	yes	yes	yes

Notes: Data from the CPS-FSS, 2009-2017. Each parameter is from a separate regression. Demographic controls include dummies for age groups, sex, education and race. State-specific time-varying controls are annual state unemployment rates, political affiliation of the state governor, and state population estimates. Robust standard errors are in parentheses, clustered at the state level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

While interpreting these results, it is worth keeping in mind that there could be a concern that people might select themselves into marriage in response to the policy change. To look into this selection problem, I estimate the impact of the policy on marriage formation and dissolution decisions by ABAWDs using data from the ACS. The outcome measures considered for this analysis are "marriage in the past 12 months" and "divorce in the past 12

months".[21] Table A.2 in Appendix A shows that there is no statistical impact on marriage and divorce decisions of ABAWDs. For this selection exercise, another alternative is to use the longitudinal aspect of CPS, which allows identifying individuals who got married in the past year. However, only data for individuals who remain in the same household can be linked in this manner. Since marriage often leads to the possibility of changing households, marriage-related attrition would bias the results.

6 Conclusion

Reestablishing work requirement rules for social safety nets programs is one of the central topics of political battles in recent years. This paper adds to this discussion by considering how reinstatement of SNAP work requirement rules for able bodied adults without dependents affects food security outcomes in the short run. Rich information on food affordability and food intake behavior in the Food Security Supplement of the CPS allows me to contribute to the emerging literature on work requirement policies by exploiting within-state variation in the reinstatement of the policy. Overall, I find the policy has a negative impact on SNAP benefit claims, and ABAWDs are less likely to experience food hardships as a result of the policy. This implies that the overreaching goal of the policy to reduce welfare dependency was somewhat achieved. The validity of the research design is supported by several additional results. Impacts are more substantial for less-educated groups and single individuals, and the effects are essentially zero for placebo groups such as ABAWDs in the 50-59 age group, married ABAWDs.

The event study analysis indicates that the effects are weakened around two or more years after the year of policy adoption. This raises the question about the long-run efficacy of the policy. Since the Families First Coronavirus Response Act suspended the SNAP work requirement rule in April 2020, this paper cannot resolve this concern. As work requirement policies continue to expand for Medicaid, more insights into the impact of such policies are required in order to design optimal work-for-welfare policies. Moreover, as the work requirement policy is generally relaxed during the economic downturn and reimposed in response to economic recovery, it is crucial for future studies to factor individuals' endogenous responses to macroeconomic changes into the discussion for a comprehensive analysis.

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[21]Data on marital status in the past 12 months are available in the ACS beginning from 2008.

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Appendix

A   Evidence from the ACS

In this Appendix, I present results for selection into and out of marriage based on data from the American Community Survey (ACS).

Table A.1: Sample selection for the analysis based on data from ACS 2009-2017

	Observations
Everyone over 18	22,039,779
exclude if age > 49	11,038,818
exclude if veterans who have a service-connected disability	10,949,215
exclude if any physical or mental difficulty	10,100,645
exclude if living with minor children	5,709,650
exclude if in armed forces	5,650,951
exclude if registered in school	4,052,669
exclude if non-citizen	3,684,066
exclude if other non-relatives, institutional inmates and in foster care	3,356,405

Notes: Data from the ACS, 2009-2017. In ACS, six kinds of disabilities are reported: cognitive difficulty, ambulatory difficulty, hearing difficulty, vision difficulty, independent living difficulty, and self-care difficulty.

Table A.2: Impact on Marriage Formation and Dissolution

	Married last year	Divorced last year
Policy reimposed	-0.0008	-0.0002
	(0.0015)	(0.0009)
Dependent Variable Mean	0.0913	0.0281
Observations	1,505,097	1,505,097
Demographic Controls	yes	yes
State-specific Controls	yes	yes
State FE	yes	yes
Year FE	yes	yes

Notes: Data from the ACS, 2009-2017. Sample of individuals age 18-49 who are not disabled and do not live with minor children. Each parameter is from a separate regression. Demographic controls include dummies for age groups, sex, education and race. State-specific time-varying controls are annual state unemployment rates, political affiliation of the state governor, and state population estimates. Robust standard errors are in parentheses, clustered at the state level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$