Work Requirements Under Review:
Impacts of SNAP Time Limits on Able-Bodied Adults without Dependents

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Abstract

Work requirements for able-bodied adults without dependents (ABAWDs) participating in public benefit programs are a hotly debated topic and are particularly relevant following the recent passage of the One Big Beautiful Bill Act (OBBBA), which expands requirements for the Supplemental Nutrition Assistance Program (SNAP). This paper leverages counties' staggered reinstatement of SNAP work requirements following the Great Recession to estimate their causal impact on household SNAP participation and individual labor supply. Using ten years of data from the American Community Survey, it employs a heterogeneity-robust difference-in-difference estimator to identify average treatment effects for all ABAWDs and for subgroups of policy relevance. I identify a statistically significant reduction in SNAP receipt for the full sample of ABAWDs, without corresponding changes in extensive or intensive measures of labor supply. These findings suggest that work requirements may not be an effective policy for improving ABAWDs' work outcomes. Subgroup analyses suggest heterogeneous effects and reveal particularly large declines in receipt among older ABAWDs and those with dependent adult-children, while veterans exhibit modest increases in labor supply. Given the upcoming implementation of the OBBBA's SNAP provisions, which expand ABAWD work requirements to older adults, parents of teenage children, and veterans, these results point to potentially substantial implications for benefit access and limited expected gains in labor supply among affected groups.

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I. Introduction

Work requirements for able-bodied adults without dependents (ABAWDs) receiving benefits from public benefit programs are a hotly debated topic and are particularly relevant following the recent passage of the One Big Beautiful Bill Act (OBBBA). The Supplemental Nutrition Assistance Program (SNAP) operationalizes ABAWD work requirements by introducing a benefit time-limit for those failing to meet a minimum level of work activity. This paper leverages counties' staggered reinstatement of SNAP work requirements following the Great Recession to estimate the causal impact of the work requirements, and associated time limits, on household SNAP participation and individual labor supply.

This paper addresses three central research questions: (1) To what extent did the reinstatement of ABAWD work requirements, and associated time limits, affect SNAP benefit receipt among ABAWD households? (2) To what extent did the reinstatement of ABAWD work requirements affect the labor supply of ABAWDs? And (3) to what extent do these effects on SNAP receipt and labor supply vary across subgroups of current policy relevance?

The One Big Beautiful Bill Act (OBBBA) is the largest expansion to date of SNAP work requirements for able-bodied adults. OBBBA expands the definition of ABAWDs to include previously exempt populations of older adults (age 55-64), parents of teenage children (age 14-17) and veterans, among others. The new provisions were slated to go into effect on November 1, 2025, at which point these groups became subject to ABAWD work requirements. Given the active expansion of work requirements for able-bodied adults without dependents, it is pertinent to question the effects of these work requirements and how well they align with the stated goal of promoting self-sufficiency through work.

The reinstatement of ABAWD work requirements following the Great Recession provides an opportunity to study the requirement's effects. A small literature has investigated the effects of these work requirements and provides some insight. Many of these papers examine the effects on SNAP participation for ABAWDs living in a single state or set of states and all identify a significant reduction in benefit receipt (e.g., Feng et al., 2021; Wheaton et al., 2021). Despite consistency in the evidence on SNAP receipt, there is less clarity around the effects of work requirements on ABAWDs' labor supply, with many studies identifying no significant effect (e.g., Grey et al., 2023; Vericker et al., 2023), and others finding suggestive positive effects (Ribar et al., 2010). These studies are informative, but their focus on individual states and sets of states limits their generalizability. Only one paper, by Harris (2021), examines the effects of reinstating SNAP's ABAWD work requirement on benefit receipt and labor supply nationally, finding a significant, positive effect on employment that stands in contrast to much of the other literature.

This paper contributes to the literature and the debate on labor supply effects by employing a difference-in-differences estimator developed by Callaway & Sant'Anna (2021) that is robust to heterogeneity in treatment timing, taking advantage of counties' staggered reinstatement of SNAP's ABAWD work requirements over seven years to investigate their effect on ABAWDs' benefit receipt and labor supply. I additionally examine SNAP and labor supply effects across subgroups to better understand the potential effects of the OBBBA's expansion of ABAWD work requirements to older adults, parents of teenage children, and veterans.

I identify a statistically significant decrease in reported SNAP receipt among working-age, low-income ABAWDs that is robust across multiple specifications and corresponds to a roughly 11% decrease. I examine extensive and intensive measures of labor supply, including the likelihood of working at least 20 hours in a usual week and fulfilling the ABAWD work requirement, the likelihood of being employed, and the usual hours worked per week. Across all three measures, multiple specifications and sample restrictions, I do not identify any statistically significant effect of work requirements on labor supply. For my main sample, I am able to rule out an effect size larger than a 2.3% increase in the likelihood of working at least 20 hours per week, a 2.1% increase in usual hours worked, and a 2.2% increase in the likelihood of being employed.

Based on these main results, it appears that SNAP's ABAWD work requirement and associated time limit reduce SNAP receipt without improving labor supply outcomes. Together, these results suggest that ABAWD work requirements may not be an effective policy option for improving labor outcomes in the SNAP context and may serve primarily as a barrier to access and targeting mechanism. Subgroup analyses suggest heterogeneous effects and reveal large reductions in SNAP receipt for older ABAWDs and those with dependent adult-children, while veterans exhibit modest increases in labor supply. Given the upcoming implementation of the OBBBA's SNAP provisions, which expand the ABAWD definition to include older adults, parents of teenage children, and veterans, these results point to potentially substantial implications for benefit access and limited expected gains in labor supply among affected groups.

The rest of this paper is organized as follows. Section II provides background on the policy environment and outlines the conceptual framework for the expected causal effects. Section III outlines my analytic approach including the data used, sample construction, and my empirical design. Section IV presents my results, the implications of which are discussed in Section V.

II. Background & Motivation

Work Requirements and Public Benefit Programs

Public benefit programs in general, and anti-poverty programs in particular, face the fundamental problem of assessing eligibility and need under conditions of asymmetric information. Absent any mechanism to perfectly assess eligibility, state and federal governments design policies intended to target benefits to those who are truly needy and discourage abuse among those who are not. As highlighted by the theoretical framework laid out by Kleven & Kopczuk (2011), these policies trade off the risks of Type I error, rejecting or otherwise discouraging take-up among the eligible, and Type II error, awarding benefits to the ineligible. As screening mechanisms become increasingly complex or rigorous, benefit awards to the ineligible fall and targeting efficiency is generally improved, but at the cost of incomplete take-up.

As laid out by Besley & Coate (1996), work requirements can serve as one of these screening mechanisms, aimed at targeting benefits to a population with true need. The targeting argument for work requirements is rooted in the idea that ordeals like work requirements will prompt those without true need to screen themselves out and result in improved targeting efficiency. This argument is based on the assumption that poverty is primarily driven by inadequate earning opportunities, and that those with need are otherwise capable of work. Work requirements for public benefit programs have also been tied to a deterrent argument, which suggests that work requirements can serve as a mechanism for encouraging poverty-reducing behaviors (e.g., work) and self-sufficiency. This argument, also laid out by Besley & Coate (1996), assumes that poverty is a result of poor decision-making, and that public benefit programs may further encourage poor decision-making by reducing incentives to work. The screening and deterrent functions of work requirements are discussed more in my conceptual framework.

Both arguments have been common in the U.S. context, though recent debate has leaned more on deterrent arguments for work requirements like promoting economic self-sufficiency and encouraging work behaviors. In the case of able-bodied adults without dependents, who are not disabled or constrained by responsibility to dependents and therefore *should* be able to work, work requirements might be justified by the targeting argument that requirements will screen out ABAWDs who are not truly in need, or by the deterrent argument that requirements will offset benefits' potential work disincentives.

Able-Bodied Work Requirements in SNAP

The Supplemental Nutrition Assistance Program (SNAP), formerly known as the Food Stamp Program and colloquially referred to as "food stamps," is the nation's largest food

assistance program. SNAP served an average of over 40 million low-income people per month in FY2024, with about 1 in 8 U.S. residents receiving benefits over the course of the year (12.3%, Jones et al., 2025). These benefits support low-income families and individuals who may be working, those without work, those who are children, or those unable to work for reasons including old age and disability.

To receive SNAP benefits, all individuals age 16-59 and not exempt due to a disability or other reason must satisfy general work requirements, for example by registering to work, participating in SNAP Employment and Training (E&T), taking a suitable job if offered, and not voluntarily quitting a job or reducing work hours below 30 hours a week. On top of the general work requirement, SNAP imposes an additional work requirement for able bodied adults without dependents (ABAWDs). In general, ABAWDs age 18-54 can only receive SNAP benefits for 3 months in a 36-month period, unless they work or participate in a work program for at least 80 hours per month. ABAWDs who fail to meet the ABAWD work requirement of 80 hours per month have their SNAP benefits terminated after 3 months (USDA FNS, 2025a).

The ABAWD work requirement was first introduced by the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), with the intention of encouraging work and self-sufficiency (U.S. House of Representatives, 1996). In response to the Great Recession, the American Reinvestment and Recovery Act (ARRA) suspended the SNAP time limit for ABAWDs from April 1, 2009, through September 30, 2010.[1] After September 30, 2010, states continued to be able to apply for temporary waivers to exempt ABAWDs from the time limit in areas with sufficiently high unemployment or insufficient number of jobs. As a result, ABAWD work requirements were gradually reinstated over several years, as states became ineligible or chose to stop applying for waivers. By 2017, most states had reinstated time limits for ABAWDs in some, if not all, counties.

The ABAWD work requirement and time limit (hereafter referred to as "ABAWD work requirement") are of immediate policy relevance and subject of ongoing debate. The Families First Coronavirus Response Act of 2020 similarly suspended ABAWD work requirements through the end of the public health emergency.[2] The One Big Beautiful Bill Act (OBBBA), signed into law on July 4, 2025, expands the definition of ABAWDs to include individuals age 18-64 (currently 18-54) and households with children age 14 and older (currently 18 and older).[3] This policy change follows the Fiscal Responsibility Act (FRA), signed into law on June 3, 2023, which exempted homeless individuals, veterans, and some young adults who were previously in foster care from ABAWD work requirements, and expanded the definition of ABAWDs to include adults age 18-54 (previously age 18-49).[4]

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[1] Public Law No. 111-5, § 101(e). U.S. Congress (2009)

2 Public Law No. 116-127, § 2301. U.S. Congress (2020)

3 Public Law No. 119-21, § 10102. U.S. Congress (2025)

4 Public Law No. 118-5, § 311. U.S. Congress (2023)

Given the active expansion of work requirements for able-bodied adults without dependents, it is pertinent to ask what effect these expansions are likely to have. Proponents of work requirements for safety-net programs like SNAP believe they are necessary to encourage employment among beneficiaries, offset potential work disincentives, and target benefits to those who are truly in need. Opponents to work requirements argue that they are generally ineffective at improving employment outcomes and are a barrier to program access. These tensions reflect the trade-off between Type I and Type II errors in targeting benefit programs, as well as the debate on the need for and efficacy of work requirements as a deterrent to suboptimal labor supply. The effects of being subject to work requirements on ABAWDs' benefit receipt and labor supply are of considerable policy relevance. Evidence on these effects can help policymakers understand how ABAWDs respond to work requirements and inform the design of more effective policy.

There is a small but growing literature that examines past policy changes that have expanded or reinstated ABAWD work requirements and provides some insight on the effects of ABAWD work requirements. Many of these papers examine the effects on SNAP receipt for ABAWDs living in a single state or set of states. Gray et al., (2023) find evidence of reduced SNAP participation and increased SNAP exits for ABAWDs in Virginia following work requirement reinstatement. Ribar et al., (2010), similarly find that ABAWDs subject to work requirements in South Carolina had shorter SNAP spells and were more likely to exit the program. Among multi-state analyses, Vericker et al., (2023), Ku et al., (2019), Wheaton et al., (2021), and Feng et al., (2021) all identify significant reductions in SNAP participation following the reinstatement of ABAWD work requirements and associated time limits.

Despite consistency in the evidence on SNAP receipt, there is less clarity around the effects of work requirements on ABAWDs' labor supply. Gray et al., (2023) find only limited employment effects for ABAWDs in Virginia following time limit reinstatement. Ribar et al., (2010), find that those subject to time limits in South Carolina were more likely to have earnings. Of the multi-state papers that examine labor outcomes, none identify a significant improvement to employment (Feng et al., 2021; Vericker et al., 2023; Wheaton et al., 2021) or earnings (Vericker et al., 2023). Harris (2021), the only study to examine work requirement reinstatements nationally, identifies a statistically significant effect on employment.[5] This body of work does not provide a conclusive answer on the effects of work requirements on able bodies' adults labor supply.

Additionally, while analyses of individual or sets of states are informative and often use rich administrative data, they have limited generalizability. Only one study, by Harris (2021), examines the effects of reinstating SNAP's ABAWD work requirement in a nationally

[5] A study by Han (2022) uses nationally representative data to study the effects of ARRA-era work-requirement waivers, rather than the post-ARRA reinstatement of ABAWD work requirements and finds that exemptions do not decrease employment but do lead to a reduction in hours of work.

representative sample. This study estimates the effects on benefit receipt and employment and employs two-way fixed effect difference-in-difference (TWFE DID) and three-way fixed effect triple-difference (3WFE DDD) estimators, taking advantage of variation in treatment timing. These methods have since been shown to produce biased estimators in settings with staggered adoption of a policy, like the staggered reinstatement of ABAWD work requirements.[6] Further, none of these studies investigate heterogeneous treatment effects for subgroups that are especially relevant to our understanding of OBBBA and its potential effects. This paper contributes to the literature by employing an estimator recently developed by Callaway & Sant'Anna that is robust to heterogeneity in treatment timing and treatment effects, to answer the timely policy question of the impacts of ABAWD work requirements. Specifically, it examines the effect of post-ARRA work requirement reinstatements on the full sample of ABAWDs' SNAP receipt and labor supply, as well as the effect for subgroups that are particularly informative for the potential effects of the OBBBA's expansions.

Subgroups of Policy Relevance

The OBBBA expands the definition of able-bodied adults without dependent (ABAWDs) to include adults age 55-64 who are not otherwise exempt, as well as adults with children age 14-17 who are not otherwise exempt.[7] When the policy changes go into effect, on November 1, 2025, these groups will become newly subject to ABAWD work requirements. As there are no prior circumstances where these groups would have been affected by ABAWD work requirements, I am unable to estimate effects for these groups directly. That said, the effects on similar groups in the ARRA context may prove informative. For example, if older ABAWDs (e.g., age 40-49) are observed to be impacted to a different degree than younger ABAWDs, it may help shape our understanding of what general effect we would expect to see on a group of 55–64-year-old (even older) ABAWDs. Similarly, examining effects separately for individuals with an adult child age 18-24 in their household, relative to those with no adult children, may inform the general effect expected for those with 14–17-year-olds that will be newly impacted. For this reason, differential impacts of ABAWD work requirements by age and presence of adult children are of current policy relevance.

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[6] See Borusyak et al. (2024), Callaway & Sant'Anna (2021), de Chaisemartin & D'Haultfoeuille (2020), Goodman-Bacon (2021), and Sun & Abraham (2021), and Ortiz-Villavicencio & Sant'Anna (2025) for examples and de Chaisemartin & D'Haultfoeuille (2022) for a review.

[7] Additional populations, like young adults who were previously in foster care, will also be newly subject to time limits, but are not approximated for or examined in these analyses due to prohibitively small sample sizes.

Veterans as a Case of Interest

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Veterans are known to differ from non-veterans in both their need and use of SNAP. Households containing a veteran are generally observed to be better off than non-veteran households when it comes to income, earnings, and poverty status (Bennett, 2019; NCVAS, 2015). Unsurprisingly, unadjusted rates of food insecurity also tend to be lower for veterans than non-veterans (Miller et al., 2016; Brostow et al., 2017). When adjusting for observable differences, working age veterans are found to be at an increased risk of food insecurity relative to their non-veteran counterparts (Rabbitt & Smith, 2021). Among those who are food insecure, veterans are less likely to receive SNAP benefits than non-veteran counterparts (Dubowitz et al., 2023). Forthcoming research from RAND similarly identifies a veteran-SNAP-gap that persist across model adjustments, even among households that should be eligible to participate.[8]

In September 2023, veterans were granted a temporary exemption to ABAWD work requirements, written into law by the Fiscal Responsibility Act of 2023 (FRA).[9] The exemption for veterans was set to sunset on October 1, 2030. The OBBBA removed veterans from the list of qualifying exemptions,[10] and therefore veterans will once again be subject to ABAWD time limits when the policy goes into effect on November 1, 2025. Once implemented, any veteran receiving SNAP benefits not otherwise exempt will once again be subject to ABAWD work requirements. Given these recent policy changes and veterans' demonstrated different SNAP participation behaviors, differential impacts of ABAWD work requirements by veteran status are both plausible and of current policy relevance. Unlike ABAWDs 55-64 and ABAWDs with teenage children, veterans ABAWDs were subject to ABAWD work requirements for the period of post-ARRA reinstatement, and the effects they experienced can be estimated directly.

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Conceptual Framework

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Theoretical arguments for work requirements in public assistance programs like SNAP can be effectively summarized by Besley and Coate (1992), who posit that such policies can improve targeting and efficiency by both screening and deterring potential beneficiaries. Under asymmetric information about an individual's true earning potential, policymakers may be concerned that individuals capable of earning above program eligibility thresholds could reduce their labor supply to qualify for benefits. Work requirements introduce a cost of effort that is more burdensome to high-wage individuals, who face higher opportunity costs of their time, than the opportunity cost of leisure or forgone wages. Meanwhile, those with lower wages and, in turn, lower opportunity costs, will be more willing to accept the work requirement in order to

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[8] Gadwah-Meaden, C., Armour, P., Stevens, L. (Forthcoming). *Veterans' Program Participation.* RAND.

[9] Public Law No. 118-5, § 311(a). U.S. Congress (2023)

[10] Public Law No. 119-21, § 10102(a). U.S. Congress (2025)

receive assistance. In this way, work requirements can mitigate abuse by screening between those that are genuinely unable to earn above the eligibility threshold and those who might strategically reduce labor supply to obtain benefits.

In addition to their screening function, work requirements can operate as a deterrence mechanism, offsetting potential work disincentives created by the availability of SNAP benefits. Because SNAP partially insures against income loss, policymakers might worry that individuals would face weaker incentives to engage in behaviors that reduce poverty risk, like maintaining employment. Attaching a work requirement to benefit receipt reduces the net utility of participation, making reliance on SNAP less appealing relative to self-sufficiency through work. Work requirements would thereby reintroduce an incentive to avoid poverty and program dependence, encouraging labor supply and reducing the likelihood that otherwise capable adults will rely on benefits when work is available. In this way, the deterrent function of work requirements mitigates the moral-hazard problem inherent in unconditional assistance and reinforces the goal of long-term self-sufficiency.

Within this framework, work requirements are intended to both screen for the truly needy and re-align incentives to motivate labor supply and reduce dependency on public benefits. This is particularly true for able-bodied adults without dependents, who are not disabled or constrained by responsibility for dependents, and therefore *should* face minimal barriers to work. These intentions of improving targeting and incentives come with trade-offs. Besley & Coate note that work requirements can induce incomplete take-up and unintentionally screen out those with genuine need when overly stringent or not reflective of work opportunities. When job or training opportunities are scarce, or labor supply is otherwise constrained, the work requirement may simply reduce benefit receipt. This trade-off motivates the temporary waiving of work requirements during periods of economic downtown. One final limitation to note is that this theory assumes that individuals are aware of eligibility and requirements and respond rationally to economic incentives and costs. If this assumption does not hold, there will be only limited behavioral response, again resulting primarily in a reduction of benefit receipt.

In the context of the reinstatement of SNAP's ABAWD work requirements following the Great Recession, the two main effects one might expect to see are on SNAP utilization behaviors and on labor supply behaviors. First, SNAP receipt is expected to decline as ABAWDs who perceive the marginal cost of meeting work requirements to be too high are screened out. SNAP receipt will also decrease for ABAWDs who are unable to meet work requirements and lose their benefits. ABAWDs who are able to fulfill work requirements will maintain their SNAP benefits. Should the reinstatement of work requirements lead to increased labor supply or investment in human capital, there may also be secondary decreases in SNAP receipt for individuals that are able to increase income and no longer qualify. I would therefore expect to observe a reduction in SNAP receipt among ABAWDs as work requirements are reinstated.

The time limit on benefits for ABAWDs who fail to meet work requirements penalizes labor supply below a minimum threshold of hours, in this case 20 hours per week. This penalty targets

marginal workers who are not otherwise incentivized to work at or above the 20 hours per week threshold, as well as those who may be incentivized to reduce labor supply in order to qualify for benefits. ABAWDs for which maintaining or obtaining SNAP benefits is a sufficient incentive, primarily those with genuine need, would be expected to increase labor supply to the required threshold. It is plausible that there may be ABAWDs with genuine need who are unable to increase their labor supply and end up losing benefits. Assuming the average low-income ABAWD is responsive to these incentives and not otherwise constrained, one would expect to observe an increase in labor supply. Specifically, I would expect to observe an increase in the likelihood of an ABAWD working at least 20 hours per week following the reinstatement of work requirements. Theory would predict that ABAWDs who do not have genuine need will be screened out, which may result in an increase in labor supply as these ABAWDs return to their true earning capacity. It may also be expected that ABAWDs are deterred from SNAP altogether and either maintain or increase their labor supply in response to re-calibrated incentives.

The relative size and significance of these effects have important policy implications. A relatively small impact of ABAWD work requirement reinstatement on SNAP participation and a similar or larger effect on labor supply would suggest that the ABAWD work requirement and corresponding time limit is an effective way to encourage work among SNAP beneficiaries with limited costs to program access. On the other hand, a large drop in SNAP participation alongside a relatively low impact to labor supply would suggest that the policy is ineffective at incentivizing work and mainly functions as a targeting mechanism, increasing exits and reducing entry among those who don't need benefits and potentially reducing take-up among the otherwise eligible. I hypothesize that work requirements for able-bodied adults without dependents function primarily as a targeting mechanism and expect to observe a significant decrease in SNAP receipt alongside an at most modest increase in labor supply.

III. Analytic Approach

Data

American Community Survey (ACS)

This paper uses ten years of data from the American Community Survey (ACS), covering 2009 through 2018. The ACS is a nationally representative household survey conducted by the U.S. Census Bureau. Administered annually, the ACS collects detailed information on the social, economic, housing, and demographic characteristics of the American population and their households. Particularly useful economic characteristics for this study include employment information like the usual number of hours worked per week and receipt of SNAP benefits in the previous 12 months. The ACS is conducted continuously, surveying a scientific sample of addresses each month with roughly 3.5 million addresses sampled annually, providing representative estimates at national, state, and Public Use Microdata Area (PUMA) level.

The primary benefits of using ACS data are the large sample size and geographic granularity of data. Unlike similar nationally representative surveys of the American population (e.g., the Current Population Survey (CPS)), the ACS identifies households within public use microdata areas (PUMAs). PUMAs are non-overlapping statistical geographic areas defined by the U.S. Census Bureau that contain a minimum of 100,000 residents. Being able to identify PUMA of residence provides a higher level of precision to treatment assignment relative to analyses that only have state of residence available in the data. The large sample size of the ACS is particularly useful, given the ABAWD population is a small share of the total U.S. population. Furthermore, the larger sample allows for subgroup analyses that would not be feasible in smaller datasets.

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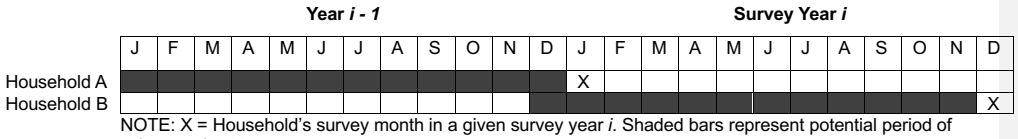
I have two primary outcomes of interest. To estimate the effect on SNAP participation, I examine a dichotomous indicator of whether a household reports receiving SNAP benefits at any point in the prior 12 months. To estimate the effect on work behaviors, I examine a dichotomous indictor for whether an individual reports working at least 20 hours in a usual week. Secondary outcomes of interest include a continuous variable for the number of hours worked per week, and a dichotomous indicator for whether an individual is employed. All work-behavior outcome variables are measured at the time of the survey. For the variables measuring hours worked dichotomously and continuously, all those who report being unemployed or not in the labor force at the time of the survey are coded as having zero hours of work. It should be noted that ABAWD work requirements may also be met through participation in work training programs, which are not visible to me in the ACS. My analyses therefore speak only to the effects of ABAWD work requirement reinstatements on the likelihood of meeting requirements through labor supply.

My use of ACS data introduces some limitations to my analyses, particularly for my estimation of effects on SNAP. Like other surveys, ACS data is known to suffer from underreporting of SNAP receipt.[11] I assume that the rate of underreporting is relatively consistent over time and across treated and not-yet treated groups, which would bias my results if untrue. Regardless, underreporting of SNAP receipt likely means that I fail to capture the full, true effect of ABAWD work requirement reinstatement on benefit receipt. Matched administrative data on SNAP receipt and official ABAWD status, like some researchers have used in studies of individual states, would provide far more accuracy than self-reports in surveys like the ACS.

My analyses are similarly limited by the data that the ACS collects on SNAP receipt. Because ACS is administered continuously, individuals and their households may be surveyed at any point in the calendar year. For variables that have a 12-month reference period, like SNAP participation, this survey structure results in a wide potential period of reference. See Figure 1 for a visualization of the potential reference period window. When asked whether their household had received any SNAP benefits in the prior 12 months, an individual surveyed in January may report SNAP receipt as far back as the January prior, while an individual surveyed in December may report receipt as recently as that month. Because ACS does not provide survey month in publicly available data files, it is not possible to discern the precise 12-month reference period. This is a limitation for my analyses of SNAP participation, as the wide reference window may bias estimates toward a null result by erroneously classifying some not-yet treated units as treated in the first treatment year.

Figure 1. ACS Reference Period



NOTE: X = Household's survey month in a given survey year *i*. Shaded bars represent potential period of reference for 12-month look-back.

ACS does not provide an intensive measure of SNAP receipt, so I am limited to exploring effects on the extensive margin only. Other datasets, like the CPS's Annual Social and Economic Supplement (ASEC) or the Survey of Income and Program Participation (SIPP), provide more precise information on the period of reference and more detailed variables on receipt of benefits like SNAP. The ASEC, for example, has a variable for *months* of SNAP receipt in the prior calendar year, which would be particularly useful for analyzing the effects of a policy that reintroduces a three-month time limit. Despite these benefits, both the ASEC and the SIPP have smaller sample sizes that would greatly reduce statistical power and prohibit subgroup analyses.

[11] See Fox et al., (2017), Meyer et al., (2022), and Shantz & Fox (2018) for examples.

Additionally, neither provide a geography more granular than state for all respondents, which would restrict me to state-level treatment assignment rather than my preferred county-level assignment.

ABAWD Waivers

States gradually reintroduced ABAWD work requirements for their counties from 2011 through 2017, as shown in Figure 2. Always treated states are those that never introduced state-wide waivers and always had time limits for ABAWDs in at least part of the state. Because these states may be categorically different than states that have full-waivers in place during the Great Recession, I exclude all counties from always-treated states. Never treated counties are those that had yet to reinstate time limits for ABAWDs during the period examined, and include counties treated in the last year of data (2018), for which there are no post-period observations.

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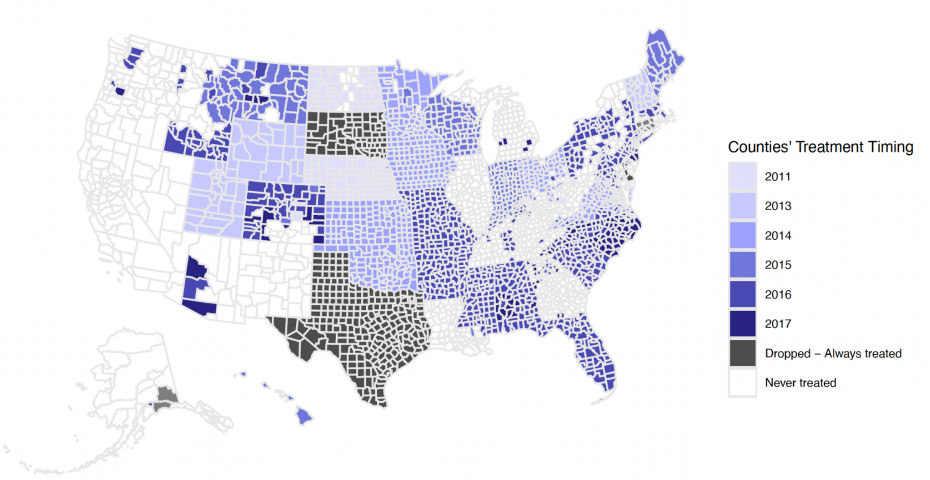
Figure 2. Counties' Reinstatement of Work Requirements



NOTE: Treatment timing is defined as the first year in which a county has work requirements in effect following ARRA-era waivers. Never treated counties are those that never reinstated time limits during the time period examined. Always treated counties are located in states that never fully waived ABAWD work requirements during the Great Recession and are therefore dropped from these analyses.

Data on ABAWD waivers come from a county-year waiver dataset compiled and made publicly available by Harris (2021), which provides the number of months each year that a county was covered by an ABAWD waiver. The data were gathered for the period of 2010-2017

from publicly available records on state and county waivers granted by the U.S. Department of Agriculture's Food and Nutrition Service (USDA FNS, 2025b). I supplement this data with state- and county-level waiver records for 2009 and 2018 from the USDA, to extend my period of analysis to cover the ten-year period of 2009-2018.

I define treatment according to the waiver status of a county in a given year, such that a county is "treated" once its ABAWD waiver lapses (e.g., work requirements are in effect). Specifically, county-years are "untreated" if they have a waiver for 7 or more months of the calendar year and "treated" if they have a waiver for 6 months or less. Reflecting the fact that most ABAWD waivers expired at the end of the calendar year or the end of the fiscal year, over 97% of all county-years in my sample had waivers for 0, 9, or 12 months. Less than 1.5% of all county-years are classified as "treated" in years where waivers were present for 1-6 months. In some cases, a county may go on to waive ABAWD work requirements once again after their reinstatement. I observe 179 instances of counties re-waiving ABAWD work requirements, 112 of which occur in 2017. I drop all affected county-years following the introduction of new ABAWD waivers, to focus analyses on the causal impact of time limit reinstatement following the ARRA.

While the ABAWD waiver data is collected at the county level, the lowest level of geography available for all ACS respondents is the PUMA.[12] Following the method used by Harris, I assign treatment – in this case, work requirement reinstatement – by assigning observations to a representative county. For PUMAs containing (or contained by) a single county, over 67% of my ACS sample, observations are simply assigned to that county. For the remaining PUMAs containing multiple counties, observations are assigned to the PUMA's largest county. This approach may cause me to falsely classify some untreated individuals as treated, and vice-versa, if they belong to a smaller county that has a different treatment (work requirement) status than the largest county in the PUMA. Discrepancies between assigned and true treatment status, if substantial, may impact precision of estimates and bias them towards a null result. Fortunately, it appears that neighboring counties represented by the same PUMA tend to have similar treatment statuses. In over 95% of cases, all counties within a PUMA have the same treatment status in a given year. Murkier cases, where between one-third and two-thirds of PUMA residents have waivers, represent only 0.56% of PUMA-years.

Sample

I restrict my sample to low-income likely ABAWDs and, in SNAP participation analyses, their households. I define likely ABAWDs to be adults who report no disability in the ACS six-item disability questionnaire and live in a household with no minor children and no disabled or

[12] With the exception of persons living in Louisiana PUMAs 01801, 01802, and 01905, who were all coded as living in Louisiana PUMA 77777 through the 2011 ACS following Hurricane Katrina due to insufficient population size. These observations are dropped from analyses.

Commented [SR8]: yes?

Commented [SR9]: This paragraph is kind of redundant with the prior 2, but also a little bit clearer. suggest moving up before the prior two and maybe streamlining redundancies between them?

Commented [SR10]: have you said what you mean by this yet? maybe just drop the "likely" and then acknowledge the potential limitations when you describe it.

elderly (60+) householders. ABAWDs with elderly householders are excluded to account for relaxed SNAP eligibility criteria faced by individuals 60 and older. I exclude ABAWDs age 50 and older as they were exempt from time limits during the time-period examined and focus my analyses on prime working-age individuals age 25-49. I include only individuals in households with income below 300% of the federal poverty line. While the income thresholds for SNAP eligibility tend to be significantly lower than 300%, this higher cutoff allows me to capture marginal SNAP households who may have higher incomes over the course of the year but experience spells of lower income or material hardship. I exclude individuals living in three states that never fully waived ABAWD work requirements; Texas, South Dakota, and Delaware; and any county-years following the reintroduction of ABAWD waivers after work requirement reinstatement. My final sample of low-income ABAWDs includes 785,832 individuals from 2009-2018.

Table 1 presents summary information for counties, grouped by "treatment cohort," or the first year in which work requirements were in reinstated. I am particularly interested in state- and county-level characteristics that could conceivably impact a county's propensity to have ABAWD work requirements in effect, the SNAP and labor outcomes of county residents, or both. All controls are time-invariant. For state-level characteristics, I include controls for region and two measures of the state policy environment: political party affiliation of the state's governor and a measure of a state's SNAP policies in 2010. Data on political affiliation of governors comes from the National Governors Association, distributed by the Inter-university Consortium for Political and Social Research (ICPSR; Kaplan, 2021). Data on states' SNAP policies come from the USDA's SNAP Policy Database (USDA ERS, 2024). My SNAP policy measure is a count of the number of policies that improve SNAP access a state has adopted. The maximum number of state policies is 8. Policies include Broad Based Categorical Eligibility, vehicle exemptions from the asset test, availability of online applications, phone-based interviews, call-centers, simplified enrollment process for SSI recipients, simplified income reporting, and longer interviews (min 4-6 months) between eligibility interviews.

My county-level controls focus on local economic characteristics. First, I include a county's maximum observed unemployment rate during the Great Recession, which is derived from unemployment data from the Bureau of Labor Statistics. I also include controls for the 2010 prime-age labor force participation rate and the 2010 poverty rate, calculated at the PUMA-level using ACS data.

Table 1. Summary Statistics

	Treatment Cohort							
	Always treated	**2011**	**2013**	**2014**	**2015**	**2016**	**2017**	**Never treated**
State-Level Characteristics								

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Commented [SR11]: could be helpful to explain/motivate some of the less obvious variables here. where did you get data on democrat or republican and SNAP policies? why are you including them here? (if it's just governor, is it fair to say that all states w/ a certain governor LEAN democrat or republican? not nesc true in purple states...)

Region								
Northeast	0.0%	17.2%	42.3%	0.0%	10.6%	23.9%	15.7%	11.6%
Midwest	8.1%	55.2%	0.0%	66.1%	77.6%	10.0%	5.7%	21.5%
South	91.9%	17.2%	0.0%	33.9%	1.2%	57.8%	72.9%	35.8%
West	0.0%	10.3%	57.7%	0.0%	10.6%	8.3%	5.7%	31.0%
Party of Governor								
Democrat	3.5%	44.8%	46.2%	62.6%	50.6%	56.6%	64.3%	61.2%
Republican	96.5%	55.2%	53.8%	37.4%	49.4%	43.4%	35.7%	38.8%
Count access-positive SNAP policies	5.9	4.5	4.1	5.3	5.4	5.5	5.3	5.7
County-Level Characteristics								
Max Unemployment Rate (GR)	8.1%	6.5%	7.2%	8.2%	9.7%	9.6%	11.3%	11.2%
Prime-age LFP Rate	79.1%	83.6%	83.5%	83.2%	83.6%	80.8%	80.4%	79.0%
Poverty Rate	17.0%	14.6%	11.2%	13.6%	13.5%	15.5%	16.5%	16.6%
ABAWD Observations	67,843	26,662	11,055	80,902	38,587	254,063	38,511	268,209
Unique Counties (N)	86	29	26	174	85	339	70	335
Unique States (N)	3	5	4	7	7	25	10	26

NOTE: Count of access-positive SNAP policies is the average number of policies improving SNAP access a state had adopted as of 2010 (max: 8). Max unemployment rate (GR) is the county's maximum unemployment rate during the great recession. All statistics are for 2010 (pre-treatment) values. Unemployment data come from the BLS, Governor's political affiliation comes from the National Governors Association, and data on state SNAP policies come from the USDA's SNAP Policy Database. All other controls come from the ACS.

From summary statistics, it is evident that always treated counties, which never fully waived work requirements and are dropped from analyses, are substantially different from other cohorts. These counties are almost entirely located in the South and are largely represented by Republican Governors. Never treated counties appear to be a reasonable comparator for counties that reinstated work requirements in later years (e.g., 2016, 2017), but not for earlier reinstaters (e.g., 2011, 2013). Never treated counties, like later-treated counties, appear to be more democratic leaning, had higher unemployment rates during the Great Recession and higher poverty rates in 2010. Earlier treated counties, on the other hand, are more republican leaning, have fewer policies promoting SNAP access, and had lower unemployment rates during the Great Recession. These differences motivate the use of not-yet treated counties as my comparator over never-treated counties. Particularly in the context of recovery from the Great Recession, a using not-yet treated control ensures comparisons can be made to counties with similar economic and policy environments.

Empirical Design

In order to identify the causal impact of work requirements on ABAWDs' outcomes, I implement a difference-in-differences approach that leverages staggered reinstatement of work requirements in the years following the Great Recession. Given the staggered adoption of my policy of interest, I turn to the estimator proposed by Callaway and Sant'Anna (2021). This approach allows for the estimation of treatment effects separately by treatment cohort (g) and time period (t). Given time periods $t = 1, 2, \ldots, T$ corresponding to my ten years of data, a county's treatment cohort G_i is defined according to the first treated period, g. The group-time average treatment effect $ATT(g,t)$ is the foundational building block of these analyses and can be denoted by:

$$ATT(g,t) = \mathbb{E}[Y_{it}(g) - Y_{it}(0) | G_i = g] \; for \; t \geq g$$

Which gives the average treatment effect for the group of units belonging to group G that are first treated at time period g, in year t. These group-time average treatment effects are then able to be aggregated using weights selected by the researcher to produce cohort-specific, time-period-specific, and overall treatment effect parameters.

The Callaway & Sant'Anna estimator offers multiple improvements to the canonical two-way fixed effects (TWFE) estimator in staggered adoption settings. The estimation of group-time average treatment effects allows for dynamic treatment effects. In this case, where counties reinstate work requirements in different years, we might expect dynamic treatment effects across adoption timing, particularly in the context of recovery from the Great Recession. This approach importantly avoids the "illegal" comparisons sometimes made by TWFE estimators in staggered adoption settings, where a previously treated unit (in this case, county) is selected as the control for a newly treated unit.[13] In the context of post-ARRA work requirement reinstatements, where I might reasonably expect treatment effects to vary across early and late reinstaters, I would be particularly worried about illegal comparisons generating negative weights and introducing bias to a TWFE average treatment effect estimator. Given the spread of treatment timing, these heterogeneous effects may exacerbate the negative weighting issue of TWFE. In addition to avoiding these negative weights, the Callaway & Sant'Anna estimator allows the researcher to specify which weights are used when aggregating treatment effects. This feature is particularly useful in that it allows the researcher the flexibility to estimate the parameters of greatest policy relevance.

The Callaway-Sant'Anna estimator compares outcomes in each pair to the last year prior to treatment, and allows the researcher to choose either an unconditional parallel trends assumption or a parallel trends assumption conditional on observable characteristics, as well as a not-yet treated comparator or a never-treated comparator. My preferred specification uses not-yet treated

Commented [SR12]: to demonstrate your understanding of WHY, here i suggest elaborating more on what you mean by this. really there are two issues: (1) dynamic treatment effects - which you mention, where you are capturing units at different points in time post adoption; and (2) aggregating differences across of different "pairs" of comparisons, which could also be different for other reasons and also the issue of negative weights/"illegal" comparisons. what are the relevant comparisons for policy?

[13] See Borusyak et al. (2024), Callaway & Sant'Anna (2021), de Chaisemartin & D'Haultfoeuille (2020), Goodman-Bacon (2021), and Sun & Abraham (2021), and Ortiz-Villavicencio & Sant'Anna (2025) for examples and de Chaisemartin & D'Haultfoeuille (2022) for a review.

counties as the control group and assumes that parallel trends hold conditional on controls, such that the outcomes of individuals in treated counties would have continued on a trajectory parallel to that of individuals in not-yet treated counties absent treatment, after adjusting for key differences between treated and not-yet treated counties. I use a not-yet treated counties as my comparator over a never treated counties to ensure each treatment cohort has a set of reasonable comparators. As discussed above, counties that never reinstate work requirements appear to be reasonable comparators for counties that reinstate work requirements toward the end of the period examined, but are less similar to early reinstaters.

I prefer the conditional parallel trends assumption over the standard, unconditional parallel trends assumption for these analyses. It is reasonable to expect that counties where time limits are reinstated later may be qualitatively different from those where time limits are reinstated earlier, in ways that may also impact the outcomes of interest. For example, an earlier adopter may be located in a state that qualifies for a waiver but chooses not to apply for one, reflecting a broader desire to reduce reliance on public benefit programs. This state may also have more restrictive SNAP policies in place, reducing eligibility and, in turn, participation rates relative to later adopting states. In this case, we may not expect trends to be parallel without conditioning on some measure of the generosity of a state's public benefit policies. While there is no test for whether the conditional or unconditional parallel trends assumption hold, we can assess their validity in the pre-treatment period, which I explore in the Results section, below. The $ATT(g,t)$ in this case with a not-yet treated comparator is as follows:

$$ATT_{ny}(g,t) = \mathbb{E}\left[Y_{i,t} - Y_{i,g-1} \middle| G_i = g\right] - \mathbb{E}\left[Y_{i,t} - Y_{i,g-1} \middle| G_i = g'\right] for\ g' > t$$

In order to recover the group-time average treatment effects, I use the CSDID package for Stata, developed by Rios-Avila, Sant'Anna, and Callaway which implements the proposed Callaway & Sant'Anna estimator. I use a doubly-robust estimand that uses inverse probability weighting to estimate propensity scores and ordinary least squares for the outcome regressions. This approach identifies the group-time average treatment effect even if one of the propensity score model or the outcome regression models are misspecified. Because I impose a conditional parallel trends assumption, my included controls are used to estimate both propensity scores and outcome regressions. My primary parameter of interest is the average effect of ABAWD time-limit reinstatements in the first three years of treatment, experienced by all likely ABAWDs in counties that ever reinstated a time-limit. My focus on three treated periods has two motivations: first, the 36-month clock from the ABAWD work requirement, and second, by a steep drop off in observations following the third treated period that impacts the precision of estimates in the fourth treated year. This parameter can be understood as follows:

$$Average\ Effect_3 = \sum_{g \in G_i} \theta(g)\, P(G_i = g \mid G_i \leq T)$$

$$for\ \theta(g) = \frac{1}{3}\sum_{t=g}^{g+2} ATT(g,t)$$

Commented [SR13]: again, can you say WHY these are your choices for your preferred estimator?

Commented [SR14]: suggest labelling eqn and being careful with notation here. this ATT(g,t) is defined differently but with the same label (ATT(g,t) as in the prior eqn. what is the difference in assumptions needed btwn these 2 eqn? The first has stronger assumptions to claim ATT without the second difference

Commented [SR15]: what do you mean by doubly robust. will help to demonstrate understanding and not just that you can execute a stata command

Where $\theta(g)$ gives an average treatment effect across the first three treated periods for group *g,* treated by the final time period *T.* These group averages $\theta(g)$ are then averaged together across groups to estimate the average effect of ABAWD work requirement reinstatements. I also estimate dynamic treatment effects, in which case group-time average treatment effects are aggregated across group for each event period $e = t - g$ as follows:

$$\theta_{es}(e) = \sum_{g \in G_i} 1\{g + e \leq T\} P(G_i = g | G_i + e \leq T) \, ATT(g, g + e)$$

These event time treatment effects $\theta_{es}(e)$ are primarily estimated for periods $e \in 0, 1, 2$, and allow me to investigate whether average treatment effects vary by time relative to treatment. For example, dynamic treatment effects will elucidate whether there is a lag in treatment effects, or whether treatment effects are concentrated in a given year. In a robustness exercise, I explore whether my results change with the inclusion of a fourth post-treatment period. I also test sensitivity to the exclusion of individual cohorts and different sample restrictions. Finally, I estimate parameters of interest separately by different subgroups in an initial exploration of treatment effect heterogeneity across subpopulations of likely ABAWDs.

Identification of the $ATT(g, t)$ depends on five assumptions: (1) irreversibility of treatment, (2) random sampling, (3) no treatment anticipation, (4) conditional parallel trends, and (5) strict overlap. Assumption 1, irreversibility of treatment, requires that once units become treated, they remain treated. To ensure irreversibility of treatment, all counties that go on to re-waive ABAWD work requirements following reinstatement are dropped from these analyses. Assumption 2, random sampling, is expected to hold for the ACS data used. I further ensure my data are independent & identically distributed by focusing on only one adult per household. It is also reasonable to expect that Assumption 3, limited treatment anticipation, holds in the case of time limit reinstatements.

The fourth assumption, conditional parallel trends, is a relaxation of the standard parallel trends assumptions for difference-in-difference estimation, which states that a treated cohort's average outcomes, absent treatment, would have continued on a trajectory parallel to that of the comparison group in the post-treatment period. The conditional parallel trends assumption, on the other hand, states that the average outcomes for a given cohort, conditional on covariates, would remain parallel to those of the comparison group absent treatment. As discussed above, I assert conditional parallel trends based on not-yet treated counties, and include variables for 2010 governor's political affiliation (from the National Governors Association), count of state-policies promoting SNAP access (From USDA's SNAP Policy Database), county unemployment rate (from the Bureau of Labor Statistics), region, local poverty rate, and labor-force participation rate (from ACS).

Finally, the overlap assumption states that the conditional probability of belonging to the treatment group, given observed covariates, is uniformly bounded away from one for all groups and time periods. In other words, there is a non-zero chance of being in either the treatment or control group for any combination of observed covariates. This assumption requires that there

Commented [SR16]: What are you hoping to learn from dynamic treatment effects? would be good to elaborate a bit more here given you started us down this path saying that dynamic treatment effects are problematic with staggered adoption. (I know what you mean here but good to be clear about how these are different and what they can tell you).

Commented [SR17]: Maybe one more sentence here about why you don't think unconditional holds in this setting?

Commented [SR18R17]: ah ok i see footnote 14. suggest putting this in main text

Commented [SR19]: move this footnote description in the main text above when you discuss the summary stats

are both treated and untreated units for all observed characteristics, allowing for valid comparisons. Using counties as my geographic identifier, rather than a less granular identifier like state, increases the number and variety of units in each cohort, thereby helping to ensure that I have sufficient overlap when estimating models under the conditional parallel trends assumption.

Following the estimation of my main models and treatment effects, I estimate effects separately for subgroups of interest. Specifically, I examine treatment effect estimates for non-veterans, veterans with no VA disability compensation (VADC), veterans with VADC, individuals above and below age 40, individuals with no adult children in their household, and individuals with at least one adult child age 18-24 in their household. To obtain these estimates, I repeat the methods described above, restricting the sample to only the subgroup of interest. These results will provide an opportunity to gauge whether there may be observable heterogeneity in treatment effects for populations of policy relevance.

The causal interpretation of my parameters of interest is dependent on the validity of the above identification assumptions. The most important of these is the parallel trends assumption or, in my case, the conditional parallel trends assumption, neither of which are formally testable. Despite my inclusion of controls, there may be unobserved ways treated and not-yet treated counties differ that are related to both treatment timing and the outcomes of interest. One way to get around this potential bias is by using a triple-difference (DDD) estimator that takes advantage of an additional eligibility condition within treated and untreated units. In the context of ABAWD time limits, researchers often use the age-cutoff for exemption from ABAWD work requirements in addition to variation in treatment adoption over time.

Some authors have begun to develop DDD estimators for heterogeneous treatment effects (e.g., Caron, 2025; Ortiz-Villavicencio & Sant'Anna, 2025) for heterogeneity-robust DDD estimates. As methods progress, additional research taking advantage of heterogeneity robust DDD estimators would be able to expand upon the work presented in this paper. Similarly, absent a heterogeneity-robust DDD estimator that is causally interpretable in staggered adoption settings, the subgroup analyses presented here are only an initial suggestion of what differences there may be in treatment effects across subgroups. Where I estimate average treatment effects separately by subgroup, future research may employ updated staggered-adoption DDD estimators to more precisely estimate the difference in treatment effects between groups.

IV. Results

My preferred specification estimates effects for treated counties relative to not-yet treated counties under the conditional parallel trends assumption. The results presented in this paper focus on an event window with five pre-treatment periods and three treated periods, motivated by a steep drop off in the number of observations after the third treated period. Results including a fourth treated period are included in the appendix and are qualitatively similar to the results presented here.

Main Results: The Effects of ABAWD Work Requirement Reinstatement on SNAP Receipt and Labor Supply

In my preferred specification, I identify a statistically significant negative effect of ABAWD work requirement reinstatements on reported SNAP participation among my sample of low-income likely ABAWDs, corresponding to an average 1.47 percentage point decrease (11.2% decrease, p=0.009) over the first three treated years. This result is qualitatively similar when I enforce unconditional parallel trends rather than conditional parallel trends (Table 2) or use a never-treated comparator (Appendix Table A.2) and is robust to the exclusion of individual cohorts (Appendix Table A.3). It is also robust to the inclusion of a fourth treated period, in which case the coefficient is slightly larger in magnitude (1.9 percentage point decrease). It should be noted that estimated effects for the fourth treated year have low precision, and average treatment effects estimated with four treated years are not robust to the exclusion of individual cohorts (Appendix Table A.4). See Appendix Figure A.1 for event studies corresponding to the four specifications presented in Table 2. In all cases, pre-trends are not jointly significant. From aggregations of treatment effects across groups by time relative to treatment, it appears that the negative effect on SNAP receipt occurs after the first treated year (Figure 3). This result likely reflects, at least in part, the 12-month reference period for which ACS respondents are asked about SNAP receipt, as well as the 3-month clock for ABAWDs on SNAP who fail to meet work requirements.

Table 2. Detailed Average Treatment Effects

Outcome	(A) Three Post Periods, Conditional PT	(B) Three Post Periods, Unconditional PT	(C) Four Post Periods, Conditional PT	(D) Four Post Periods, Unconditional PT
SNAP	-0.0147**	-0.0175***	-0.0178*	-0.0211***
(Baseline: 0.131)	(0.00565)	(0.00318)	(0.0083)	(0.00325)

Commented [CGM20]: Insert brief section before this validating against prior research with TWFE/3WFE approach?

Commented [SR21R20]: I think this could be useful, but I would put it after presenting your own results.

Commented [SR22]: is this in a given year or averaged over 3 post-years?

Commented [SR23]: if it's pretty much the same w/ unconditional parallel trends, wouldn't you rather use that version? unconditional is stronger if you can swing it

Commented [CGM24R23]: I'm hesitant to put my weight behind unconditional parallel trends, I generally don't find pre-trends, but don't know that I believe beyond reasonable doubt that unconditional parallel trends hold

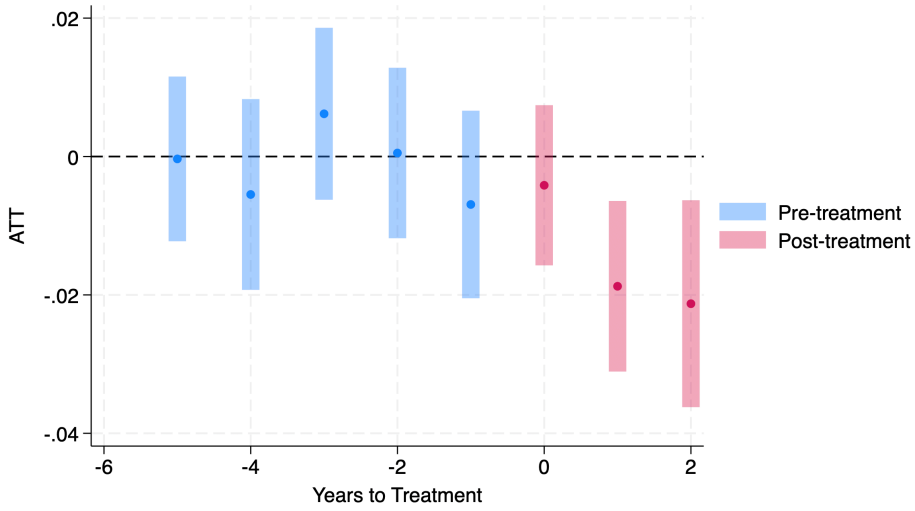
Commented [CGM25]: Add in appendix table

Commented [SR26]: suggest moving this to the main text

Outcome	(A) Three Post Periods, Conditional PT	(B) Three Post Periods, Unconditional PT	(C) Four Post Periods, Conditional PT	(D) Four Post Periods, Unconditional PT
Work Requirement (Baseline: 0.727)	-0.0002 (0.00232)	0.0058+ (0.00351)	0.0324* (0.01466)	0.0071+ (0.00396)
Hours (Baseline: 29.32)	0.1275 (0.25298)	0.1563 (0.14806)	1.126+ (0.63253)	0.2551 (0.16383)
Employed (Baseline: 0.758)	0.006 (0.00551)	0.0068* (0.00332)	0.0285* (0.01292)	0.0086* (0.00384)

NOTE: "SNAP" is a binary indicator for whether an individual's household reported any SNAP receipt in the past 12 months. "Work requirement" is a binary indicator for working at least 20 hours in a usual week, thus meeting the ABAWD work requirement. "Usual hours" is a continuous measure of the number of hours worked in a usual week. "Employed" is a binary indicator for whether or not an individual was employed at the time of the survey. Baseline means are provided for the last untreated year. Standard errors in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Figure 3. Event Study of ABAWD Work Requirement Reinstatement on SNAP Participation



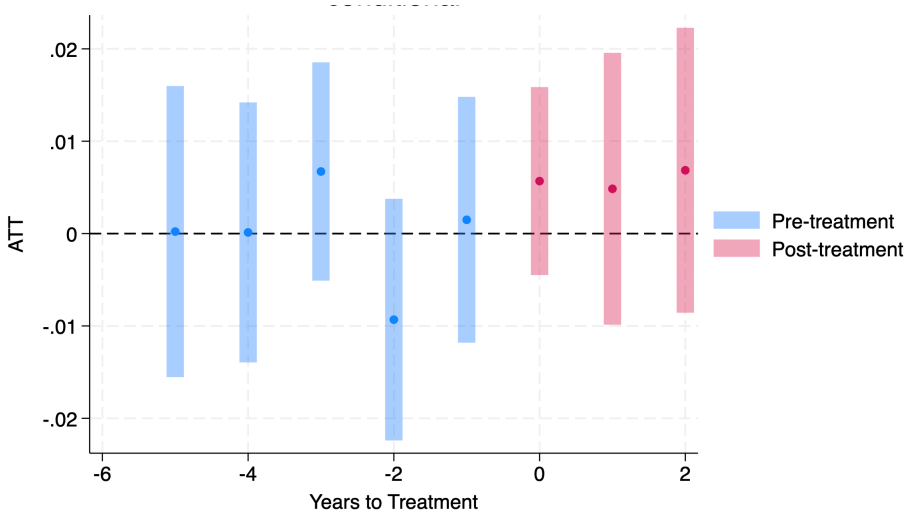
NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements on reported SNAP receipt across treatment groups by time relative to treatment. Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) of working age (25-49) with household incomes <300% of the federal poverty line. Covariates include the political party affiliation of the state's elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county's maximum unemployment rate during the Great Recession, and the 2010 poverty rate and labor force participation rate, both measured at the consistent PUMA level. Bars represent 95% confidence intervals. Joint significance test of the pre-treatment coefficients finds no statistically significant pre-trend variation between treated and not-yet treated counties, conditional on covariates (p=0.638).

Commented [SR27]: when you number your equations would be helpful to point readers back to which equation this corresponds to. I think its the last one, right

My preferred labor supply outcome, an indicator for whether an individual reports working at least 20 hours in a usual week and would therefore meet the ABAWD work requirement, does not appear to be statistically significantly impacted by ABAWD work requirement reinstatements. I estimate a null effect over the first three years in which time limits are reinstated (Table 2, Column A), and a positive effect that is statistically significant when I include a fourth treated period (Table 2, Column C). Estimates for labor supply effects that include a fourth treated period are not robust to the exclusion of individual cohorts, and, in the case of working at least 20 hours per week, appear to be driven by counties that reinstated waivers in 2011 (Appendix Table A.4). I prefer the estimates limited to the first three treated years, which are robust to the exclusion of individual cohorts. When I examine group-time average treatment effects in event studies broken out by cohort, the 2011 cohort is the only case in which we observe a statistically significant positive effect on likelihood of meeting the ABAWD work requirement (Appendix Figure A.6.). In all cases, pre-trends are not jointly significant. See Appendix Figure 4 for event study results corresponding to the four specifications included in Table 2.

Commented [SR28]: rather than just stating p-values in text throughout, I'd prefer to see a table with coefs and SE's for all of these specs. wondering how much of this is just noisy/imprecise estimates and it's easier to tease this out with the numbers.

Figure 4. Event Study of ABAWD Work Requirement Reinstatement on Likelihood of Working 20+ Hours



NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements on likelihood of working at least 20 hours in a usual week across treatment groups by time relative to treatment. Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) of working age (25-49) with household incomes <300% of the federal poverty line. Covariates include the political party affiliation of the state's elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county's maximum unemployment rate during the Great Recession, and the 2010 poverty rate and labor force participation rate, both measured at the

consistent PUMA level. Bars represent 95% confidence intervals. Joint significance test of the pre-treatment coefficients finds no statistically significant pre-trend variation between treated and not-yet treated counties, conditional on covariates (p=0.948).

Results for secondary outcomes of labor supply, a continuous measure of hours worked in a usual week and a binary indicator for whether an individual is employed, are qualitatively similar to those for the above indicator of meeting ABAWD work requirements. When I control for county and state characteristics, I find no statistically significant impact on hours worked for the first three years in which ABAWD work requirements are reinstated (Table 2, Column A), although the results including a fourth treated year are marginally significant (Table 2, Column C). Similarly, I find no statistically significant impact on the likelihood of being employed for the first three years of time limit reinstatement (Table 2, Column A), while results including a fourth treated year are significant at the 5% level (Table 2, Column C). See Appendix Figure A.3 and Figure A.4 for event studies of the effects on hours worked and likelihood of employment, respectively. Treatment effects for the fourth treated year are imprecise and are not robust to the exclusion of individual cohorts (Appendix Table A.4) and should be interpreted with caution. As with the above, results for both outcomes in the three-treated-period specification are robust to the use of never-treated counties as a comparator (Appendix Table A.2) and the exclusion of individual cohorts (Appendix Table A.3).

Because I would expect to labor supply effects to be driven by ABAWDs with some level of SNAP receipt, my general sample of low-income likely ABAWDs of working age may be too broad. With this in mind, I re-estimate my results for all three labor supply outcomes under two narrower sample restrictions: (1) for low-income ABAWDs who reported SNAP receipt in the past year, and (2) for very-low-income ABAWDs, with household incomes less than 200% of the federal poverty line. I do not identify an effect for any labor supply outcome in the first three years of time limit reinstatement that is statistically significant at the 5% level under either sample restriction (Table 3). Among the sample of ABAWDs that reported receiving SNAP in the last 12 months, there is a marginally significant effect on average hours worked per week and likelihood of being employed, but not on likelihood of working enough to meet the 20-hour-per-week requirement.

Commented [SR29]: Suggest moving these tables to main text for JMP. this is not a policy audience where you need to keep them engaged/interested with intuitive figures, they want to see all the details.

Table 3. Average Treatment Effects, Labor Supply, Alternate Samples

Outcome	Main	Reported SNAP, last 12 Months	< 200% FPL
Work Requirement	0.0058 (0.00569)	0.013 (0.01044)	0.0197 (0.01737)
Hours	0.1275 (0.25298)	0.6733+ (0.40575)	1.0682 (0.69563)
Employed	0.006 (0.00551)	0.0202+ (0.01059)	0.0253 (0.01788)

NOTE: “Work requirement” is a binary indicator for working at least 20 hours in a usual week, thus meeting the ABAWD work requirement. “Usual hours” is a continuous measure of the number of hours worked in a usual week. “Employed” is a binary indicator for whether or not an individual was employed at the time of the survey. Standard errors in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Subgroup Comparisons

An initial subgroup of interest, given the recent passage of the OBBBA, is veterans. Specifically, veterans who do and do not receive compensation from the VA for service-connected disabilities. Veterans with a service-connected disability rating, and corresponding VA disability compensation (VADC) are generally exempted from SNAP’s ABAWD work requirements and time limits. Veterans without service-connected disabilities generally had not been exempted from time limits and were subject to the ABAWD work requirement, until the passage of the FRA. By comparing veterans without VADC (“ABAWD Veterans”) to non-veterans who would be subject to work requirements and veterans with VADC (“Non-ABAWD Veterans”), who wouldn’t, we can benchmark results.

Unsurprisingly, I observe a statistically significant decrease in reported SNAP participation following time-limit reinstatement for non-veterans ($p<0.01$) and a null effect on non-veteran likelihood of working at least 20 hours in a usual week (Table 4). Also unsurprising, I estimate null effects of ABAWD work requirements on the SNAP participation and labor supply behaviors of veterans with VADC benefits, who should be exempt from the time limits. Interestingly, I find that veterans without VADC benefits did not experience a statistically significant decrease in SNAP participation following the reinstatement of work requirements and are observed to have a statistically significant increase in their likelihood of working at least 20 hours in a usual week ($p=0.005$).

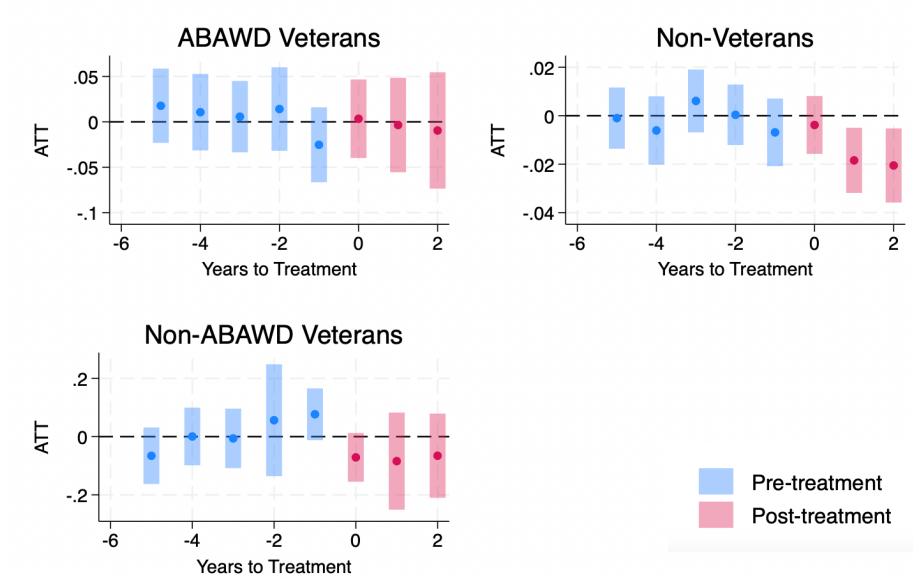
Table 4. Average Treatment Effects, Subgroups of Interest

Subgroup	SNAP	Work Requirement	Usual Hours	Employed
Main	-0.0147**	-0.0002	0.1275	0.006
	(0.00565)	(0.00232)	(0.25298)	(0.00551)
Veteran Status				
Non-Veteran	-0.0143*	0.003	0.0523	0.0039
	(0.00597)	(0.00598)	(0.25916)	(0.00582)
ABAWD Veteran	-0.0032	0.053**	1.789	0.0402
	(0.02165)	(0.02667)	(1.25432)	(0.02479)
Non-ABAWD Veteran	-0.0736	0.0289	-0.1888	-0.0179
	(0.04573)	(0.06849)	(2.97974)	(0.06785)
Age				
Age 25-39	-0.007	0.0031	0.0966	0.0036
	(0.00682)	(0.00722)	(0.31963)	(0.00685)
Age 40-49	-0.0286**	0.0112	0.2648	0.0376
	(0.00893)	(0.00962)	(0.38615)	(0.03684)

Subgroup	SNAP	Work Requirement	Usual Hours	Employed
Presence of Adult Child				
No Adult Child	-0.012* (0.00589)	0.0054 (0.00594)	0.1211 (0.26144)	0.0054 (0.00576)
Adult Child 18-24	-0.0598** (0.01783)	0.0268 (0.02372)	1.6091 (1.4795)	0.0308 (0.02188)

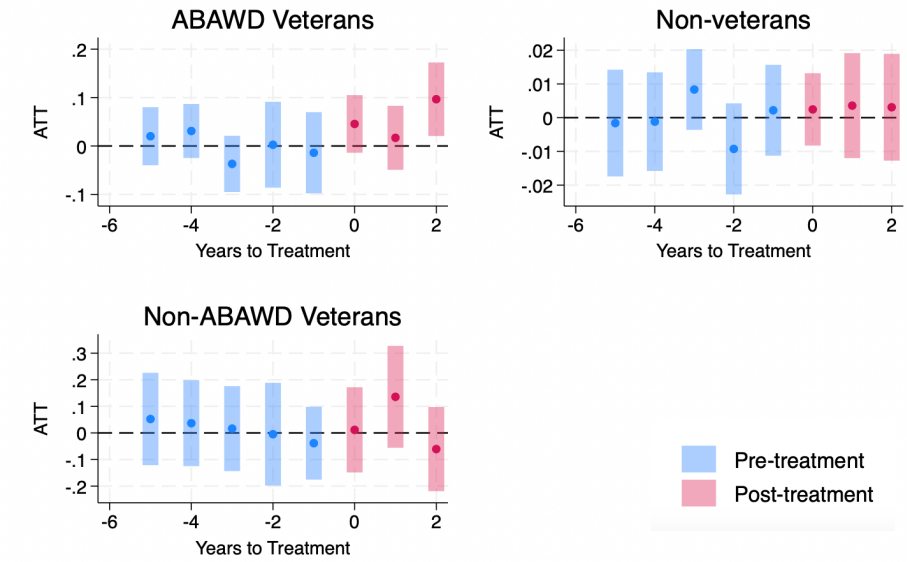
NOTE: “SNAP” is a binary indicator for whether an individual’s household reported any SNAP receipt in the past 12 months. “Work requirement” is a binary indicator for working at least 20 hours in a usual week, thus meeting the ABAWD work requirement. “Usual hours” is a continuous measure of the number of hours worked in a usual week. “Employed” is a binary indicator for whether or not an individual was employed at the time of the survey. ABAWD veterans are those not otherwise exempt from work requirements, while non-ABAWD veterans are those with VA disability compensation who would be exempt. Standard errors in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Figure 5. Event Study of ABAWD Work Requirement Reinstatement on SNAP, by Veteran Status



NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements on reported SNAP receipt across treatment groups by time relative to treatment, separately for non-veterans, veterans not receiving VA disability compensation (VADC), and veterans receiving VA disability compensation (VADC). Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) of working age (25-49) with household incomes <300% of the federal poverty line. Covariates include the political party affiliation of the state’s elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county’s maximum unemployment rate during the Great Recession, and the 2010 poverty rate and labor force participation rate, both measured at the consistent PUMA level. Bars represent 95% confidence intervals.

Figure 6. Event Study of ABAWD Work Requirement Reinstatement on Likelihood of Working 20+ Hours, by Veteran Status



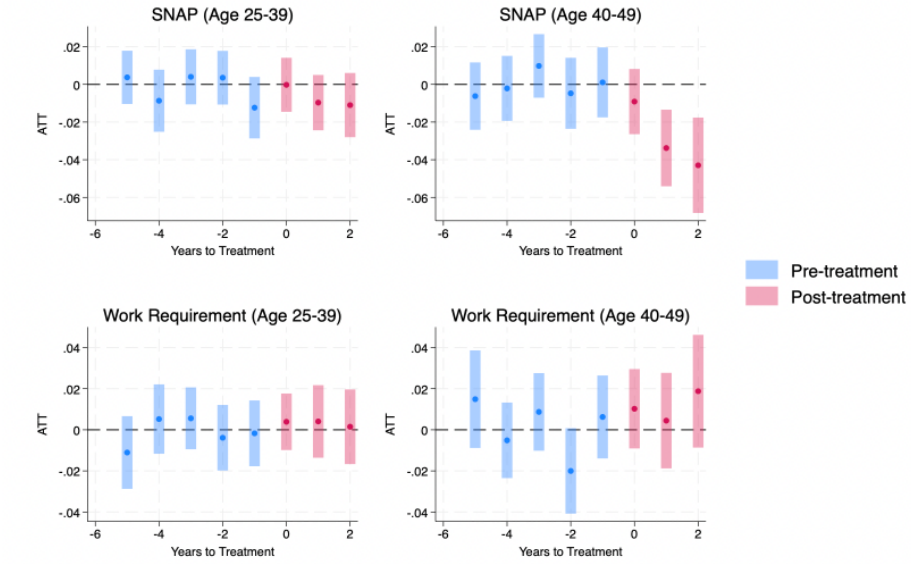
NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements on likelihood of working at least 20 hours in a usual week across treatment groups by time relative to treatment, separately for non-veterans, veterans not receiving VA disability compensation (VADC), and veterans receiving VA disability compensation (VADC). Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) of working age (25-49) with household incomes <300% of the federal poverty line. Covariates include the political party affiliation of the state's elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county's maximum unemployment rate during the Great Recession, and the 2010 poverty rate and labor force participation rate, both measured at the consistent PUMA level. Bars represent 95% confidence intervals.

Two additional groups of interest, given the expansion of the ABAWD definition included in the OBBBA, are older ABAWDs (age 55-64) and ABAWDs with older dependent children (age 14-17). Both groups have historically been exempted from ABAWD work requirements and therefore wouldn't be affected by their post-ARRA reinstatement. That said, we can look to similar groups of ABAWDs as an example of how newly impacted populations may respond. To explore the potential effects of work requirements on ABAWDs age 55-64, I examine the effects for older ABAWDs (age 40-49) in my sample. Similarly, to explore the potential effects on ABAWDs with teenage children age 14-17, I examine the effects for ABAWDs with adult children (age 18-24) in their household.

I identify a statistically significant 2.86 percentage point average reduction in SNAP receipt for ABAWDs age 40-49, corresponding to a roughly 17.5% decrease (Table 4). I do not identify a statistically significant effect of work requirements on the SNAP receipt of ABAWDs age 25-

39. I do not identify a statistically significant labor supply effect for either group at the 5% level. See Table 4 for average effects and Figure 7 for event studies for SNAP receipt and likelihood of working at least 20 hours per week. I observe statistically significant effects of work requirements on the SNAP receipt of ABAWDs without any adult children and ABAWDs with coresident adult children age 18-24. Specifically, I identify an average 1.2 percentage point reduction for those without adult children that is significant at the 5% level and a nearly 6 percentage point average reduction for those with coresident adult children that is significant at the 1% level. These effect sizes correspond to a decrease in SNAP receipt of 9.5% and 33.8%, respectively. As was the case for subgroups by age, I do not identify a labor supply effect for ABAWDs with or without adult children that is statistically significant at the 5% level. See Table 4 for average effects and Figure 8 for event studies.

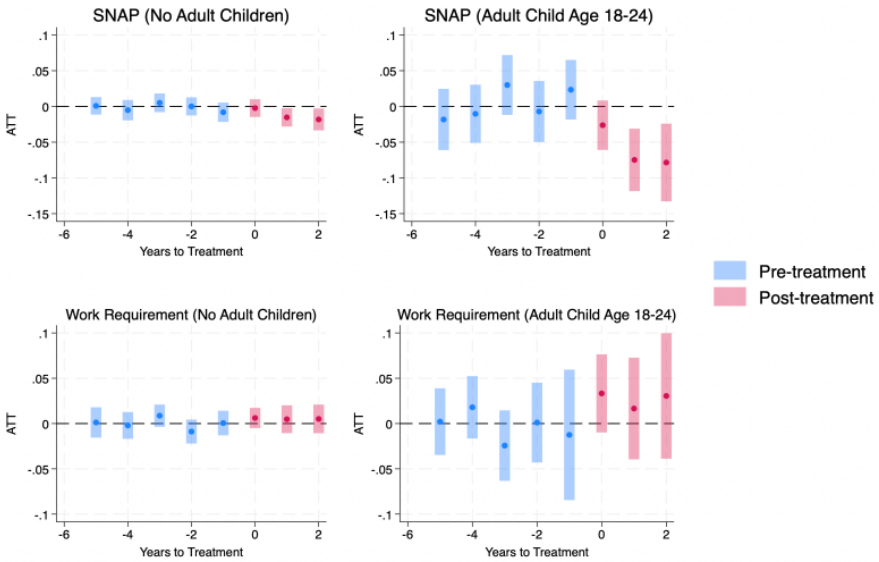
Figure 7. Event Study of ABAWD Work Requirement Reinstatement on SNAP and Likelihood of Working 20+ Hours, by Age



NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements on reported SNAP receipt and likelihood of working at least 20 hours per week and meeting SNAP's ABAWD work requirements across treatment groups by time relative to treatment. The figures on the left plot results for ABAWDs age 25-39, while the figures on the right plot results for ABAWDs age 40-49. Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) with household incomes <300% of the federal poverty line. Covariates include the political party affiliation of the state's elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county's maximum unemployment rate during the Great Recession, and the 2010 poverty

rate and labor force participation rate, both measured at the consistent PUMA level. Bars represent 95% confidence intervals.

Figure 8. Event Study of ABAWD Work Requirement Reinstatement on SNAP and Likelihood of Working 20+ Hours, by Presence of Adult Child



NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements on reported SNAP receipt and likelihood of working at least 20 hours per week and meeting SNAP's ABAWD work requirements across treatment groups by time relative to treatment. The figures on the left plot results for ABAWDs who do not live with an adult child, and figures on the right plot results for ABAWDs who live with at least one adult child between the ages of 18 and 24 (inclusive). Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) of working age (25-49, unless otherwise specified) with household incomes <300% of the federal poverty line. Covariates include the political party affiliation of the state's elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county's maximum unemployment rate during the Great Recession, and the 2010 poverty rate and labor force participation rate, both measured at the consistent PUMA level. Bars represent 95% confidence intervals.

V. Discussion

Findings & Policy Relevance

This paper applies recent heterogeneity-robust difference-in-difference methods to examine the impacts of reinstating ABAWD work requirements following the Great Recession. I identify a statistically significant decrease in reported SNAP receipt among working-age, low-income ABAWDs that is robust across multiple specifications and corresponds to an average 11% decrease. I examine three measures of labor supply, including two extensive measures, likelihood of working at least 20 hours in a usual week and likelihood of being employed, and one intensive measure, usual hours worked per week. Across all three outcomes, multiple specifications and sample restrictions, I do not identify any labor supply effect that is statistically significant at the 5% level. For my main sample, I am able to rule out an effect size larger than a 2.3% increase for likelihood of working at least 20 hours per week, 2.1% for usual hours worked, and 2.2% for the likelihood of being employed.

Based on these main results, it appears that SNAP's ABAWD work requirement and associated time limit reduce SNAP participation without improving labor supply outcomes. Together, these results suggest that ABAWD work requirements may not be an effective policy option for increasing labor supply among beneficiaries and may serve primarily as a barrier to access or targeting mechanism. It is not clear from this work whether the reduction in SNAP receipt is primarily driven by a reduction in Type II error (i.e., those without need are screened out) or by an increase in Type I error (i.e., those with need lose benefits and/or reduce take-up). This distinction is of considerable policy relevance and should be the subject of future research. It is possible that ABAWD work requirements led to an increase in participation in work training programs, which may also be used to satisfy work requirements. I am unable to examine participation in work training programs in my data, and so I focus on labor supply alone. That said, even if participation in training programs did increase, it does not appear to have led to improved work outcomes. Policymakers interested in improving work outcomes among SNAP beneficiaries should consider other policy options like expanding SNAP Employment and Training (E&T) programs that have been shown to be effective (e.g., Mabli et al., 2025, Kogan et al., 2016).

These results are particularly relevant given the recent passage of the OBBBA, which expands ABAWD work requirements to new groups and eliminates current exemptions for select populations like veterans. Two newly affected groups are otherwise non-exempt older adults (age 55-64) and adults with older dependent children (age 14-17). Because neither group has previously been subject to work requirements, I am not able to estimate effects for them directly. Instead, I examine trends in effect sizes for similar, observable groups in an attempt to

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understand the relative magnitude of effects that might be expected for unobservable, newly impacted groups.

To approximate the potential effects of work requirements on ABAWDs age 55-64, I examine the effects for the oldest ABAWDs in my sample (age 40-49) separately from younger ABAWDs (age 25-39). In my sample, I identify a statistically significant negative effect of work requirement reinstatement on older ABAWDs' SNAP receipt, corresponding to a roughly 17.5% average decrease, and no statistically significant effect on SNAP receipt for younger ABAWDs. Neither group was observed to experience a statistically significant effect on labor supply. Similarly, to approximate the potential effects on ABAWDs with teenage children age 14-17, I examine the effects for ABAWDs with dependent adult children (age 18-24) in my sample separately from ABAWDs with no adult children. I identify a statistically significant effect of work requirements on the SNAP receipt of ABAWDs with adult children in their households, corresponding to a 33.8% average decrease, and a smaller effect for ABAWDs with no adult children, corresponding to a roughly 9.5% decrease. Neither group was observed to experience a statistically significant effect on labor supply. If we extrapolate these patterns, they suggest that OBBBA's expansion of work requirements to otherwise exempt 55-64 year-olds and adults with dependent children age 14-17 may substantially impede benefit receipt for both groups.

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My subgroup analyses also indicate that there may be some populations that are more responsive to ABAWD work requirements. I find that, unlike non-veterans in my sample, veterans without service-connected disabilities experience a statistically significant increase in labor supply, measured as the likelihood of working at least at the ABAWD-required threshold of 20 hours per week, corresponding to an average 7.1% increase. Veterans are not observed to experience any significant changes in SNAP receipt following time-limit reinstatements. Taken together, the increase in labor supply absent changes in SNAP receipt may indicate that veterans were induced to meet work requirements and maintain their SNAP benefits. It is notable that populations may be differentially affected by ABAWD work requirements. These differences will be important for policymakers to keep in mind, especially if they continue to adjust ABAWD policies for specific groups of beneficiaries.

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Conclusion

This paper employs heterogeneity-robust difference-in-difference methods to estimate the effects of reimposing Supplemental Nutrition Assistant Program (SNAP) work requirements for Able-Bodied Adults without Dependents (ABAWDs) following the Great Recession. The results identify statistically significant reductions in SNAP receipt, averaging an 11-percent decline, without corresponding changes in extensive or intensive measures of labor supply. Subgroup analyses suggest heterogeneous effects and reveal particularly large declines in receipt among older ABAWDs and those with dependent adult-children, while veterans exhibit modest increases in labor supply. These findings suggest that reinstated work requirements primarily

reduced program participation rather than improved work outcomes. Given the upcoming implementation of the OBBBA's SNAP provisions, which expand ABAWD work requirements to older adults, parents of teenage children, and veterans, these results point to potentially substantial implications for benefit access and limited expected gains in labor supply among affected groups.

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Appendix

Table A.1. Observations by Cohort and Year

	Treatment Cohort								
Year	Always Treated	2011	2013	2014	2015	2016	2017	Never Treated	Total
2009	6,259	3,935	996	8,126	3,984	24,711	3,764	25,090	76,865
2010	6,816	4,251	1,157	8,741	4,204	27,315	3,925	27,738	84,147
2011	7,075	4,088	1,175	8,682	4,226	27,252	4,024	28,231	84,753
2012	6,992	4,034	1,108	8,827	4,294	27,341	4,158	28,528	85,282
2013	7,044	4,090	1,189	8,511	4,099	26,868	4,204	28,188	84,193
2014	6,977	1,310	1,112	8,288	3,976	26,098	4,155	27,833	79,749
2015	6,796	1,274	1,091	7,947	3,780	25,079	3,892	26,947	76,806
2016	6,687	1,250	1,022	7,492	3,392	24,140	3,507	25,651	73,141
2017	6,670	1,185	1,161	7,192	3,327	22,752	3,483	25,382	71,152
2018	6,527	1,245	1,044	7,096	3,305	22,507	3,399	24,621	69,744
Total	67,843	26,662	11,055	80,902	38,587	254,063	38,511	268,209	785,832

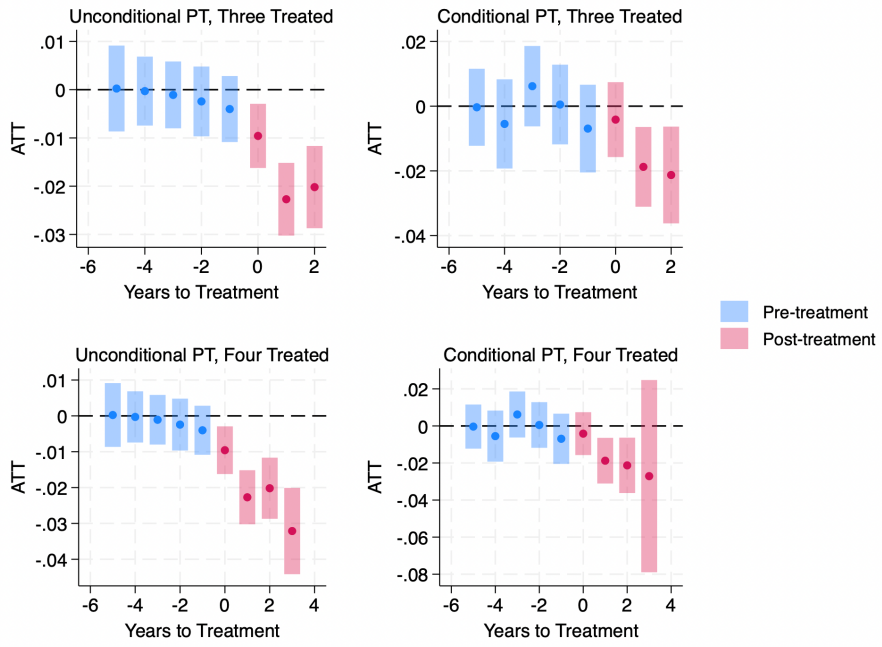
NOTE: Count of able-bodied adults without dependents (ABAWDs) with household incomes below 300% of the federal poverty line, observed in the American Community Survey (ACS) data by treatment cohort and year. ABAWDs are defined as prime-age childless adults age 25-49 who do not report a disability, and do not live with an adult age 60+ or a disabled household member. Treatment cohort is defined by the first year in which the ABAWD's assigned county reinstated SNAP time limits for ABAWDs failing to meet the work requirement.

Table A.2. Detailed Average Total Treatment Effects, Never Treated Comparator

Outcome	3 Post Periods, Conditional PT	3 Post Periods, Unconditional PT	4 Post Periods, Conditional PT	4 Post Periods, Unconditional PT
SNAP	-0.0195***	-0.0179***	-0.0219*	-0.0216***
	(0.00545)	(0.00312)	(0.00862)	(0.00324)
Work Requirement	0.0088	0.005	0.0339*	0.0065+
	(0.00577)	(0.0034)	(0.01487)	(0.0039)
Hours	0.2779	0.121	1.2146+	0.2252
	(0.25409)	(0.14358)	(0.63295)	(0.16071)
Employed	0.0093+	0.0061+	0.0305*	0.0081*
	(0.00562)	(0.00322)	(0.01306)	(0.00379)

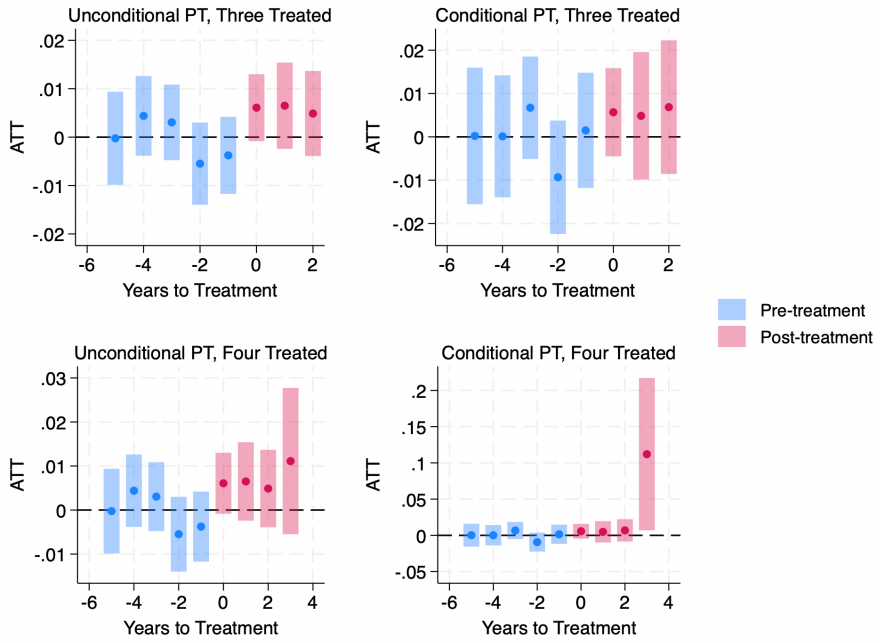
NOTE: "SNAP" is a binary indicator for whether an individual's household reported any SNAP receipt in the past 12 months. "Work requirement" is a binary indicator for working at least 20 hours in a usual week, thus meeting the ABAWD work requirement. "Usual hours" is a continuous measure of the number of hours worked in a usual week. "Employed" is a binary indicator for whether or not an individual was employed at the time of the survey. Standard errors in parentheses. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure A.1. SNAP Event Studies across Specifications



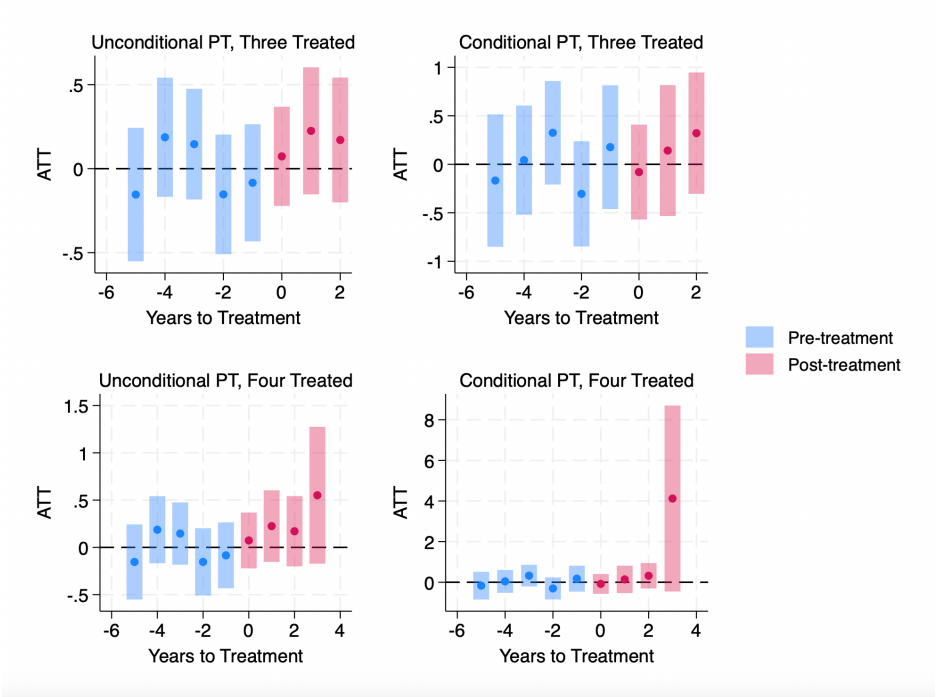
NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements on reported SNAP receipt across treatment groups by time relative to treatment, for four specifications. From top left to bottom right: estimated under unconditional parallel trends assumption including three treated periods, estimated under conditional parallel trends assumption including three treated periods, estimated under unconditional parallel trends assumption including four treated periods, and estimated under conditional parallel trends assumption including four treated periods. Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) of working age (25-49) with household incomes <300% of the federal poverty line. Covariates in conditional parallel trends models include the political party affiliation of the state's elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county's maximum unemployment rate during the Great Recession, and the 2010 poverty rate and labor force participation rate, both measured at the consistent PUMA level. Bars represent 95% confidence intervals.

Figure A.2. Work Requirement Event Studies across Specifications



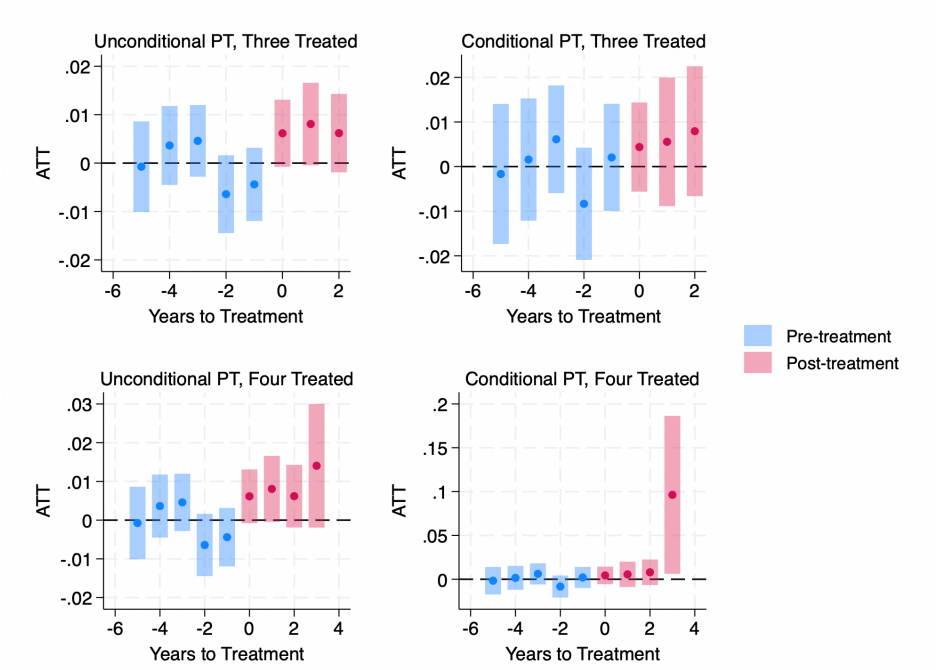
NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements on likelihood of working at least 20 hours in a usual week across treatment groups by time relative to treatment, for four specifications. From top left to bottom right: estimated under unconditional parallel trends assumption including three treated periods, estimated under conditional parallel trends assumption including three treated periods, estimated under unconditional parallel trends assumption including four treated periods, and estimated under conditional parallel trends assumption including four treated periods. Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) of working age (25-49) with household incomes <300% of the federal poverty line. Covariates in conditional parallel trends models include the political party affiliation of the state's elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county's maximum unemployment rate during the Great Recession, and the 2010 poverty rate and labor force participation rate, both measured at the consistent PUMA level. Bars represent 95% confidence intervals.

Figure A.3. Usual Hours Event Studies across Specifications



NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements usual hours worked per week across treatment groups by time relative to treatment, for four specifications. From top left to bottom right: estimated under unconditional parallel trends assumption including three treated periods, estimated under conditional parallel trends assumption including three treated periods, estimated under unconditional parallel trends assumption including four treated periods, and estimated under conditional parallel trends assumption including four treated periods. Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) of working age (25-49) with household incomes <300% of the federal poverty line. Covariates in conditional parallel trends models include the political party affiliation of the state's elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county's maximum unemployment rate during the Great Recession, and the 2010 poverty rate and labor force participation rate, both measured at the consistent PUMA level. Bars represent 95% confidence intervals.

Figure A.4. Employment Event Studies across Specifications



NOTE: The above figure plots the average treatment effect of ABAWD work requirement reinstatements on likelihood of being employed across treatment groups by time relative to treatment, for four specifications. From top left to bottom right: estimated under unconditional parallel trends assumption including three treated periods, estimated under conditional parallel trends assumption including three treated periods, estimated under unconditional parallel trends assumption including four treated periods, and estimated under conditional parallel trends assumption including four treated periods. Treatment effects are estimated relative to not-yet treated counties. Sample is limited to likely ABAWDs (those without a disability who live with no children or elderly or disabled householders) of working age (25-49) with household incomes <300% of the federal poverty line. Covariates in conditional parallel trends models include the political party affiliation of the state's elected governor in 2010, the count of access-friendly SNAP policies adopted by the state in 2010, region, the county's maximum unemployment rate during the Great Recession, and the 2010 poverty rate and labor force participation rate, both measured at the consistent PUMA level. Bars represent 95% confidence intervals.

Table A.3. Average Treatment Effects for First Three Years, Exclusion of Individual Cohorts

Outcome	SNAP	Work Requirement	Hours	Employed
Main	-0.0147**	-0.0002	0.1275	0.006
	(0.00565)	(0.00232)	(0.25298)	(0.00551)
Excl. 2011 Cohort	-0.0136*	0.0041	0.0794	0.0038
	(0.00616)	(0.0062)	(0.27586)	(0.00603)
Excl. 2013 Cohort	-0.019***	0.0078	0.2257	0.0078
	(0.00488)	(0.00563)	(0.24536)	(0.00551)

Outcome	SNAP	Work Requirement	Hours	Employed
Excl. 2014 Cohort	-0.0165*	0.0081	0.2575	0.0068
	(0.00656)	(0.00593)	(0.26991)	(0.00572)
Excl. 2015 Cohort	-0.0145*	0.0042	0.1054	0.0053
	(0.0062)	(0.00586)	(0.26287)	(0.00563)
Excl. 2016 Cohort	-0.0199**	0.0093	0.0712	0.0121
	(0.00591)	(0.00941)	(0.38723)	(0.00919)
Excl. 2017 Cohort	-0.0143*	0.0079	0.2145	0.0083
	(0.00609)	(0.00575)	(0.26097)	(0.00557)

NOTE: “SNAP” is a binary indicator for whether an individual’s household reported any SNAP receipt in the past 12 months. “Work requirement” is a binary indicator for working at least 20 hours in a usual week, thus meeting the ABAWD work requirement. “Usual hours” is a continuous measure of the number of hours worked in a usual week. “Employed” is a binary indicator for whether or not an individual was employed at the time of the survey. Standard errors in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table A.4. Average Treatment Effects for First Four Years, Exclusion of Individual Cohorts

Outcome	SNAP	Work Requirement	Hours	Employed
Main	-0.0178*	0.0324*	1.126+	0.0285*
	(0.0083)	(0.01466)	(0.63253)	(0.01292)
Excl. 2011 Cohort	-0.017*	0.0032	-0.0047	0.004
	(0.00658)	(0.00679)	(0.29655)	(0.00663)
Excl. 2013 Cohort	-0.0218**	0.0379*	1.3484*	0.0335*
	(0.00826)	(0.01536)	(0.66335)	(0.01353)
Excl. 2014 Cohort	-0.0193	0.0615*	2.3251*	0.0505*
	(0.01364)	(0.02589)	(1.13601)	(0.02264)
Excl. 2015 Cohort	-0.0165	0.0387+	1.4052	0.0348+
	(0.01794)	(0.0234)	(1.10006)	(0.0206)
Excl. 2016 Cohort	-0.0224*	0.035*	1.0495	0.033*
	(0.00876)	(0.01686)	(0.68947)	(0.01506)
Excl. 2017 Cohort	-0.0175	0.0341+	1.1982	0.0305+
	(0.01401)	(0.01847)	(0.85928)	(0.01629)

NOTE: “SNAP” is a binary indicator for whether an individual’s household reported any SNAP receipt in the past 12 months. “Work requirement” is a binary indicator for working at least 20 hours in a usual week, thus meeting the ABAWD work requirement. “Usual hours” is a continuous measure of the number of hours worked in a usual week. “Employed” is a binary indicator for whether or not an individual was employed at the time of the survey. Standard errors in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Figure A.5. SNAP Event Studies by Cohort & Parallel Trends Assumption

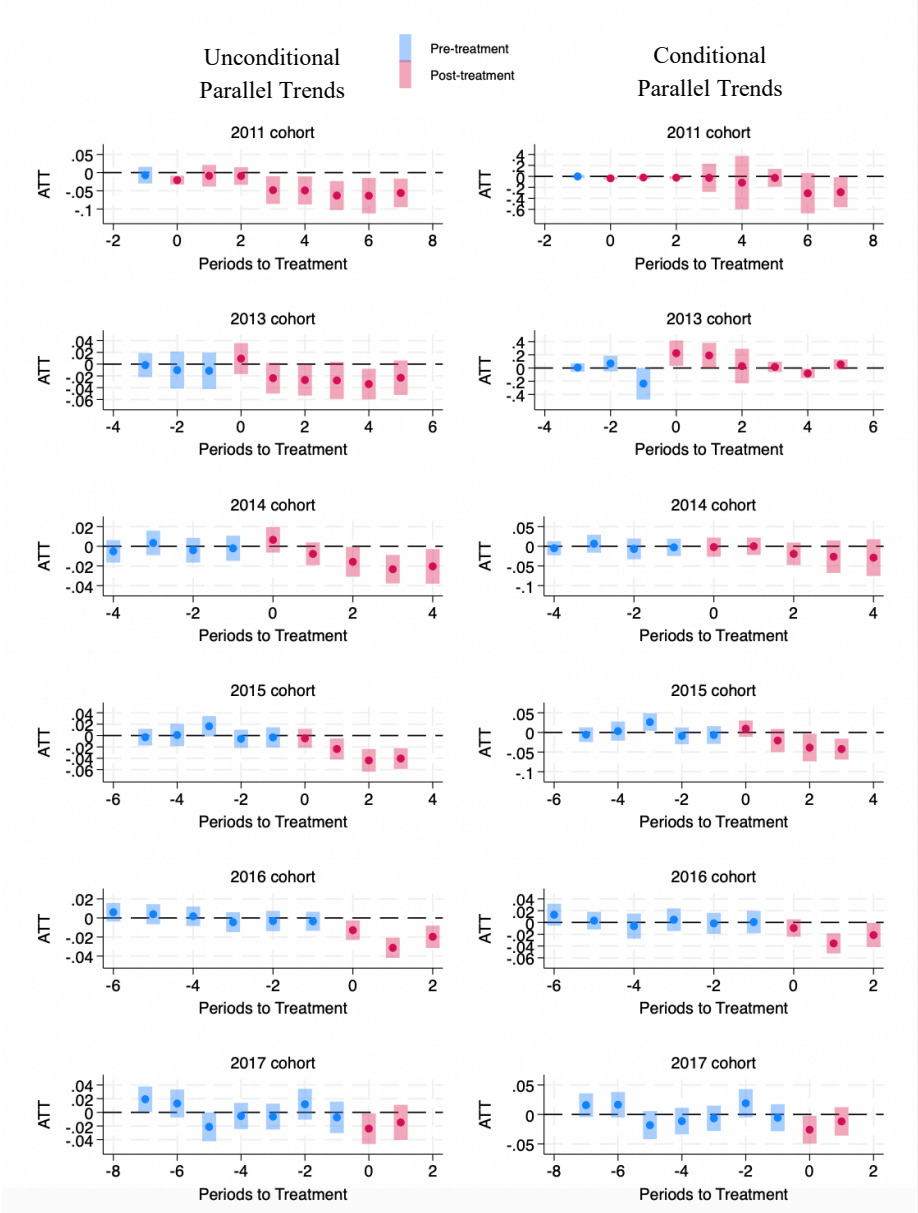


Figure A.6. Work Requirement Event Studies by Cohort & Parallel Trends Assumption