March 15, 2019

Certification Policy Branch
Program Development Division
Food and Nutrition Service
US Department of Agriculture
3101 Park Center Drive
Alexandria, Virginia 22302

Submitted thru regulations.gov

RE: Proposed Rule: Supplemental Nutrition Assistance Program: Requirements for Able-Bodied Adults without Dependents, RIN 0584-AE57

Dear Sir or Madam:

We are writing to recommend that FNS withdraw the February 1, 2019 proposed regulation to restrict state waivers and exemptions for work requirements for low-income able-bodied adults without dependents (ABAWDs) in SNAP. Evidence indicates that the proposed policies will create unnecessary harm to the health and well-being of large numbers of low-income Americans.

As researchers and analysts at the Milken Institute School of Public Health, George Washington University, we believe it is important to consider evidence about the potential effects of SNAP work requirements. The NPRM did not include any review of research or evidence about the benefits or harm of work requirements in SNAP; the agency has failed to meet a standard of due diligence in regulatory development or impact analysis.

We are also concerned that USDA issued proposed regulations to increase work requirements immediately after Congress explicitly rejected a related proposal to expand SNAP work requirements in the 2018 Agriculture Improvement Act because of Congressional concerns about the harm that would be caused to low-income SNAP beneficiaries if work requirements were increased. That suggests this administrative action runs contrary to Congressional intent.

**Increased Work Requirements Will Harm Low-Income People and Local Economies.** The NPRM estimates that about 755,000 SNAP recipients would lose benefits due to the regulation

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in 2020 and that this would lower federal SNAP benefits by $1.1 billion in that year or $7.9 billion over five years. We recently conducted analyses of FNS SNAP county-level caseload data to estimate the effects of the gradual reduction in SNAP ABAWD waivers from 2013 to 2017 under existing policies (draft attached). Consistent with FNS’ estimates, our analysis found that the gradual increase in work requirements led to significant losses in SNAP caseloads and in the level of federal nutrition support received by communities. Our analysis indicates that SNAP caseloads also declined because of falling unemployment rates, but the impact of work requirements was larger and led to even larger losses in SNAP participation. The proposed rule would significantly worsen these losses and create hardships for both low-income individuals and the communities in which they live.

Based on USDA’s economic research about the effects of SNAP in stimulating economic growth and employment through the multiplier effect, the $1.1 billion reduction in SNAP benefits in 2020 would lead to about $2.0 billion reduction in local economic activity and the loss of almost 10,000 jobs in 2020, as the loss of federal SNAP funds has a broader ripple effect through local economies. Over five years, the effect would be equivalent to about $9 billion loss in economic activity. The economic impact analysis in the NPRM did not discuss these implications, despite USDA’s economic research in this area.

FNS Should Instead Take Steps to Ensure That Work Requirements Are Not Having Unexpected Effects on Parents and Families. We have also conducted preliminary analyses of American Community Survey data about the effects of ABAWD work requirements from 2014 to 2017. The preliminary analyses indicate that not only do work requirements reduce SNAP participation by childless adults, they also reduce SNAP participation of parents, who are supposed to be exempt from the loss of benefits. Our analyses indicate that there are spillover effects of work requirements that lead to unintended additional losses. If so, then total effects could be even larger than FNS anticipates. If parents lose SNAP benefits, the children in those families could also experience additional hardships.

In light of this research, we recommend that, in addition to withdrawing the proposed regulation, current rules be amended to add procedures for states and FNS to ensure that parents are not terminated, nor are discouraged from applying, as a result of ABAWD work requirements. To monitor this and to establish the potential for corrective actions, FNS should add requirements that state and local agencies report monthly changes in SNAP caseloads, separately reporting participation by status: ABAWDs, non-ABAWD adults (including parents and the disabled) and children.

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Expanded Work Requirements Will Cause Disproportionate Harm Among the Poorest. FNS research shows that ABAWDs are about 33% poorer on average than other low-income SNAP recipients.4 By its very nature, terminating coverage for those who cannot meet work requirements selectively affects those with the lowest incomes. While states currently have some discretion to exempt up to 15% of people from the work requirements in order to help avoid these hardships, the proposal would substantially reduce states’ ability to use these exemptions. Loss of benefits by those fail to meet work requirements impose the greatest hardships on the poorest individuals and the proposed rules would further extend that harm.

Evidence is Scant That Work Requirements Improve Self-Sufficiency. A major stated rationale for the proposal is the desire to increase self-sufficiency and economic mobility. We reviewed the research about the benefits and harms of work requirements. There is little evidence that SNAP work requirements (or work programs in general) lead to better long-term employment or livelihoods for people.5 6 7 8 9 More specifically, we attach a recent paper by Jeehoon Han of the University of Chicago that focuses on effects of SNAP ABAWD work requirements which failed to find evidence that waiving SNAP ABAWD work requirements significantly discouraged employment, i.e., that work requirements do not significantly improve employment.10 The Administration’s expectation that work requirements improve self-sufficiency appears to be based on belief and rhetoric, rather than the evidence, which does not show these positive effects.

Our research and other analyses show, including that contained in the economic impact analysis of the NPRM, there is substantial evidence of harm to individuals. Moreover, as mentioned above, USDA analyses signal that a large reduction in SNAP benefits will lead to substantial job losses. These job losses could actually reduce self-sufficiency, rather than improve it.

Alternative policies exist that would have a more positive effect on employment, such as increases in the earned income tax credit or child care subsidies. A particular shortcoming of the

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proposed regulation is that it fails to include elements such as increased job training or work supports like child care or transportation, which could be more meaningful in helping people become self-sufficient.

The Loss of SNAP Benefits Will Increase Food Insecurity. Evidence clearly indicates, including research sponsored by USDA, that SNAP reduces food insecurity.\(^{11}\)\(^{12}\)\(^{13}\) And, equally important, research also indicates that when SNAP benefits are reduced, food insecurity rises.\(^{14}\) Since ABAWDs, particularly those who are likely to not meet work requirements, are especially poor, they are even more susceptible to food insecurity and hunger, so we would expect more serious harm.

The Loss of SNAP Benefits Could Harm Health and Increase Federal and State Medicaid Expenditures. In addition to the risk of greater food insecurity due to the expansion of work requirements, there is increasing evidence indicates that SNAP participation can lead to improved health and lower medical expenditures.\(^{15}\)\(^{16}\) Nutritional hardships can lead to acute health problems, which could lead to increased use of emergency rooms or inpatient hospital admissions. For example, if a diabetic SNAP participant loses food assistance benefits due to expanded work requirements, there is an increased risk that he or she will experience problems that lead to hypoglycemia or, even worse, to diabetic comas, which require acute hospital care. While ABAWD policy excludes those who are not “able-bodied,” diabetes is usually not considered a disabling condition, but is an extremely serious medical problem that can lead to serious health problems or even death without proper diet and medical management.

Many who lose SNAP benefits due to expanded work requirements participate in Medicaid. Thus, a policy that reduces federal SNAP participation and expenditures could have the unintended effect of increasing Medicaid expenditures, which will cause increases in both federal and state Medicaid costs. The economic impact analysis in the NPRM did not examine this issue.

The Proposal Weakens SNAP’s Countercyclical Responsiveness. A stated rationale for the proposal is that unemployment is low, so there is little need to waive work requirements. While the unemployment rate is low now, the rule would likely go into effect in 2020 when there appears to be a rising risk of a recession; a recent survey of economists found that more than half

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worried that a recession could start in 2020.\textsuperscript{17} The nation has enjoyed a long period of economic recovery and even if a downturn does not occur next year, an economic slowdown and reversal is inevitable in the near future. SNAP is designed to act as a countercyclical program, an automatic stabilizer that provides greater economic support and stimulus when the economy worsens. A proposal to restrict SNAP benefits and impose work requirements that will go into effect when the economy is likely to worsen undercuts the program’s countercyclical responsiveness. The countercyclical element of SNAP serves two purposes: it reduces hardship among low-income people most likely to suffer when the economy worsens and fewer are employed and it also increases funding to support local economies, via increases in local food purchasing. USDA research has demonstrated this effect of SNAP as an economic multiplier and stimulus.\textsuperscript{18}

In light of these serious concerns, we urge FNS to withdraw the proposed regulations and to take other steps to prevent unnecessary loss of SNAP benefits due to work requirements.

Yours Truly,

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https://ageconsearch.umn.edu/record/262247/files/7996_err103_1_.pdf
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The Effects of SNAP Work Requirements in Reducing Participation and Benefits

DRAFT – Submitted for Publication in Peer-Reviewed Journal

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Abstract

Objective: To assess effects of work requirements for able-bodied adults without dependents (ABAWDs) in the Supplemental Nutrition Assistance Program (SNAP).

Methods: We use changes in waivers of ABAWD work requirements to assess the impact of requiring work on SNAP participation and benefit levels in 2,410 counties from 2013-17 with two-way fixed effects models.

Results: Adoption of work requirements was followed by reductions of 3.0% in individual SNAP participation, 4.5% in SNAP households and 3.8% in SNAP benefit dollars, after controlling for the unemployment, poverty and Medicaid expansions. Since ABAWDs comprise 8-9% of all SNAP participants, work requirements led about one-third of ABAWDs losing benefits.

Conclusions: Estimating to 2,410 counties, about 550,000 people lost SNAP benefits due to expanded use of work requirements and federal SNAP benefits fell by about $2.2 billion in 2017. The losses occur rapidly, beginning three months after work requirements are imposed.

Policy Implications: SNAP work requirements rapidly reduce caseloads and benefits. This reduces food and health access and has implications for work requirements in Medicaid or other programs.
Introduction

Work requirements, largely developed under welfare reform in the 1990s, have become a subject of renewed policy interest. The Trump Administration promoted broader work requirements in the Supplemental Nutrition Assistance Program (SNAP, formerly the Food Stamp Program), Medicaid and public housing. The Department of Health and Human Services encouraged states to submit Medicaid “community engagement” waivers to impose work requirements in Medicaid and approved several state waivers, although the Medicaid policy has been challenged in court. Soon after a legislative proposal to expand SNAP requirements passed the House of Representatives but failed in the Senate, the Food and Nutrition Service (FNS, US Department of Agriculture) proposed regulations to tighten SNAP work requirement waivers.

Important insights into the potential effects of work requirements can be gained by examining the natural experiment of changes in implementation of SNAP work requirements. Under the 1996 welfare reform law, 18 to 49-year-old able-bodied (not disabled) adults without dependents (ABAWDs) are limited to three months of SNAP benefits in any 36-month period if they do not comply with work requirements. This policy echoes similar changes to cash welfare, Temporary Assistance for Needy Families. But states may request waivers of work requirements if they experience high unemployment. Further, work requirements were largely suspended in 20019 and 2010 due to the Great Recession. As the recession eased and unemployment fell, waivers have waned; by 2017 a majority of SNAP recipients lived in areas with work requirements.

A principal rationale for work requirements has been to reduce dependency on public assistance by terminating benefits for low-income adults who do not work, based on the assumption that assistance discourages poor people from working. A key criticism has been that large numbers of poor people may unnecessarily lose benefits if they are unable to comply and experience hardship as a result. For example, the stricter work requirements that passed the House were rejected by the Senate largely due to concerns about Congressional Budget Office’s estimate that over a million additional SNAP participants would lose coverage if the policies changed. In rejecting CMS’ approval of Medicaid work requirements in Kentucky, a federal court criticized the federal agency for not considering the effects on loss of Medicaid coverage.

This paper analyzes the effects of work requirements based on econometric analyses of SNAP caseloads and benefits in 2,410 counties from 2013 to 2017, based on changes in work requirement waivers across states and counties. We use this natural experiment to examine caseload and benefit changes, controlling for local unemployment and other factors. The analyses are not only relevant in understanding effects for SNAP, but also potential effects for Medicaid or public housing. Although the federal government has approved eight state Medicaid waivers with work requirements, only Arkansas had implemented them as of January 2018.

Background. SNAP is a federally funded nutrition assistance program for low-income households which issues monthly allotments to purchase food at grocery stores, primarily through electronic benefit transfers. Guidelines for SNAP eligibility and benefits are mostly uniform across the nation, although there is some state flexibility through
waivers. Eligibility is limited to households with gross incomes below 130% of poverty and net incomes below the poverty line. Benefit levels are based on household size and are income-conditioned.

In general, 18 to 49-year-old ABAWDs can participate in SNAP for only three months in any 36-month period, unless they report working at least 80 hours a month or participate in an authorized activity like job search, training or a workfare program. Thus, a non-working ABAWD would be terminated after three months without work. Parents with children, those who are disabled, and those below 18 or over 49 are not required to work. States may exempt an additional 15% of those subject to work requirements. SNAP has an Employment and Training program with limited funding for job search, training and related projects to encourage transitions from public benefits to work, but these resources are not necessarily linked directly to work requirements.

States may, but are not required to, apply for waivers to suspend work requirements at state or local levels. To receive a waiver, a state must demonstrate to FNS that the area is eligible for extended unemployment benefits, has a recent unemployment rate of over 10%, a recent 24-month average unemployment rate 20% above the national unemployment rate for that same 24-month period, or is designated as a Labor Surplus Area. After the 2007 recession, Congress slightly modified these policies and largely suspended the work requirements for much of 2009 and 2010. Some areas could have obtained waivers, but chose not to seek them. Since then, as the economy improved and unemployment fell, states have qualified for and chosen to obtain waivers less often and the number of people subject to ABAWD work requirements has grown appreciably.

A recent Congressional proposal, which was rejected, would have stiffened SNAP work requirements. More recently, FNS proposed regulations to tighten conditions under which an area may obtain a waiver and restrict use of the 15% exemption, which would mean that substantially more SNAP participants would be subject to the three-month limitation. Our analysis does not estimate effects of recent legislative or regulatory SNAP proposals; it is based on policies that existed in the 2013-17 period.

Methodology

Our analyses measure how changes in the implementation of work requirements (that is, the absence of ABAWD waivers) affect SNAP caseloads and benefits over time, controlling for unemployment, poverty and the presence of Medicaid expansions. We use a county-level two-way fixed effects model that controls for characteristics of each county across ten semiannual periods from 2013 to 2017. Basically the model is:

\[
\Delta \ln(\text{SNAP}_{ij}) = \beta_0 + \beta_{WR} \text{WR}_{ij} + \beta_X X_{ij} + \beta_C C_j + \beta_T T_t + \varepsilon_{ij}
\]

where \(\Delta \ln(\text{SNAP}_{ij})\) is the change in SNAP over six months. The subscript \(j\) refers to the county and \(t\) is the semiannual time period. For outcomes, we use three county-level SNAP measures reported for January and July of each year, the (a) number of households participating in SNAP, (b) number of individuals participating in SNAP (i.e., including children or other dependents), and (c) total monthly value of SNAP benefits issued in the county, adjusted to 2017 dollars by the Consumer Price Index for food at home. To
mitigate the influence of large variations in county sizes, we estimate the natural log of each measure and then measure the change in the natural log between the index period and the prior six-month period. The coefficients estimate how the percentage change in SNAP levels in a six-month period in each county is associated with the independent variables:

$$\Delta \ln(\text{SNAP}_t) = \ln(\text{SNAP}_t) - \ln(\text{SNAP}_{t-1}) = \ln(\text{SNAP}_t/\text{SNAP}_{t-1})$$

WR represents measures of work requirements in each county over time, X is a vector of independent variables, including the county's unemployment and poverty rates and presence of state Medicaid expansions, C is a set of dummy variables for each county and T is a dummy variable for each semiannual period. The $\beta$s are estimated coefficients and $\epsilon$ is the error term. To estimate national-level effects and adjust for the varying size of counties, all analyses are weighted by the baseline county measures (households, participants or issuance levels, respectively) and use robust standard errors to account for state-level clustering and adjust for autocorrelation and heteroscedasticity.

We use FNS administrative data, which include semiannual (January and June) SNAP household, participant and benefit levels from 2013 to 2017. Data are available from 47 states, including the District of Columbia; Maine, Rhode Island, Vermont and West Virginia were not reported. Most data are county-level, although statewide-only data are available from 14 states (Alaska, Connecticut, Delaware, Idaho, Massachusetts, Missouri, Montana, Nebraska, New Hampshire, New York, Oregon, Utah, Washington, and Wyoming).

Our main analyses rely on county-level data from 33 states including DC. We have data for a balanced panel of 2,410 counties across ten semiannual periods for a total sample of 24,100 observations, but the use of differences and lags reduces the analytic sample to 23,690 observations and nine time periods. Due to concerns about the omission of a number of states where county-level data were not available, supplemental analyses added statewide data from 14 states and the results remained consistent with the main findings. Data were omitted from 36 counties which reported zero SNAP participants in at least one period. These cases probably reflect agencies that closed or were consolidated; they had very few participants, so there should be no appreciable bias. The 2,410 counties represented have about seven-eighths of total SNAP participants in the nation.

FNS shared data about approved ABAWD waivers on a quarterly basis from 2012 to 2017; some waivers are on a statewide basis, but many are county- or even municipality-specific. In most cases, we coded work requirements on a binary basis as the absence of a waiver. Statewide waivers were applied to all counties in the state. Where a waiver was applied at a sub-county level (or sub-state in cases where only statewide participation data were available), we computed the fraction of the county (or state) population that lived in those jurisdictions, using geo-data from the Missouri Census Data Center to estimate the fraction of the county (or state) population living in areas with work requirements. While work requirements rose from 2013 to 2017, changes were not unidirectional; sometimes work requirements were imposed then waived soon after.

Alternative model testing indicated that the best fit arose when we used work requirements adopted in the quarter before every semiannual period (e.g., the effect of October policies on January participation). Since SNAP policy permits three months of
SNAP participation without work, we would not expect substantial reductions in the first three months after a policy is adopted; caseload reductions should lag behind the imposition of work requirements by at least three months.

We also include estimates of county unemployment rates from the Bureau of Labor Statistics local area unemployment statistics, county-level poverty rates based on the Census Bureau’s Small Area Income Poverty Estimates and state-level Medicaid expansions for childless adults from the Kaiser Family Foundation. A recent report found that Medicaid expansions and outreach affected SNAP and WIC enrollment levels. Testing with multiple alternative models indicated that the best fit occurred using unemployment lagged by six months, that is, the county’s unemployment rate six months earlier. We considered the possible effects of other SNAP state waivers, such as broad-based categorical eligibility waivers, but determined that virtually no changes in such policies occurred from 2012 to 2017, so we could exclude them from analysis.

The fixed effects methodology controls for time invariant characteristics of each county; this controls for otherwise unmeasured differences associated with racial, ethnic or educational characteristics, types of local businesses, etc. in each county, and focuses the analysis on the effects of changes in work requirements or the other independent variables, such as unemployment, poverty. The use of time dummies controls for federal policy or other secular changes at the national level. Hausman tests led us to reject alternative formulations of random effects models.

Results

Figures 1 and 2 illustrate overall trends in SNAP participation and work requirements from 2013 to 2017 (supplemental figures about unemployment rates and benefits are available from the authors). As Figure 1a shows, the share of SNAP participants living in counties with work requirements rose dramatically from 10% at the beginning of 2013, doubling to 22% by January 2014, then rising to 53% by January 2016, and 59% by July 2017. (For brevity, results presented here are for the 2,410 counties in the 33 states with county level data; results are similar if we include statewide data from another 14 states.) Average unemployment rates fell from 8.7% in January 2013 to 4.8% by July 2017. The average number of SNAP participants in a county fell by 13% from 15,646 in January 2013 to 13,676 by July 2017 and the average number of households fell by 8.5%. The average value of SNAP benefits in a county fell by 20.5% from $2.14 million in January 2013 to $1.70 million in July 2017, using constant 2017 dollars. In 2014, payments fell after a temporary enhancement of SNAP benefit payments during the Great Recession expired.13

Table 1 presents key results about the effects of work requirements on the number of SNAP households and participants in each county. Since ABAWD waivers may be triggered by falling unemployment, we first analyzed models without accounting for waivers. As seen in Models A and C, a one percentage point increase in unemployment in the prior six months is associated with a 1.1% increase in SNAP participation. After adding the effects of work requirements in Models B and D, there is a 4.5% reduction in the number of SNAP households the quarter after work requirements are imposed and a 3.0%
reduction in SNAP participation in the following quarter (p < .001 for both effects). The coefficient for unemployment is essentially unchanged (1.2%), indicating that the effects of work requirements are in addition to effects of recent unemployment levels.

Table 2 presents results about issuances, the total monthly value of SNAP benefits in the county. Unemployment increases are associated with 1.0 to 1.1% increases in SNAP issuances, while benefits fall by 3.8% in the quarter after work requirements are added (p < .001).

Discussion

These analyses indicate that imposing work requirements leads to substantial reductions in SNAP caseloads and benefits issued, even after controlling for unemployment, poverty and Medicaid expansions. While improving economic conditions contributed to caseload and benefit reductions, work requirements had a stronger effect. Moreover, the caseload reductions occur quickly, within three months after implementation. This is consistent with reports of large and rapid caseload losses in selected areas after SNAP work requirements went into effect.14 15 16 17 18

Research indicates that SNAP decreases food insecurity and is associated with improved health care access and lower health expenditures.19 20 21 Work requirements create hardships for low-income adults and may jeopardize their food security and health. Since those losing benefits are unemployed or working marginally, those with very low incomes lose benefits.

We can interpret these results in the context of effects on an average county. The 3.0% reduction in SNAP participants is equivalent to a reduction of about 450 people per county, while the 4.5% household estimate is comparable to about 330 households per county. The 3.8% reduction in benefits is almost a million dollars per county over a year. Work requirements reduce federal funding for food purchases by about $1 million per county per year. The magnitude of effects is larger for more populous counties and smaller for smaller ones.

We estimate that the effect of expanding work requirements from areas with about 10% of SNAP participants in 2013 to 59% in 2017 led to the loss of about 550 thousand SNAP individual participants (or 400 thousand households) for the 2,410 counties in our analytic sample. The value of SNAP benefits lost was $2.2 billion, in 2017. (If we further assume that the 2,410 counties are representative of the whole nation, then more than 600 thousand participants were lost and federal SNAP benefits fell by about $2.5 billion.) These estimates refer to the work requirements under state and federal policy from 2013 to 2017. If work requirements are further tightened, as proposed by FNS, effects would be larger.

These estimates reflect changes in overall SNAP household and participant levels; but it is important to recall that only a fraction of total SNAP caseloads are in the ABAWD target population. Using SNAP Quality Control data, FNS estimated that in 2016 the ABAWD target population of nondisabled 18-49 year old adults without children represented 8.8% of all SNAP participants, of which 26% worked (including those who work less than 20
hours a week). The average income of ABAWDs, 33% of poverty, was lower than other SNAP participants and the average size of an ABAWD SNAP household was 1.2.\textsuperscript{22} Our analyses of American Community Survey data, conducted separately, yield similar results that ABAWDs ranged from 8.6% of all SNAP participants in 2013 to 8.2% in 2017.

Put in this context, our findings that work requirements are associated with a 3.0% reduction in total SNAP participants mean that about one-third of the target population of ABAWDs quickly lose benefits when work requirements are adopted.

A strength of this study is that it uses FNS administrative data that are not subject to survey or sampling errors; there is greater precision in measurement of the level and timing of participation and benefits. In comparison, survey data such as the American Community Survey are subject to respondent recall errors and reference a broad time period (e.g., any SNAP in the past 12 months). On the other hand, the administrative data lack detail about characteristics of SNAP participants or households, including how many are able-bodied 18 to 49 year olds without dependents. While it is reasonable to infer that work requirements primarily affect ABAWDs, it is possible that a portion of the caseload decline is due to spillover effects on non-ABAWD SNAP participants. Second, states may exempt up to 15% of ABAWDs who would otherwise be subject to work requirements, which would reduce impacts; we lack data about use of the 15% exemption. Third, the 2013 to 2017 period is one in which the national economy was generally improving and unemployment was falling; results might differ in areas or periods where unemployment is rising.

The findings of this analysis are relevant not only to SNAP but to other related efforts to broaden the use of work requirements. As noted earlier, the Trump Administration and many state policymakers seek to increase the use of work requirements not only in SNAP, but in Medicaid, public housing and perhaps other programs. The federal government has approved requests from several states for Medicaid work requirements (Arizona, Arkansas, Kentucky, Indiana, Michigan, New Hampshire, Ohio and Wisconsin) and other state Medicaid proposals are pending.\textsuperscript{23} As of December 2018, only Arkansas has actually implemented Medicaid work requirements. Preliminary data from Arkansas’ Medicaid project show work requirements led to rapid caseload reductions, beginning three months after implementation, and that about 30% of the target population fails to meet the requirements and loses benefits, similar to the findings presented here for SNAP.\textsuperscript{24}

An important question, which is not addressed by this study, is whether work requirements are successful in helping poor people find work and raise their incomes. Analysis by Jeehoon Han of the University of Chicago\textsuperscript{25} found that work requirements had little effect on labor supply and SNAP did not discourage adults from working. A paper by Cuffey, et al. which examined data from 2004 to 2011, also found little effect of ABAWD work requirements on employment.\textsuperscript{26} A substantial body of earlier research, including welfare-to-work experiments and demonstration projects, had similar conclusions.\textsuperscript{1, 27, 28, 29} Research indicates it is quite challenging to help low-income, low-skill, less educated adults gain the skills that lead to steady employment and overcome barriers like dependent care, transportation, or health problems. Moreover, SNAP Employment and Training funds are quite limited and CMS will not let Medicaid funds be used to support job training.\textsuperscript{31}
Overall, the evidence that work requirements are effective in helping people gain employment or become more self-sufficient is scant. The evidence is much stronger that work requirements lead to hardships for low-income populations, including loss of food assistance or health insurance. While economic recovery and declining levels of unemployment have contributed to gradually declining SNAP caseloads in recent years, imposing work requirements leads to substantial additional reductions. It is plausible that the economy will slow and unemployment may rise in the coming years, which would make it even harder for low-income adults to find steady jobs, heightening the risk of food insecurity and health harm due to work requirements.
Table 1. Two-way Fixed Effects Models of Effects of Work Requirements on Changes in SNAP Caseloads Across Counties, 2013-2017. (n = 21,690. 2,410 counties in 9 semiannual periods)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Model A</th>
<th>Model B</th>
<th>Model C</th>
<th>Model D</th>
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<td>Coeff SE</td>
<td>Coeff SE</td>
<td>Coeff SE</td>
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<tr>
<td>Lagged Unemployment (%)</td>
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<td>0.012 0.003 ***</td>
<td>0.011 0.004 **</td>
<td>0.011 0.003 ***</td>
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<tr>
<td>Poverty Rate (%)</td>
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<td>0.000 0.001</td>
<td>0.000 0.001</td>
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<td>Medicaid Expansion</td>
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<td>0.003 0.005</td>
<td>0.016 0.012</td>
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<td>Implemented in Prior Quarter</td>
<td>-0.045 0.010 ***</td>
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<td>-0.030 0.007 ***</td>
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R squared
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* p < .05, ** p < .01, *** p < .001

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<th>Dependent Variable</th>
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<td>Lagged Unemployment (%)</td>
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<td>0.011 0.003 **</td>
</tr>
<tr>
<td>Poverty Rate (%)</td>
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<tr>
<td>Medicaid Expansion</td>
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<td>Implemented in Prior Quarter</td>
<td>-0.038 0.009 ***</td>
<td></td>
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R squared
- within 0.080 0.088
- between 0.001 0.002
- overall 0.026 0.019

* p < .05, ** p < .01, *** p < .001


5 Food and Nutrition Service. US Department of Agriculture. Supplemental Nutrition Assistance Program: Requirements for Able-Bodied Adults without Dependents, Proposed Rule. Dec. 20, 2018. https://fns-prom.azureedge.net/sites/default/files/snap/ABAWDtoOFR.pdf. [Note: due to the government shutdown, this has not been published in the Federal Register yet. An updated citation will be added when it is available.


The Impact of SNAP Work Requirements on Labor Supply

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Abstract

I study the impact of work requirements for the Supplemental Nutrition Assistance Program (SNAP) on the labor supply of non-disabled adults without dependents, exploiting unique features of SNAP work requirements. First, states can exempt individuals living in certain areas from work requirements. Second, the work requirements apply only to adults aged below 50. Using a triple difference model that compares the time-series changes in labor supply for age groups on either side of the age threshold in areas before and after the exemption, I find that suspending work requirements does not discourage employment; a decrease in employment of more than 1.7 percentage points among people who are potentially affected by the exemption can be ruled out with my 95% confidence interval. I find some evidence of a reduction in labor supply at the intensive (weeks or hours worked) margins, but the effects are imprecisely estimated.

JEL Classification: H53, I38, J22

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1. Introduction

A significant portion of government spending goes to welfare programs that are designed to help low-income individuals and families make ends meet. In 2016, expenditures on government safety net programs accounted for about $880 billion, or 19%, of the U.S. federal budget (Falk et al., 2018). The level of government spending on safety net programs has long been a contentious issue. While assistance to low-income households can help them cover necessary expenses, it may reduce incentives for them to find or maintain work. This issue has received greater public and political attention in recent years due to the notion that the slow recovery of the economy from the Great Recession is in part a result of the expansion in safety net programs (Mulligan, 2012).

To address work disincentives, many safety net programs have work-related policies such as work requirements and time limits. For example, eligibility for benefits from Temporary Assistance for Needy Families (TANF) or the Supplemental Nutrition Assistance Program (SNAP) is tied, for a subset of recipients, to participation in work or activities, such as job training or community service for a certain number of hours (Falk et al., 2016). Although work requirements are the most common work-related policy in safety net programs, there is not a broad consensus on whether they achieve their intended goal of improving the work level of low-income individuals and families. This paper contributes to this debate by assessing the impact of SNAP work requirements on the labor supply of able-bodied adults without dependents (ABAWD).

To study the effect of SNAP work requirements on the labor supply, I leverage two unique features of SNAP work requirements. First, states are allowed to exempt individuals living in certain areas from work requirements if the area experiences a high unemployment rate, creating variation in the work exemption across areas over time. Second, the work requirement applies only to adults below 50 years of age.

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1 Tax credits programs such as the Earned Income Tax Credit (EITC) and the Child Tax Credit (CTC) are also intended to encourage work by providing an earnings subsidy.
2 There are two types of work requirements (general and special work requirements) in SNAP and I focus on the work requirements that apply only to ABAWD between the ages of 18 and 49.
Because the exemption of the SNAP work requirement is heavily tied to the economic conditions in a given area, a comparison of outcomes between exempt areas and non-exempt areas is likely to produce a biased estimate of the effect of SNAP work requirements. However, the additional within-area variation stemming from the age threshold allows me to disentangle the confounding influence of local economic conditions from the impact of SNAP work requirements on labor supply behavior. If local labor market conditions affect non-disabled adults without dependents aged just below 50 similarly to those just above 50, then one can identify the effect of work requirements by comparing the time-series changes in labor supply for these two age groups in areas before and after the exemption.

Using a triple-difference approach and data from the American Community Survey (ACS) from 2005-2017, I find that SNAP work exemptions do not decrease employment for ABAWDs. A reduction in employment of more than 1.7 percentage points among ABAWDs who are potentially affected by the exemption can be rejected with my 95% confidence interval. The point estimates of the effect of the work exemption on labor supply along the intensive margins (the number of weeks or hours worked) are negative, but estimated imprecisely.

Further analysis reveals two reasons for why the work exemption has little effect on the extensive margin of labor supply. First, many new SNAP participants who enrolled due to the exemption are the long-term non-employed who have no labor supply to reduce. Second, due to the generous income deductions in benefit calculation, the effective benefit reduction rate (BRR) is low (<5%) at very low income ($0-500), decreasing the substitution effect of the work exemption, but increasing the income effect. Together, my results suggest that imposing work requirements is unlikely to achieve its intended goal of promoting employment, but rather may increase the risk of many disadvantaged individuals falling through the cracks.

2. Related Literature

This paper contributes to three strands of literature. First, it is related to a literature that studied the work disincentive effect of safety net programs. In the context of SNAP, the existing literature found mixed
evidence on work disincentives. Earlier work generally found little effect of SNAP on the labor supply of low-income households (Fraker and Moffitt, 1988; Hagstrom, 1996). However, recent papers found heterogeneous effects on labor supply across populations (Hoynes and Schanzenbach, 2012; Cuffey et al., 2015; Stacy et al., 2016; East, 2018).

For instance, Hoynes and Schanzenbach (2012) used cross-county variation in the roll-out of the food stamp program and found sizable work disincentives of SNAP for single mother households, but not for overall households. East (2018) found that a reduction in immigrants’ labor supply when eligible for SNAP. My analysis is closely related to Cuffey et al. (2015). Using the CPS data and variation in areas covered by the exemptions, Cuffey et al. (2015) found that SNAP work requirements do not affect the SNAP participation rate or the labor supply among non-disabled adults without dependents. However, their analysis covers only large geographic areas that are identifiable in the CPS data and only in the years 2004-2009, which did not include the period when many states were implementing statewide waivers. Also, in their triple-difference specification, they used ABAWDs aged 18-49 and ABAWDs aged 50-65 as the treatment group and the comparison group, respectively. However, the younger ABAWDs (aged 18-49) and the older ABAWDs (aged 50-65) are likely to differ in their labor force participation, job characteristics, and earnings, so it is unclear whether the two age groups would be similarly affected by local labor market conditions. I extend their analysis by including the entire post-great recession period and by using finer geographic areas. More importantly, I compare age groups that are likely to face similar labor market conditions, ABAWDs aged 47-49 and ABAWDs aged 51-53.

Recently, other researchers (Harris, 2018; Stacy, Scherpf and Jo, 2018) also have studied the labor supply effect of the work requirement using the ACS data. They used geographical variation in the work exemption across areas, where the work exemption status of an area is determined using the waiver data alone. However, states are allowed to exempt up to 15 percent of ABAWDs that are not covered by a waiver. I combine the waiver data with the 15% exemption data which I collected by contacting each state’s SNAP agency and searching online to complete the data. This allows me to more accurately determine whether an ABAWD lives in an area that is exempt from the work requirement.
My paper also contributes to literature that quantifies the role of SNAP policies in changes in SNAP caseloads (Ziliak et al., 2003; Ribar et al., 2010; Mulligan, 2012; Ziliak, 2015; Ganong and Liebman, 2018). In particular, Ganong and Liebman (2018) estimated that the suspension of the SNAP work requirement accounted for about 67% of the increase in ABAWDs’ SNAP enrollment from 2007 to 2011 (2.78 million). These estimates are based on a back-of-the-envelope calculation assuming that, in the absence of the ABAWD exemption, ABAWDs would have experienced the same SNAP enrollment growth as non-ABAWDs. Using a quasi-experimental approach, I estimate that the growth in SNAP enrollment for ABAWDs from 2007 to 2011 that is attributable to the work exemption is only about 10% (see Appendix Table 1 for details).

Lastly, my study relates to previous work that examined the causes of recent declines in employment for low-skilled workers. One strand of studies argued that structural factors such as a decline in manufacturing industries, or an improvement in leisure technology account for the reduced employment rate among low-skilled workers (Charles et al., 2016; Aguiar et al., 2018). Another strand of studies claimed that the cause of reduced employment is associated with cyclical factors, such as the housing market crash or expansions in unemployment insurance programs during the recession (Mulligan, 2012; Mian and Sufi, 2014; Hagedorn et al., 2015; Johnston and Mas, 2018). My results suggest that expansions of SNAP benefits during the recession contributes little to the decline in employment among low-skilled prime-age workers.

3. Background on the Work Requirement

The work requirement for SNAP benefits was implemented in 1996 as part of federal welfare reform. Under the law, able-bodied adults without dependents between the ages of 18 and 49 cannot receive SNAP benefits for more than three months in a three-year period unless they either work more than 20

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3 Abraham and Kearney (2018) provided a detailed discussion of studies that proposed factors that may explain the employment decline among young and prime-age individuals.
hours per week or participate in a training/workfare program. Populations that are exempted from these requirements include SNAP participants who are: pregnant, responsible for a child, receiving unemployment benefits, or unfit for employment. A person is classified as unfit for work and exempt from the ABAWD work requirements if 1) she receives disability incomes, 2) she has an obvious unfitness to work as defined by a state agency, or 3) she provides a statement from a medical professional that she is mentally or physically unfit for employment.

The application of the ABAWD work requirement has been limited in some areas such as those with a high unemployment rate or a lack of sufficient jobs, as they qualify for a waiver of the work requirement. In addition to a waiver, states are allowed to exempt an additional 15 percent of ABAWDs living in non-waiver areas from the work requirement, and states have broad discretion in determining whether and how the 15% exemptions are used. States typically apply the 15% exemptions to 1) an entire non-waiver area, 2) an individual ABAWD based on individual circumstances, or 3) ABAWDs who received inadvertent SNAP benefits due to an administrative error. I exclude from the sample state-year pairs where a) the information on criteria used when applying for 15% exemptions is missing or b) 15% exemptions were used based on individual circumstances. For state-year pairs in which exemptions were applied to individuals who received inadvertent SNAP benefits due to an administrative error, I impute the share of the exempt population to non-waiver areas by estimating the percent of ABAWDs in non-waiver areas who received SNAP benefits due to the 15% exemption (see Method Appendix for more details).

Figure 1 shows the trend in the percentage of the population covered by the ABAWD exemption (either waiver or 15% exemption) across Public Use Microdata Areas (PUMAs) in the years 2005, 2010, and 2017. States for which I have incomplete exemption data are excluded. Panel A shows that a relatively

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4 ABAWDs who exhausted their initial three months of SNAP benefits will qualify for additional 3 months of benefits if they fulfill work requirements for a month.
5 One 15% exemption can enable an ABAWD to receive one extra month of SNAP benefits.
6 Exceptions are state-year pairs where less than 100 exemptions were used. I include them in my sample by treating all non-waiver areas in the state-year as non-exempt areas.
small fraction of the U.S. population lived in exempt areas in 2005, a time of strong labor market in most areas. During the period of 2009-2013, most states were hit by economic downturns and implemented a state-wide ABAWD waiver, but a few states chose not to implement a state-wide waiver even though they were eligible to do so (Panel B). As the economy began to recover, states gradually rolled back the ABAWD work requirement after 2013, but a number of states still continued using a state-wide waiver in 2017 (Panel C).

4. SNAP Eligibility and Benefit Structure

Understanding SNAP eligibility requirements and the benefit structure is essential to inferring the potential implications of suspending work requirements. To qualify for SNAP benefits under the federal SNAP rule, households must have the following: a gross income less than or equal to 130% of the Federal Poverty Line (FPL),7 a net income (income after deductions) less than or equal to the FPL, and assets less than or equal to $2,250. SNAP benefits are calculated by the maximum benefits ($194 for a single person household in 2017) minus 30% of net income. The amount of benefits decreases by 30 cents as one’s net income increases by one dollar (the statutory benefit reduction rate (BRR) of 30%), and the benefit becomes zero when net income reaches the maximum benefits divided by 0.3. However, SNAP eligible households with one or two persons can receive minimum benefits ($16 in 2017) even if their net income is greater than the maximum benefits divided by 0.3.8

One important feature of the SNAP benefit structure is that it allows large income deductions, reducing net income levels, and lowering the effective BRR below the statutory rate of 30% at most income ranges. For example, in the year 2017, a standard deduction of $157 applied to families with one to three

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7 The federal poverty line for a single person family was $11,880 in 2017.
8 Alaska and Hawaii have a higher FPL, maximum and minimum SNAP benefit amount.
members, along with a deduction of 20% of earned income. Housing costs that are over half of the adjusted income are added as an additional deduction (up to $517 in 2017).  

<Figure 2>  

Figure 2 plots the amount of SNAP benefits as a function of the gross monthly income for single-person ABAWD SNAP households using the administrative data (the QC data). Specifically, I first divide single-person ABAWD SNAP households into 20 groups based on their gross monthly income ($0-50, $50-150, $150-250, …, $1750-1850, $1850-1980).  

I then calculate the median gross income and the median SNAP benefit amount within each income group. The figure demonstrates that the effective benefit reduction rate (BRR) of SNAP is much lower than the statutory rate of 30% at most income levels. For instance, for an ABAWD whose income changes from 0 to $500, the amount of SNAP benefits decreases by only about $5 (the BRR of 1%). This is because the amount of deductions that ABAWDs with a gross income of $500 qualify for is only slightly lower than their gross income. As a result, they receive SNAP benefits that are close to the maximum amount.

The benefit reduction rate rises as ABAWDs’ incomes go above $500 because the amount of deductions they qualify for becomes relatively small compared to their gross income. For example, when an ABAWD’s gross income increases from $599 (the median income of single-person ABAWD SNAP households with income $550-650) to $1397 (the median income of single-person ABAWD SNAP households with income $1350-1450), the median SNAP benefit amount decreases from $196 to $60 (the BRR of 17%). Single-person ABAWD households with gross incomes above $1500 face a zero BRR because most have net income high enough to qualify only for the minimum SNAP benefit.

5. Theoretical Prediction of Labor Supply Response

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9 Other deductions include dependent care deductions and medical expenses deductions. The amount of deductions from these sources is small for most ABAWDs.

10 ABAWDs living in Alaska or Hawaii, or ABAWDs with a gross income above 200% FPL ($1980) are excluded from the sample in this analysis.
I illustrate the potential labor supply response to exempting work requirements using a static labor supply model in Figure 3. For simplicity, I disregard asset tests and assume that every ABAWD that meets the gross and net income tests receives SNAP benefits. The SNAP work requirement screens out those who work less than 20 hours per week. As a result, the budget constraint facing ABAWDs who are subject to the work requirement has a notch at the minimum work hours (Panel A in Figure 3). The SNAP benefit phases out until an ABAWD’s net income reaches the point where she qualifies for the minimum benefit ($16 in 2017). This point is calculated as (the maximum benefits – the minimum benefits) divided by 0.3 ($593 in 2017).

An ABAWD with a higher net income than (the maximum benefits – the minimum benefits)/0.3 can receive the minimum benefit as long as her net income is below the poverty line. An ABAWD’s labor supply choice is determined by her preference over income and leisure. Some ABAWDs may decide to work 20 hours or more per week and receive SNAP benefits (type 1), while others who are not capable of or are unwilling to work 20 hours per week receive no SNAP benefits (type 2).

The exemption of the work requirement expands the budget constraint to line ABCDE (Panel B in Figure 3), leading to an unambiguous negative effect on ABAWDs’ labor supply. However, the magnitude of the ABAWD’s labor supply response to the exemption hinges on the relative number of ABAWDs with different initial income-leisure bundles. For ABAWDs who would have worked 20 hours per week or more (type 1), suspending the work requirement would generate both income and substitution effects, as they would qualify for a larger amount of SNAP benefits if they reduced labor supply. For ABAWDs who would have worked less than 20 hours when the work requirement was in place (type 2), the work exemption would generate only an income effect, because the low BRR would allow them to qualify for the maximum SNAP benefit even if they do not reduce labor supply. Note that the BRR is not relevant to ABAWDs who would have worked zero hours when the work requirement was in place, and the work exemption is unlikely

\[11\] A majority of ABAWD SNAP households consists of one or two persons, and qualifies for the minimum benefit.
affect their labor supply. Taken together, the magnitude of labor supply adjustments depends on whether a majority of ABAWDs are able or willing to work 20 hours in the absence of the work exemption.\textsuperscript{12}

6. Data and Sample

My analysis uses data from three different sources. First, I use SNAP Quality Control (QC) data to estimate the SNAP benefit amount as a function of an ABAWD’s gross income level. The QC data contains a nationally representative sample of about 45,000 actual SNAP cases each year. The QC data, which is designed to assess the accuracy of states’ eligibility and the benefit determinations, also contains detailed demographic and economic information about SNAP households.

Second, in order to construct a measure of extensiveness of the work exemption in a given area and time, I combine the ABAWD waiver data with the 15% exemption data. The ABAWD waiver data comes from the United States Department of Agriculture (USDA). This dataset contains a list of areas that are covered by a waiver in each state in the years 2004-2017. Many states use a county as a unit where a waiver is covered, but some states apply waivers to cities, towns, or the entire state. In addition to the waiver, states are also granted exemptions for up to 15% of ABAWDs that are not covered by an ABAWD waiver, and unused exemptions are carried over into the next year. I collected information on the 15% exemptions through contacting state SNAP agencies and searching online.

States have leeway over how the 15% exemptions can be used, and typically apply the exemptions to 1) an entire non-waiver area, 2) an individual ABAWD based on individual circumstances, or 3) ABAWDs who received inadvertent SNAP benefits due to an administrative error. For instance, in 2017, Texas used 15% exemptions to exempt ABAWDs living in 69 non-waiver counties from work requirements, while Wisconsin applied the 15% exemptions to cover the over-issuance of benefits that some ABAWDs

\textsuperscript{12} There were other policy changes in SNAP during the recession, including a nationwide 13.6% increase in maximum benefit and expansions in income/asset eligibility limits that varied across states. While these changes in SNAP parameters have important implications on labor supply of low-income families, they apply to all age groups, and are unlikely to alter potential implications of the work exemption discussed here.
received inadvertently. Therefore, combining the waiver data with the 15% exemption data is important to accurately determine whether an ABAWD lives in an exempt area. While states are required to report the total number of 15% exemptions used each year, they are not required to track how the exemptions were used. As a result, some states do not retain records of the criteria used when applying the 15% exemptions. I exclude observations from state-year pairs where 1) the information on criteria used when applying for 15% exemptions is incomplete or 2) 15% exemptions were used based on individual circumstances. For state-year pairs where exemptions were used to individuals who received inadvertent SNAP benefits due to an administrative error, I impute the share of the exempt population to non-waiver areas (see Method Appendix for details).

Last, I use the IPUMS-USA version of American Community Survey (ACS) public-use data for survey years 2005-2017 (Ruggles et al., 2018). The ACS data contains information on SNAP participation and labor market outcomes for a representative sample of approximately one to three million housing unit addresses, including people living in group quarters.¹³ Since the interview is conducted throughout the year and respondents report their SNAP receipt and employment status in the last 12 months, the reference period for a given survey year extends into two calendar years (the survey year and the year before) for most respondents. However, the public-use ACS data does not contain information on the month of interview. Therefore, when constructing a measure of the ABAWD exemption, I set the reference period as a half-lagged calendar year (from July of the prior year to June of the current year) rather than a calendar year, because it aligns better with the ACS-based variables with the 12 month rolling reference periods.

While most common geographic unit covered by an ABAWD exemption is the county, the smallest geographical identifier in the ACS data is a PUMA (Public Use Microdata Area). PUMAs are geographic areas within one state that contain at least 100,000 people. PUMAs are usually defined along county boundaries. However, counties with more than 200,000 people are divided into multiple PUMAs. If a

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¹³ There are two types of group quarters: 1) Institutional group quarters such as correctional facilities, nursing homes, and mental hospitals, and 2) non-institutional group quarters such as student housing, military housing, and shelter for the homeless. I exclude observations in institutional group quarters from my analysis.
county has fewer than 100,000 people it is combined with parts of adjacent counties. Therefore, some PUMAs have only a portion of the ABAWD population residing in exempt areas. I construct a measure of extensiveness of ABAWD exemption in a given PUMA, defined as the share of the PUMA’s total population living in exempt areas.

PUMA boundaries are redefined with each decennial census. The PUMA boundaries in the 2005-2011 ACS data are based on 2000 census population information, whereas PUMA boundaries in the 2012-2017 ACS data are based on 2010 census population. This change in PUMA boundaries prevents me from including PUMA fixed effects that can account for time-invariant area-specific factors affecting ABAWD’s labor supply. Instead, I include fixed effects for ConsPUMA (constructed by IPUMS), which is minimally aggregated groups of PUMAs that are consistently identifiable across years 2005-2017.

Identifying individuals who are subject to the work requirements is crucial in my analysis. As mentioned earlier, an individual is considered unfit for work and exempt from the ABAWD work requirements if 1) she receives disability benefits, 2) she has physical or mental health issues that are obvious to case workers, or 3) she provides proof of inability to work 20 hours per week from medical personnel or social workers. I determine a person in the ACS data as unfit for work if she reports any benefit receipt from Supplemental Security Income (SSI) or Social Security Income, or if she has self-reported difficulties in any of the following five areas: cognitive, sensory, ambulatory, independent living, and self-care. These measures have been widely used in health research on the prevalence and the type of disability for various demographic populations (Minkler et al., 2006; Sastry and Gregory, 2013).

As mentioned earlier, I exclude state-year pairs where records on 15% exemptions are incomplete (see Appendix Table 2 for the availability of states’ 15% exemption data). I exclude ABAWDs living with an elderly (age>=60) or disabled person from my sample as they face different SNAP eligibility rules than those without. ABAWDs in institutional group quarters or the armed forces are also excluded from my sample. I focus my analysis on low-income (annual family gross income below 300% FPL) ABAWDs without a college degree who are likely to be affected by changes in SNAP work requirements. ABAWD households with annual income between 200% and 300% FPL have potential to respond to changes in
ABAWD work requirements for two reasons. First, SNAP eligibility is based on the current monthly income, whereas the annual income information is collected in the ACS data. Therefore, ABAWDs who have an annual average income above the SNAP income limit, with one or a few months of income below poverty are income eligible for SNAP.\textsuperscript{14} Second, and more importantly, the outcome variable I investigate is labor supply, which can alter household income. If ABAWDs who are initially income ineligible lower their labor supply and income to qualify for SNAP, limiting the sample only to income eligible households would lead to a biased estimate on the labor supply response to the exemption.

7. Empirical Strategy

To identify the impact of ABAWD work requirements on labor supply, I use a triple-difference specification that compares outcomes for ABAWDs aged 47-49 and ABAWDs aged 51-53 in areas that are exempt from ABAWD work requirements before and after the implementation of the exemption.\textsuperscript{15} Specifically, I estimate the following equation:

\begin{equation}
Y_{ipt} = \alpha + \beta^{DDD} Below50_{i} Exempt_{pt} + \beta_1 Exempt_{pt} + \beta_2 UR_{pt} + \theta_{pt} + \delta_{ip} + \mu_{it} + X_{ipt} \gamma + \epsilon_{ipt}
\end{equation}

where $Y_{ipt}$ is the outcome of interest such as SNAP participation, employment status, and hours worked for ABAWD household $i$, living in PUMA $p$, in year $t$. $Below50_{i}$ is an indicator for whether an ABAWD’s age is between 47 and 49. $Exempt_{pt}$ is constructed as the 12-month average of the share of PUMA population covered by the exemption in a given PUMA for the half-lagged calendar year (from July of the prior year to June of the current year). As mentioned in the data section, PUMA-by-year fixed effects cannot be included in the specification due to the change in PUMA boundaries in 2012. Instead, I include

\textsuperscript{14} I find that about 5\% of ABAWDs with an annual family income between 200\%-300\% FPL reports SNAP receipt during the past 12 months in my sample period.

\textsuperscript{15} 50-year-old ABAWDs are not included in the comparison group because most of them were 49-year-old at some point during the reference period (past 12 months) and were subject to ABAWD work requirements.
ConsPUMA-by-year fixed effects, $\theta_{pt}$, which accounts for any time-series changes in ConsPUMA characteristics and PUMA unemployment rate, $UR_{pt}$. $\delta_{ipt}$ captures age-specific ConsPUMA characteristics that are time-invariant, and $\mu_i\varepsilon$ captures the age-specific shocks. $X_{ipt}$ includes the demographic characteristics such as sex, marital status, race, citizenship, education level, group quarter status, home ownership, and family size. For families with two or more members, the labor supply of a member can be affected by the work exemption status of other family members. Therefore, I include indicators of whether each of other family members (up to four) is subject to the work requirement (age below 50) and their interactions with $Exempt_{pt}$. I use unweighted estimates because, conditional on demographic characteristics, the sampling criteria in the ACS data is unlikely to be associated with labor market outcomes (Solon et al., 2015). Standard-error estimates are clustered at the ConsPUMA to account for serial correlations among observations within a ConsPUMA. The key assumption in this triple-difference specification is that, there is no shock that differentially affect ABAWDs aged 47-49 and ABAWDs aged 51-53 in the non-exempt area.

8. Results

8.1. The Impact of Unemployment Rates on Labor Supply by Age Groups

To assess the plausibility of the assumption underlying the triple-difference model, I test whether the labor supply response of ABAWDs aged 47-49 to local labor market conditions is different from that of ABAWDs aged 51-53 within an exempt area. In particular, I restrict the sample to PUMAs that are exempt from work requirements ($Exempt_{pt}=1$). I then estimate a version of specification (1) that includes the interaction between PUMA unemployment rate, $UR_{pt}$, and an indicator for whether an ABAWD’s age

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16 Singleton observations (e.g., ConsPUMA-age or ConsPUMA-year groups with only one observation in my sample) are excluded from the sample.
is between 47 and 49, \( \text{Below50}_i \). In this specification, the coefficient on the interaction term, \( UR_{pt} \times \text{Below50}_i \), captures the effect of the PUMA unemployment rate on the labor supply outcomes of the younger ABAWDs relative to the older ABAWDs within an exempt PUMA.

Table 1 presents the results from this specification. Overall, I find little evidence that the effect of local economic conditions on ABAWDs’ labor supply differs between the older and the younger groups. In particular, the results in column 1 suggest that a one percentage point increase in the PUMA unemployment rate leads to a small (0.1 pp.) and statistically insignificant decrease in the probability of employment of ABAWDs aged 47-49 relative to those aged 51-53. Also, the impacts of local labor market conditions on the probability of working 50-52 weeks (column 2) and the number of hours spent working per week (column 3) are similar between the younger and the older group. These results in Table 1 support the identifying assumption that ABAWDs aged 47-49 and those aged 51-53 within an area would have experienced similar trends in outcomes in the absence of the work exemption.

I also examine trends in outcomes between two groups of geographical area for ABAWDs aged 47-49 and for those aged 51-53, separately (Figure 4). Specifically, I first exclude years 2015-2017, during which many areas reinstated work requirements, and restrict the sample to state-year pairs where the exemption data is complete for at least one year in both 2005-2009 (period 1) and 2010-2014 (period 2). I then partition ConsPUMAs into two groups based on the level of change in the average share of exempt population between period 1 and 2; the treat ConsPUMAs experienced a large change (\( \geq 0.5 \)) in the average share of exempt population in period 2 relative to period 1, while the control ConsPUMAs experienced a small change (\( <0.5 \)) in the average share of exempt population in period 2 relative to period 1. If the control ConsPUMAs are a good counterfactual for the treat ConsPUMAs, trends in outcomes are likely to be similar between the two groups in period 2 when most areas in both groups were exempt from work requirements. The graphs in Figure 4 show no clear evidence that patterns in SNAP participation and labor supply outcomes differ between the treat and control ConsPUMAs in period 2, for both ABAWDs aged 47-49 (Panel A) and ABAWDs aged 51-53 (Panel B).
8.2. Testing Compositional Changes in the Sample

One might be concerned that the sample (low-income ABAWDs without a college degree) is restricted based on income and disability status, which are potentially endogenous to the outcome variable, labor supply. However, compositional changes would not lead to biased estimates as long as both age groups within an area experience the same change. In Table 2, I test whether the composition of the younger group changed differently from that of the older group within an area after the exemption. Specifically, I include all adults without dependents who did not complete a college degree in the sample regardless of their disability status or income level. I then estimate equation (1) in which the dependent variable is an indicator variable for whether a person has an annual family income below 300% FPL (column 1), or whether a person is an ABAWD with a family income below 300% FPL (column 2).

The results in Column 1 suggest that individuals aged 51-53 in an exempt area are significantly more likely to have a family income below 300% than those in a non-exempt area. However, within an exempt area, the difference in the likelihood of having low income between the younger and older group is very small and statistically insignificant. Moreover, the point estimates in Column 2 indicate that the probability of a person’s being low-income ABAWD is not different between the younger and older group within an exempt area.

The composition of sample can also be changed if ABAWDs aged under 50 move from a non-exempt area to an exempt area in order to take advantage of SNAP benefits. To test this welfare migration hypothesis, I estimate equation (1) in which the dependent variable is an indicator variable for whether a low-income ABAWD without a college degree migrated over the past 12 months. The results (Columns 3 and 4) show that, low-income ABAWDs without a college degree in an exempt area are much less likely to have moved in the past 12 months than those in a non-exempt area. However, within an exempt area, the younger ABAWDs do not have a different probability of moving than the older ABAWDs. Together, results
in Table 2 suggest that there are no differential compositional changes between the younger and older ABAWDs within an area after the exemption.

8.3 The Effect of the Work Exemption on SNAP Enrollment and Labor Supply

Table 3 summarizes the main results from estimating equation (1) using the sample of low-income (<300% FPL) ABAWDs who did not complete a college degree. Panel A reports estimates of the effects of the work exemption on SNAP participation, while Panels B-D show estimates on labor supply outcomes. The baseline sample includes ABAWDs aged 47-49 and 51-53 (column 1), but I evaluate the sensitivity of results to an alternative sample of ABAWDs with narrower age ranges (48-49 and 51-52, 49 and 51) in columns 2 and 3. The results in Panel A indicate that the work exemption leads to a significant increase in SNAP participation; increasing the share of exempt population from 0 to 1 in a PUMA leads to a statistically significant 2.1 percentage point increase in SNAP participation. When the sample is restricted to ABAWDs with narrower age ranges (columns 2 and 3), the magnitude of the effect on SNAP participation is similar or greater than that with the baseline age groups. It is important to note that SNAP participation is substantially underreported in the ACS data. For instance, Meyer et al. (2018) estimate that 35% of SNAP participants are recorded as non-participants in the ACS data. Given the under-reporting issue in the ACS data, the estimated effect of the work exemption on SNAP participation is likely to be a lower bound of the true effect.

Turning to the effect on the employment status (Panel B), I find no evidence that the exemption has a negative impact on ABAWDs’ employment. In particular, the point estimate in column 1 suggests that the work exemption leads to a statistically insignificant 0.3 percentage point decrease in ABAWDs’ employment. The 95% significance intervals are small enough that I can reject a decrease in employment of more than 1.7 percentage points among ABAWDs who are potentially affected by the exemption. The estimates are remarkably robust when using narrower age groups (columns 2 and 3).
I find some evidence of a reduction in labor supply at the intensive margin (Panels C and D), though the estimates are less precise as compared to those on the extensive margin labor supply response in Panel B. In particular, the point estimate in Panel C suggests that exempting work requirements decreases the probability of working 50 weeks or more by a statistically insignificant 1.2 percentage point. This estimate is quite robust when using the sample of narrower age groups (columns 2 and 3). The work exemption also has a statistically insignificant negative effect on usual hours worked (Panel D), but a caution is that the estimate is imprecise and relatively sensitive to the choice of the age range of the sample.

In Appendix Table 3, I further assess the impact of the work exemption on additional labor supply outcomes and incomes, such as whether an ABAWD worked 1-26 weeks (column 1) or 27-49 weeks (column 2), annual wage (column 3), and family annual income (column 4). Columns 1-2 indicate that suspending the work requirement leads to a statistically insignificant 0.3 (0.6) percentage point increase in the likelihood of working 1-26 (27-29) weeks. I find negative but insignificant impacts of the work exemption on wage (column 3) and family income (column 4). These results, together with the results from Table 3, suggest that the exemption of work requirement has a modest but statistically insignificant negative impact on ABAWDs’ labor supply along the intensive margins.

8.4 The Robustness Checks

I assess the sensitivity of my results to alternative samples and specifications in Table 4. In the main sample, a disabled person is defined as one who receives any disability benefits or has any self-reported difficulties. However, some adults with a self-reported difficulty who do not receive disability benefits may be classified as “able-bodied” for SNAP benefits and are subject to the work requirement. I evaluate the robustness of the results to the inclusion of adults with self-reported difficulties in the sample (Column 1). The results show that using this alternative sample yields a somewhat larger negative effect of the work exemption on labor supply, but does not affect the qualitative conclusion.
The baseline sample consists of states with different time frames because I use all available exemption data. I explore the sensitivity of main results to restricting the sample to a “balanced panel” of 17 states for which I have complete exemption data for all years. Column 2 shows that the results are qualitatively similar to those with the baseline sample, though the effects are estimated with less precision due to the smaller sample size.

If there are other state policies that distinctively affect ABAWDs under age 50 and those above age 50 within an exemption area, my estimates on the effect of the work exemption would be biased. In column 3, I evaluate the robustness of results to an alternative specification that include state-by-year-by-age group fixed effects. While these fixed effects account for any state-level shocks that differently affect the labor supply of the younger and the older ABAWDs, they absorb all cross-state exemption variation, leading to less statistical power to estimate the effect of the work exemption. Nevertheless, the results in column 3 show that the inclusion of the state-by-year-by-group fixed effects influences the point estimates only modestly, except that the effect on hours worked becomes larger and is marginally significant. Last, Column 4 shows that the inclusion of ABAWDs with income above 300% FPL yields qualitatively similar results.

8.5 Heterogeneous Effect by Occupations

There is noticeable variation in labor demand, turnover rates, and wages across occupations. Consequently, the work exemption can generate different labor supply incentives for ABAWDs with different occupational categories. In Table 5, I examine the heterogeneity of the effect of the ABAWD exemption across six different occupations: service (column 1), construction and natural resources (column 2), production and transportation (column 3), sales and office (column 4), management and professional (column 5), and no work experience within the last 5 years (column 6).\(^{17}\)

\(^{17}\) In the ACS, respondents report their primary occupation and unemployed persons report their most recent occupation.
The results in Panel A indicate that the effect of the work exemption on SNAP participation is most noticeable among ABAWDs in service occupations or those who did not work at all in the last 5 years. In particular, a change from zero to full exemption in a PUMA leads to a statistically significant 5.6 percentage point increase in SNAP participation (or 37% of the mean SNAP participation rate) for ABAWDs in service occupations (column 1) and a marginally significant 5.8 percentage point increase in SNAP participation (or 26% of the mean SNAP participation rate) for those who do not have work experience in the last 5 years (column 6). The average SNAP participation rates are relatively high among ABAWDs in these two occupational groups. By contrast, the work exemption has a small and statistically insignificant effect on SNAP participation for ABAWDs in other occupations.

Panels B-D of Table 5 present estimates of impacts on the labor supply of ABAWDs across occupations. The results in column 1 show that the work exemption has somewhat larger negative impacts on labor supply for ABAWDs in service occupations (column 1) compared to its impacts for the full sample shown in Table 3. The labor supply responses of ABAWDs in other occupations (columns 2-5) are qualitatively similar to those of ABAWDs in service occupations, although the effects are estimated with less precision due to the smaller sample sizes.

The findings from this occupational subgroup analysis help reconcile the baseline results with the full sample shown in Table 3. Low-income ABAWDs who newly enrolled in SNAP due to the exemption tend to have no recent work experience at all, or work part-time in service occupations. While I find some evidence that the work exemption leads to a reduction in labor supply of ABAWDs in service occupations, the overall negative impacts of the work exemption on ABAWDs’ labor supply are only modest because a significant portion of newly enrolled ABAWDs are the long-term non-employed who does not adjust their labor supply in response to the work exemption.\textsuperscript{18}

\textsuperscript{18} I also explore heterogeneity of the work exemption effect by education groups (Appendix Table 4) and by demographic groups (Appendix Table 5). I find that the effects of work exemption on SNAP participation and labor supply are larger for less-educated ABAWDs, and single women and married men.
8.5 Exemption vs. Imposition of Work Requirements

My sample period covers years 2005-2017 during which both the suspension and reinstatement of the work requirement occurred in most areas. The labor supply responses may be asymmetric in the exemption and imposition of work requirements due to a number of reasons. First, adjustment costs of increasing labor supply (e.g., search costs) are likely to be greater than those of decreasing labor supply. Second, the exemption status in an area is heavily tied to the local labor market condition which can affect labor demand and wages. Third, costs of enrollment in SNAP are greater than those of disenrollment from SNAP. Specifically, eligible ABAWDs have to file an application and participate in an interview in order to receive SNAP benefits, whereas people who become disqualified for SNAP lose SNAP benefits automatically.

In Table 6, I separately examine the effects of the exemption and imposition of work requirements on labor supply. In column 1, I restrict the sample period to years before 2013 during which a majority of areas switched from a non-exemption to an exemption area. In column 2, the sample includes years between 2010 and 2017 during which many areas reinstated work requirements. Results in Table 5 show little evidence of asymmetric responses to changes in the work rule. In particular, exempting work requirements leads to a statistically significant 2.2 percentage point increase in SNAP participation (Panel A) and a statistically insignificant 0.1 percentage point increase in employment (Panel B). On the other hand, imposing work requirements in an area (a change from full exemption to no exemption) leads to a statistically significant 2.5 percentage point (pp.) decrease in SNAP participation and a statistically insignificant 0.1 pp. increase in employment. The estimated effects of the work exemption on whether an ABAWD works 50 weeks or more (Panel C) or hours worked (Panel D) are statistically insignificant, and are qualitatively similar in absolute value to those of imposing work requirements. Taken together, there is little evidence that ABAWDs’ labor supply responses are asymmetric in the exemption and imposition of work requirements.
9. Conclusion

The expansion of work requirements in welfare programs has been an issue of much debate in recent years, yet there is limited evidence available to assess its effectiveness in promoting work. In this paper, I investigate the impact of work requirements in SNAP on the labor supply of low-income non-disabled adults without dependents using two unique features of SNAP work requirements. First, states can exempt individuals living in areas with high unemployment rates from work requirements. Second, the work requirements apply only to adults aged below 50. Comparing the differences in the labor supply of ABAWDs aged 47-49 and those aged 51-53 in areas before and after the exemption, I find little evidence that SNAP benefits discourage work; a reduction in employment of more than 1.7 percentage points among ABAWDs who are potentially affected by the exemption can be rejected with my 95% confidence interval. I find that the estimated effects of the work exemption on labor supply on intensive margins (the number of weeks or hours worked) is negative, though estimated imprecisely.

Further analysis reveals two factors that contribute to the non-adjustment of labor supply along the extensive margin. First, many of ABAWDs who enrolled in SNAP due to the exemption are the long-term non-employed who have no labor supply to reduce. Second, due to the generous income deductions in benefit calculation, the effective benefit reduction rate (BRR) is low (<5%) at very low income very low income ($0-500), decreasing the substitution effect of the work exemption, while increasing the income effect. In sum, my findings suggest that the ABAWD work requirement is unlikely to produce the intended self-sufficiency and instead may undermine the well-being of disadvantaged non-disabled adults without dependents by cutting welfare benefits.

The low-income non-disabled adults without dependents face various barriers to employment, including issues with health/transportation, lack of credentials, and criminal records. States are required to offer employment and training services (E&T programs) which are designed to help SNAP participants acquire skills or experience needed to find a job. However, many states ran voluntary programs only, and
the type of services available to SNAP participants were mostly confined to job search assistance/training due to limited resources until recently (Rowe et al., 2017). Providing intensive services that address challenges that ABAWDs face in finding a job can be crucial to promote employment among ABAWDs in the long run, but it may involve large short-term costs. Rigorous evaluations of the currently available services and training programs will provide a basis to improve work-related policies in SNAP and other safety net programs.
Figure 1. Trends in the PUMA Population Covered by the ABAWD Exemption

Panel A                                                                       Panel B

ABAWD Exemption Status in 2005                                                             ABAWD Exemption Status in 2010

Panel C

ABAWD Exemption Status in 2017

Notes: Panel A, B, and C present the share of the PUMA population covered by the ABAWD exemption in the years 2005, 2010, and 2017, respectively. State-year pairs for which I have incomplete exemption data are excluded.
Figure 2. The Amount of SNAP Benefits by Gross Monthly Income

Note: This figure shows the amount of SNAP benefits as a function of the gross monthly income for single-person ABAWD SNAP households using the 2005-2017 Quality Control data. ABAWDs are divided into 20 groups based on their gross monthly income (e.g., $0-50, $50-150, $150-250, etc.). For each income group, the median gross income and the median SNAP benefits, expressed in 2017 dollars, are plotted on the x-axis and y-axis, respectively.
Figure 3. Potential implications of suspending work requirements

Panel A. Budget Constraint with Work Requirement

Panel B. Budget Constraint without Work Requirement
Figure 4. Trends in outcomes between two groups of geographical area by age group

Panel A. ABAWDs aged 47-49

Panel B. ABAWDs aged 51-53

Notes: These figure show trends in outcomes between the treat and control ConsPUMAs for ABAWDs aged 47-49 (Panel A) and for those aged 51-53 (Panel B) from 2005 to 2014. The sample is restricted to state-year pairs where the exemption data is complete for at least one year in both 2005-2009 (period 1) and 2010-2014 (period 2). The treat ConsPUMAs experienced a large change (>=0.5) in the average share of exempt population in period 2 relative to period 1, while the control ConsPUMAs experienced a small change (<0.5) in the average share of exempt population in period 2 relative to period 1.
Table 1. Impact of Unemployment Rates on Labor Supply by Age Groups

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Any Work (1/0)</th>
<th>Worked 50-52 weeks (1/0)</th>
<th>Usual hours worked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below50*UR{pt}</td>
<td>-0.000</td>
<td>-0.001</td>
<td>-0.013</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.039)</td>
</tr>
<tr>
<td>UR{pt}</td>
<td>-0.004***</td>
<td>-0.004***</td>
<td>-0.174***</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.036)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.78</td>
<td>0.55</td>
<td>29.39</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>139,740</td>
<td>139,740</td>
<td>139,740</td>
</tr>
</tbody>
</table>

Notes: Each column reports estimates from a version of equation (1) that includes Below50*UR{pt} on the sample of low-income (<300% FPL) ABAWDs aged 47-49 or 51-53 who have not completed a college degree and live without elderly (age<60) persons in an exempt PUMA. Robust standard errors clustered at the ConsPUMA level in parentheses. *** 0.01, ** 0.05, * 0.1.
Table 2. Impacts of the Work Exemption on the Composition of the Sample

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Income &lt;=300% FPL</th>
<th>Non-disabled with Income &lt;=300% FPL</th>
<th>Any Migration</th>
<th>Migration within State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below50\textsuperscript{a}Exempt{pt}</td>
<td>-0.001 (0.004)</td>
<td>-0.001 (0.003)</td>
<td>-0.004 (0.006)</td>
<td>-0.003 (0.005)</td>
</tr>
<tr>
<td>Exempt{pt}</td>
<td>0.070*** (0.013)</td>
<td>0.018* (0.010)</td>
<td>-0.031*** (0.011)</td>
<td>-0.026** (0.011)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.427</td>
<td>0.243</td>
<td>0.150</td>
<td>0.125</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>930,586</td>
<td>930,586</td>
<td>207,896</td>
<td>207,896</td>
</tr>
</tbody>
</table>

Notes: Columns 1 and 2 report estimates from equation (1) on samples of adults aged 47-49 or 51-53 who have not completed a college degree and live without children or elderly (age<60) persons. Columns 3 and 4 report estimates from equation (1) on the sample of low-income (<300% FPL) ABAWDs aged 47-49 or 51-53 who have not completed a college degree and live without elderly persons. Robust standard errors clustered at the ConsPUMA level in parentheses. *** 0.01, ** 0.05, * 0.1.
Table 3. Impacts of the ABAWD Exemption on SNAP Receipt and Labor Supply

<table>
<thead>
<tr>
<th>Age Range</th>
<th>3 years</th>
<th>2 years</th>
<th>1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A. Dependent variable: SNAP receipt (1/0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>0.021***</td>
<td>0.022***</td>
<td>0.032***</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.008)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.14</td>
<td>0.14</td>
<td>0.14</td>
</tr>
<tr>
<td>Panel B. Dependent Variable: Any work (1/0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.003</td>
<td>0.000</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.009)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.79</td>
<td>0.79</td>
<td>0.79</td>
</tr>
<tr>
<td>Panel C. Dependent Variable: Worked 50-52 weeks (1/0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.012</td>
<td>-0.012</td>
<td>-0.008</td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
<td>(0.012)</td>
<td>(0.017)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.56</td>
<td>0.56</td>
<td>0.56</td>
</tr>
<tr>
<td>Panel D. Dependent Variable: Usual hours worked</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.231</td>
<td>-0.420</td>
<td>-0.696</td>
</tr>
<tr>
<td></td>
<td>(0.339)</td>
<td>(0.422)</td>
<td>(0.615)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>30.2</td>
<td>30.2</td>
<td>30.2</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>207,896</td>
<td>139,330</td>
<td>68,582</td>
</tr>
</tbody>
</table>

Notes: Columns 1 reports estimates from equation (1) on the sample of low-income (<300% FPL) ABAWDs aged 47-49 or 51-53 who have not completed a college degree and live without elderly (age<60) persons. Column 2 (column 3) restricts the sample to low-income ABAWDs aged 48-49 or 51-52 (49 or 51) who have not completed a college degree and live without elderly persons. Robust standard errors clustered at the ConsPUMA level in parentheses. *** 0.01, ** 0.05, * 0.1.
Table 4. Impacts of the ABAWD Exemption on SNAP Receipt and Labor Supply, Robustness Check

<table>
<thead>
<tr>
<th>Sample/Specification</th>
<th>Disability defined as DI receipt only</th>
<th>17 states with complete exemption data for all years</th>
<th>State-Year-Group FE Included</th>
<th>All income groups included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A. Dependent variable: SNAP receipt (1/0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>0.019***</td>
<td>0.022**</td>
<td>0.015</td>
<td>0.008***</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.010)</td>
<td>(0.010)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.19</td>
<td>0.13</td>
<td>0.14</td>
<td>0.06</td>
</tr>
<tr>
<td>Panel B. Dependent Variable: Any work (1/0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.008</td>
<td>-0.010</td>
<td>-0.008</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.012)</td>
<td>(0.011)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.74</td>
<td>0.80</td>
<td>0.79</td>
<td>0.88</td>
</tr>
<tr>
<td>Panel C. Dependent Variable: Worked 50-52 weeks (1/0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.010</td>
<td>-0.004</td>
<td>-0.014</td>
<td>-0.001</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.016)</td>
<td>(0.014)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.51</td>
<td>0.57</td>
<td>0.56</td>
<td>0.73</td>
</tr>
<tr>
<td>Panel D. Dependent Variable: Usual hours worked</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.467</td>
<td>-0.343</td>
<td>-0.877*</td>
<td>-0.230</td>
</tr>
<tr>
<td></td>
<td>(0.294)</td>
<td>(0.528)</td>
<td>(0.489)</td>
<td>(0.152)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>27.8</td>
<td>30.8</td>
<td>30.2</td>
<td>36.3</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>295,244</td>
<td>86,360</td>
<td>208,009</td>
<td>658,429</td>
</tr>
</tbody>
</table>

Notes: Columns 1-3 report estimates from equation (1) on the sample of low-income (<300% FPL) ABAWDs aged 47-49 or 51-53 who have not completed a college degree and live without elderly (age<60) persons. The sample in Column 4 includes ABAWDs aged 47-49 or 51-53 who have not completed a college degree and live without elderly persons regardless of income level. Robust standard errors clustered at the ConsPUMA level in parentheses. *** 0.01, ** 0.05, * 0.1.
<table>
<thead>
<tr>
<th>Occupations</th>
<th>Food prep./Serving, Cleaning, Personal care/Service</th>
<th>Construction, Natural resources</th>
<th>Production, Transportation</th>
<th>Sales, Office</th>
<th>Management, Professional</th>
<th>No work experience in the last 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A. Dependent variable: SNAP receipt (1/0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>0.056***</td>
<td>-0.011</td>
<td>0.025</td>
<td>-0.000</td>
<td>0.015</td>
<td>0.058*</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.15</td>
<td>0.12</td>
<td>0.14</td>
<td>0.11</td>
<td>0.09</td>
<td>0.22</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.15</td>
<td>0.12</td>
<td>0.14</td>
<td>0.11</td>
<td>0.09</td>
<td>0.22</td>
</tr>
<tr>
<td>Panel B. Dependent Variable: Any work (1/0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.014</td>
<td>0.008</td>
<td>0.013</td>
<td>-0.028*</td>
<td>-0.008</td>
<td></td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.92</td>
<td>0.90</td>
<td>0.90</td>
<td>0.89</td>
<td>0.89</td>
<td></td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.92</td>
<td>0.90</td>
<td>0.90</td>
<td>0.89</td>
<td>0.89</td>
<td></td>
</tr>
<tr>
<td>Panel C. Dependent Variable: Worked 50-52 weeks (1/0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.030</td>
<td>-0.002</td>
<td>-0.025</td>
<td>-0.002</td>
<td>-0.032</td>
<td></td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.67</td>
<td>0.52</td>
<td>0.64</td>
<td>0.67</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.67</td>
<td>0.52</td>
<td>0.64</td>
<td>0.67</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>Panel D. Dependent Variable: Usual Hours worked</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.431</td>
<td>-0.452</td>
<td>0.382</td>
<td>-1.302*</td>
<td>-1.469</td>
<td></td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>32.78</td>
<td>35.26</td>
<td>36.15</td>
<td>33.66</td>
<td>35.13</td>
<td></td>
</tr>
<tr>
<td>Number of Observations</td>
<td>48,376</td>
<td>24,181</td>
<td>36,367</td>
<td>39,795</td>
<td>16,248</td>
<td>19,429</td>
</tr>
</tbody>
</table>

Notes: Each column reports estimates from equation (1) on the sample of low-income (<300% FPL) ABAWDs aged 47-49 or 51-53 who have not completed a college degree and live without elderly (age<60) persons. Robust standard errors clustered at the ConsPUMA level in parentheses. *** 0.01, ** 0.05, * 0.1.
Table 6. Exemption vs. Imposition of Work Requirements

<table>
<thead>
<tr>
<th>Sample Period</th>
<th>Year&lt;=2013</th>
<th>Year&gt;=2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A. Dependent variable: SNAP receipt (1/0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>0.022***</td>
<td>0.025**</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.13</td>
<td>0.16</td>
</tr>
<tr>
<td>Panel B. Dependent Variable: Any work (1/0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.001</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.79</td>
<td>0.78</td>
</tr>
<tr>
<td>Panel C. Dependent Variable: Worked 50-52 weeks (1/0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.007</td>
<td>-0.008</td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.55</td>
<td>0.56</td>
</tr>
<tr>
<td>Panel D. Dependent Variable: Usual Hours Worked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.180</td>
<td>0.034</td>
</tr>
<tr>
<td></td>
<td>(0.416)</td>
<td>(0.552)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>30.22</td>
<td>29.49</td>
</tr>
</tbody>
</table>

| Number of Observations | 148,967 | 145,812 |

Notes: Each column reports estimates from equation (1) on the sample of low-income (<300% FPL) ABAWDs aged 47-49 or 51-53 who have not completed a college degree and live without elderly (age<60) persons. Robust standard errors clustered at the ConsPUMA level in parentheses. *** 0.01, ** 0.05, * 0.1.
References


Appendix Table 1. The Contribution to the Growth in SNAP Participation Rate from 2007 to 2011

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>SNAP</th>
<th>Change in the exempt share and unemployment rate</th>
<th>Predicted change in SNAP participation</th>
<th>Actual change in SNAP participation</th>
<th>Contribution to the growth in SNAP participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below50*Exempt{pt}</td>
<td>0.022**</td>
<td>0.009</td>
<td>0.090</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exempt{pt}</td>
<td>0.045***</td>
<td>0.399</td>
<td>0.018</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UR{pt}</td>
<td>0.582***</td>
<td>0.042</td>
<td>0.024</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.072)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>84,761</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Column 1 reports estimates from equation (1) on the main sample using the ACS 2007-2011 data. The coefficient on Below50*Exempt{pt} and UR{pt} captures the effect of the ABAWD work exemption and PUMA-level unemployment rate, respectively, on SNAP receipt. The coefficient on Exempt{pt} captures the effect of local labor market shocks that are not related to UR{pt} on SNAP receipt. Column 2 reports changes in the means of Exempt{pt} and UR{pt} from 2007 to 2011. Column 3 reports the predicted changes in SNAP participation rate between 2007 and 2011 due to Below50*Exempt{pt}, Exempt{pt}, and UR{pt}. For example, the predicted change in SNAP participation rate due to the ABAWD exemption is calculated as the change in the mean of Exempt{pt} (Column 2), multiplied by the coefficient on Below50*Exempt{pt} (Column 1). Column 4 reports the growth in the mean of SNAP participation rate from 2007 to 2011. In Column 5, the contribution of each component (Below50*Exempt{pt}, Exempt{pt}, UR{pt}) is calculated as the predicted change in SNAP participation due to each component (Column 3), divided by the growth in SNAP participation rate from 2007 to 2011 (Column 4).
### Appendix Table 2. The Availability of 15% Exemption Data by State

1. States with complete data for all years
2. States with incomplete data for 1 year
   - FL, MD, MI, OH, NM, SD (6)
3. States with incomplete data for 2 years
   - IA, ME, MS*, NJ, RI (5)
4. States with incomplete data for 3 years
   - ID, MN, UT* (3)
5. States with incomplete data for 4 years
   - AL, CT, KY, LA, MT, NH, OK (7)
6. States with incomplete data for 5 years or more
   - AR, CA, CO, HI, IN, MA, NY, NE, NV, PA, TN, VT, WV (13)

**Notes:** *For certain years, the share of exempt population in non-waiver areas is imputed based on the number of 15% exemptions used in the state. See Method Appendix for details.*
Appendix Table 3. Impacts of the ABAWD Exemption on Additional Labor Supply Outcomes and Incomes

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Worked 1-26 weeks (1/0)</th>
<th>Worked 27-49 weeks (1/0)</th>
<th>Wage</th>
<th>Family income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Below50*Exempt(pt)</td>
<td>0.003</td>
<td>0.006</td>
<td>-255.975</td>
<td>-319.011</td>
<td>(0.006)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.10</td>
<td>0.13</td>
<td>$14,527</td>
<td>$26,150</td>
<td>Number of Observations</td>
</tr>
</tbody>
</table>

Notes: This table reports estimates from equation (1) on the sample of low-income (<300% FPL) ABAWDs aged 47-49 or 51-53 who have not completed a college degree and live without elderly (age<60) persons. Robust standard errors clustered at the ConsPUMA level in parentheses. *** 0.01, ** 0.05, * 0.1. Values of wage and family income are expressed in 2017 dollars.
Appendix Table 4. Heterogeneous Effects across Education Groups

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Less than H.S. degree</th>
<th>H.S. degree</th>
<th>Some College but no degree</th>
<th>College degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A. Dependent variable: SNAP receipt (1/0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>0.039*</td>
<td>0.016*</td>
<td>0.021*</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.009)</td>
<td>(0.012)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.17</td>
<td>0.13</td>
<td>0.13</td>
<td>0.08</td>
</tr>
<tr>
<td>Panel B. Dependent Variable: Any work (1/0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.007</td>
<td>-0.009</td>
<td>0.007</td>
<td>0.026*</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.010)</td>
<td>(0.014)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.75</td>
<td>0.80</td>
<td>0.82</td>
<td>0.81</td>
</tr>
<tr>
<td>Panel C. Dependent Variable: Worked 50-52 weeks (1/0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.012</td>
<td>-0.013</td>
<td>-0.010</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>(0.023)</td>
<td>(0.014)</td>
<td>(0.020)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.52</td>
<td>0.57</td>
<td>0.57</td>
<td>0.54</td>
</tr>
<tr>
<td>Panel D. Dependent Variable: Usual Hours worked</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.865</td>
<td>-0.470</td>
<td>0.228</td>
<td>1.165</td>
</tr>
<tr>
<td></td>
<td>(0.881)</td>
<td>(0.468)</td>
<td>(0.698)</td>
<td>(0.803)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>28.2</td>
<td>30.6</td>
<td>31.1</td>
<td>30.7</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>41,566</td>
<td>102,738</td>
<td>56,493</td>
<td>54,469</td>
</tr>
</tbody>
</table>

Notes: Each column reports estimates from equation (1) on the sample of low-income (<300% FPL) ABAWDs aged 47-49 or 51-53 who live without elderly (age<60) persons. Robust standard errors clustered at the ConsPUMA level in parentheses. *** 0.01, ** 0.05, * 0.1.
Appendix Table 5. Heterogeneous Effects across Demographic Groups

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Single Male</th>
<th>Single Female</th>
<th>Married Male</th>
<th>Married Female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A. Dependent variable: SNAP receipt (1/0)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>0.011</td>
<td>0.023*</td>
<td>0.022*</td>
<td>0.017</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.013)</td>
<td>(0.012)</td>
<td>(0.011)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.18</td>
<td>0.18</td>
<td>0.07</td>
<td>0.07</td>
</tr>
<tr>
<td><strong>Panel B. Dependent Variable: Any work (1/0)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.002</td>
<td>0.001</td>
<td>0.006</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.012)</td>
<td>(0.016)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.81</td>
<td>0.82</td>
<td>0.87</td>
<td>0.64</td>
</tr>
<tr>
<td><strong>Panel C. Dependent Variable: Worked 50-52 weeks (1/0)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.004</td>
<td>-0.016</td>
<td>-0.034</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>(0.021)</td>
<td>(0.018)</td>
<td>(0.030)</td>
<td>(0.026)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>0.53</td>
<td>0.62</td>
<td>0.63</td>
<td>0.44</td>
</tr>
<tr>
<td><strong>Panel D. Dependent Variable: Usual Hours worked</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below50*Exempt{pt}</td>
<td>-0.233</td>
<td>-0.107</td>
<td>-0.409</td>
<td>0.960</td>
</tr>
<tr>
<td></td>
<td>(0.707)</td>
<td>(0.585)</td>
<td>(0.900)</td>
<td>(0.989)</td>
</tr>
<tr>
<td>Mean of Dependent Var</td>
<td>31.55</td>
<td>30.30</td>
<td>35.74</td>
<td>22.20</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>58,537</td>
<td>62,297</td>
<td>35,712</td>
<td>39,661</td>
</tr>
</tbody>
</table>

Notes: Each column reports estimates from equation (1) on the sample of low-income (<300% FPL) ABAWDs aged 47-49 or 51-53 who have not completed a college degree and live without elderly (age<60) persons. Robust standard errors clustered at the ConsPUMA level in parentheses. *** 0.01, ** 0.05, * 0.1.
Method Appendix: Constructing a Measure of Work Exemption Status at the PUMA Level

1. Crosswalk between counties/cities and PUMA

The smallest geographical identifier in the ACS is a PUMA while a county is the most common geographic unit that is covered by an ABAWD exemption. I calculate a PUMA’s exemption status as the fraction of the PUMA’s population living in areas covered by ABAWD exemptions (waiver or 15% exemption).\textsuperscript{19} I assign counties/cities to PUMAs using data on 2010 county/city population across PUMAs which comes from Missouri Census Data Center (http://mcdc.missouri.edu/).

2. Imputation of the share of exempt population in non-waiver areas.

States are allowed to exempt up to 15 percent of ABAWDs that are not covered by a waiver. States typically apply the 15% exemptions to 1) an entire non-waiver area, 2) an individual ABAWD based on individual circumstances, or 3) ABAWDs who received inadvertent SNAP benefits due to an administrative error. I exclude from the sample state-year pairs where a) the information on criteria used when applying for 15% exemptions is missing or b) 15% exemptions were used based on individual circumstances.\textsuperscript{20} For states that applied exemptions to individuals who received inadvertent SNAP benefits due to an administrative error, I impute the share of the exempt population to non-waiver areas under the assumption that the use of 15% exemptions is not correlated with areas or individual characteristics. Specifically, for a given state and month, I estimate the percent of ABAWDs in non-waiver areas who received SNAP benefits due to the 15% exemption as:

\[
\frac{\#15\% \text{ exemptions}_{st}}{\#\text{SNAP ABAWD}_{st} \times \left( \frac{\text{Pop. in nonwaiver area}_{s2010}}{\text{Population}_{s2010}} \right)}
\]

where the numerator is the estimated number of 15% exemptions used in a state and month, and the denominator is the estimated number of ABAWDs receiving SNAP benefits in non-waiver areas in a state and month. To estimate the denominator value, I multiply the estimated number of SNAP ABAWDs in a state-month (#SNAP ABAWD\textsubscript{st}) by the fraction of 2010 state population living in non-waiver areas (#\text{pop.in nonwaiver area}_{s2010} / \text{population}_{s2010}). #SNAP ABAWD\textsubscript{st} is calculated as the number of work registrants at the state level, multiplied by the share of work registrants who are ABAWDs at the national level (#Work registrant\textsubscript{st} \times \#ABAWD\textsubscript{t} / #Work registrant\textsubscript{t}).

\textsuperscript{19} In this calculation, I disregard the waiver status of Indian reservations that comprises only a small fraction of a PUMA’s population.

\textsuperscript{20} Exceptions are state-year pairs where less than 100 exemptions were used. I include them in my sample and treat all non-waiver areas in the state-year as non-exempt areas.