Penalties in the Safety Net: Effects of Work Requirement Enforcement on Program Participation and Labor Supply*

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U.S. cash assistance promotes self-sufficiency through employment but imposes penalties that reduce or remove benefit income when participants violate work requirements. This paper quantifies the downstream consequences of not meeting work requirements using novel administrative data covering the full caseload of Michigan's Temporary Assistance for Needy Families (TANF) program, combined with monthly enrollment records in the Supplemental Nutrition Assistance Program (SNAP) and Medicaid, as well as quarterly Unemployment Insurance earnings records. We study a policy reform that increased the length of time that families were removed from TANF after violating work requirements to estimate causal responses of long-term safety net attachment and labor supply. We find that penalties result in persistent enrollment declines in SNAP and Medicaid for all household members, even those still eligible for programs. Moreover, when penalties are made more severe, far fewer families re-attach to TANF and formal employment declines due to a decreasing rate of job entry. On net, labor supply responses do not offset lost benefit income, and harsher penalties reduce cumulative financial resources by an additional 73 percent over the subsequent two years. Our findings indicate that sanctions reduce broader safety net attachment and increase economic instability for vulnerable families over the long term.

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1 Introduction

Low-income American families rely upon a complex, patchwork safety net to make ends meet. The Temporary Assistance for Needy Families (TANF) program provides monthly cash assistance transfers to families with children, for whom benefit income represents a crucial financial resource. Among 2019 TANF recipients, only 16% reported some form of monthly non-TANF income averaging around $950, relative to $450 of TANF benefits. In addition, 93% of recipients were enrolled in Medicaid during their TANF enrollment, and 80% were enrolled in the Supplemental Nutrition Assistance Program (SNAP), with SNAP benefits of $450 on average.[1]

Beyond verifying income and asset eligibility, access to benefit income requires compliance with complex rules and work requirements, which are particularly stringent in the TANF program. When participants do not verify employment-related activities of at least 30 hours per week, TANF benefits are reduced or removed for periods of time in what are commonly referred to as "work sanctions." These penalties are intended to motivate participants to identify and remove barriers to work, either in anticipation of losing future benefit income or to offset lost benefits while sanctioned. When applied, these sanctions remove a large proportion of monthly income from affected households and eliminate categorical eligibility . If sanctioned families do not take steps to re-certify safety net eligibility for SNAP and Medicaid or increase labor supply to offset lost benefit income, then sanctions may have larger and longer-term ramifications for economic security.

To study how safety net attachment and labor supply change following a violation of TANF work requirements, we construct a novel, micro-data panel with administrative records from the Michigan Department of Health and Human Services (MDHHS). For the universe of individuals ever enrolled in Michigan TANF between 2009-2019, we combine data on monthly TANF, SNAP and Medicaid enrollment with quarterly administrative earnings records and rich demographics. To these data, we add information on all violations of work requirements and the associated penalties during this time, allowing us to precisely estimate how program enrollment, employment and earnings respond to sanctioning. Because our unique panel structure follows all individuals exposed to work sanctions over time, we quantify effects for those directly sanctioned from TANF, as well as their household members, the majority of whom are young children.

We next leverage a natural experiment to quantify how time removed from the TANF program affects economic security. In October 2011, Michigan increased the duration of TANF work sanctions such that penalties for a first violation of work requirements remained the same, but the penalty period for a second violation increased from three to six months, and the penalty for a third violation increased from twelve months to a lifetime ban. While being sanctioned is clearly associated with labor supply, the unique features of this reform and our detailed panel data allow us to compare cohorts of individuals that have already violated work requirements one time (i.e. selected into treatment) and exploit variation in the timing of second violations to

[1] See Table 11, 37, 40 from Office of Family Assistance, 2020.

estimate effects. We use a difference-in-differences model to compare program participation and labor supply surrounding second work sanctions that took place within two years of this reform (October 2009-October 2013), resulting in either losing TANF access for three months prior to the reform (control) or six months after the reform (treatment). As the reform increased penalties associated with both second and third work sanctions, those sanctioned after the reform may also change behavior in anticipation of harsher future penalties. Thus, our main estimates capture both the effect of three additional months without access to TANF benefits, as well as responses due to the possibility of a future ban.

This strategy identifies the causal effect of increasing work sanction severity, under the assumption that safety net participation and labor supply would have evolved in parallel between those sanctioned for the second time before relative to after the reform, in absence of the policy change. However, we may be concerned that those sanctioned after the reform would have responded differently to penalties, regardless of their length, which may occur if the reform led to different types of people being sanctioned. We address this threat in numerous ways. First, we use inverse propensity score weights to re-weight the sample of those sanctioned after the reform to have the same average demographic and prior-safety net utilization characteristics as those sanctioned before the reform. Next, we show that the proportion of the TANF caseload sanctioned, as well as the characteristics of those sanctioned, does not change discretely surrounding the reform, suggesting that ex ante responses to increasing penalties were modest and likely did not generate much selection. Finally, we show that our results are robust to restricting our sample to those whose first sanction took place prior to the reform.

Nonetheless, because we study a time period during recovery from the Great Recession, we may be concerned that those sanctioned after the reform operated in a stronger economy and labor market. This could mean that, conditional on being sanctioned, individuals were more likely to find a job and move into self-sufficiency. To address this, we estimate an alternative difference-in-difference-in-differences (i.e. triple difference) model that removes variation attributable to changing economic conditions by including a third control group of those sanctioned only once before versus after the reform. Members of this group were removed from TANF for three months regardless of sanction timing, but they were exposed to similar economic conditions and future penalty increases as those sanctioned twice. As such, although the triple difference results are qualitatively in line with our main specification, they help contextualize concerns about changing economic conditions and anticipation of future penalties; in comparison to our main difference-in-difference estimates, they provide an upper bound for responses attributable solely to three additional months without TANF access.

We find that TANF sanctions have far-reaching consequences for safety net participation. First, individuals exposed to work sanctions are persistently less likely to return to TANF once sanctions end. Our difference-in-differences specification finds that increasing sanction severity led to a 27-percentage point reduction in cumulative TANF reattachment over the two years

following a second work sanction. When we difference out responses of those subject to only one work sanction, our triple difference strategy indicates that the majority of this effect is driven by three additional months without access to TANF, as opposed to anticipation of harsher future sanctions. In addition, we find that increasing sanction duration increases the amount of time that beneficiaries are not categorically eligible for other safety net programs, leading to significant reductions in SNAP and Medicaid enrollment by the time sanctions end.[2] Moreover, regardless of sanction duration, beneficiaries that leave TANF do not return to SNAP or Medicaid after sanctions expire, such that take-up in both programs is around 20% lower two years after a TANF work sanction.[3] This is notable, as we may have expected SNAP and Medicaid to fill in resource gaps when TANF is inaccessible; instead, we find that removing people from TANF leads to persistent declines in take-up even in safety net programs with far fewer eligibility requirements.

We next explore whether beneficiaries offset lost benefit income through labor supply. First, we find that sanctions have a small positive effect on labor earnings, but this increase is not enough to offset lost TANF and SNAP benefits during penalties, meaning that work sanctions represent a net reduction in financial resources. Second, we find that increasing work sanction severity leads to deteriorating formal employment. Two years after sanctioning, workers subject to harsher second sanctions are 13.8 percentage points less likely to be formally employed than those sanctioned prior to the reform, which is driven by a decreasing rate of entry into formal-sector employment. Our triple difference model suggests that additional time removed from TANF accounts for an 8.7 percentage point reduction in formal employment after two years.

Turning to effects among other TANF case-members, we show that decreased beneficiary enrollment in TANF, SNAP and Medicaid leads to enrollment reductions among children and other household members.[4] In theory, SNAP and Medicaid eligibility of case members who do not violate or are not subject to work requirements should be unaffected by work sanctions. However, we show that enrollment of case members in both programs steadily declines after a beneficiary is sanctioned, and more so during months when penalties are in effect. By the end of a six-month penalty, case members are significantly less likely to be enrolled in SNAP and Medicaid relative to those subject to three-month sanctions. Once sanctions end, enrollment continues to decline, such that case members are around 12 percentage points (13%) less likely to be enrolled in SNAP or Medicaid two years after a work sanction, regardless of penalty duration.[5] Finally, we test whether

[2]Categorical eligibility means that, while enrolled in TANF, recipients are assumed to be income and asset eligible for SNAP and Medicaid. As a result, when they re-certify eligibility for these programs every six to twelve months, they do not need to produce documentation to verify their income and asset eligibility to maintain enrollment. Our triple difference strategy leaves this finding unchanged, indicating that changing economic conditions or anticipation of future penalties do not drive safety net responses to TANF sanction severity.

[3]This effect is driven by a policy linkage between TANF and SNAP work requirements. Although adults with children are not normally subject to SNAP work requirements, if they violate TANF work requirements while enrolled in SNAP, the latter program's work requirements will apply (MDHHS, 2024e). We find that around 15-20% of adults subject to second TANF work sanctions also lose access to SNAP when their sanction takes effect.

[4]In 85% of cases enrolled in Michigan's TANF program between 2009-2019, all other TANF case members are children under the age of 18. The remaining 15% include spouses or live-in-partners.

[5]As with safety net enrollment of beneficiaries, our triple difference model leaves this finding unchanged.

non-beneficiary adult case members increase labor supply to offset lost benefit income. We find no evidence of increased employment during sanctions for this group, although our confidence intervals are wide and include meaningful effects.

To summarize the effect of increasing sanction severity on household resources, we sum together the TANF, SNAP, and earnings income associated with every member of a case exposed to second work sanctions. We find that harsher sanctions decreased household financial resources by a total of $1,951 dollars over the 2 years following a six-month penalty.[6] Relative to the total average resources accrued over this time among those subject to six-month penalties, this represents an approximate 10% reduction. In comparison to the $2,684 decline in total average resources among those subject to three-month penalties, we find that harsher sanctions led to an 73% larger reduction in financial resources over two years.

Our study provides the first causal evidence on how work requirement penalties affect longer-term economic security. Existing studies of TANF work sanctions find that being sanctioned is predictive of future material hardships (Kalil et al., 2002; Reichman et al., 2005; Lindhorst and Mancoske, 2006), and that the duration of sanctions is associated with increased likelihood of leaving TANF with a low earning job or unemployed (Wu, 2008; Wu et al., 2014). However, these studies rely on small-sample survey data that may be subject to measurement error (Meyer and Mittag, 2019), generally do not include causal estimates, and have limited statistical power. By combining numerous sources of administrative panel data, we establish the first causal link between work sanctions, subsequent program participation and labor supply, highlighting that these penalties fall short of achieving their goal of increasing work effort. Moreover, with data that follows individuals exposed to sanctions across programs and over time, we quantify how TANF penalties generate spillovers for adults and children who should be theoretically unaffected.

In addition, we contribute to research on work requirements in the safety net by highlighting a complementarity between TANF enrollment and formal sector employment. While recent studies of SNAP and Medicaid find no evidence that employment increases when participants become subject to work requirements (Gray et al., 2023; Sommers et al., 2020; Bitler et al., 2021; Cook and East, 2023, 2024), existing evidence on TANF work requirements focuses on policy variation of the 1990s, when TANF requirements were less stringent and sanctions were less severe (Danziger et al., 2016; Tach and Edin, 2017; Parolin, 2021). One exception is (Falk, 2023), which studies the expansion of Alabama work requirements to mothers of infant children in 2018. They find that becoming subject to TANF work requirements is associated with decreased caseloads and increased employment while enrolled, but an increased likelihood of having zero earnings while not enrolled in TANF. Studies of labor supply responses in TANF state waiver experiments, most notably the Connecticut Jobs First reform in 1996, find that TANF work requirements led to significant, but varied, labor supply responses (Bitler et al., 2006; Kline and Tartari, 2016). However, these estimates may be confounded by numerous other social policy reforms that dramatically increased the

[6] Our triple difference model estimates a smaller reduction in total resources of $1,423 over two years.

benefits of work at the time (Blank, 2002; Moffitt, 2002; Kleven, 2024). Relative to these papers, we document multiple program enrollment and labor supply of the entire Michigan TANF caseload, providing unique insight into how this group interacts with work-contingent benefits. Rather than quantifying effects of becoming subject to work requirements, we quantify wide-ranging economic ramifications of not meeting work requirements, highlighting that making penalties more severe can reduce the value of the TANF program and formal employment.

Finally, this paper quantifies the downstream consequences of penalties that link access to multiple safety net programs. While existing papers show that expanding access to one safety net program can increase enrollment of other household members or in other benefits (Schmidt et al., 2019; Sacarny et al., 2022), complex rules that differ across safety net programs may push in the opposite direction. Indeed, administrative burdens, or frictions in accessing government services, have been shown to generate program churn, where individuals eligible for safety net programs lose access and must re-apply (Gennetian and Shafir, 2015; Gray, 2019; Homonoff and Somerville, 2021; Davis and Williams, 2020; Herd et al., 2023). Research finds burdens are particularly costly for those with fewer resources to facilitate compliance, such as those with very low-income, those eligible for multiple programs, or those with limited access to childcare or transportation (Deshpande and Li, 2019; Ko and Moffitt, 2022; Herd et al., 2023; Parolin et al., 2023). We show that frictions in TANF access lead to large declines in attachment to TANF, SNAP and Medicaid. As such, burdens serve to undermine the aim of safety net programs to prevent poverty when used together. Our paper thus adds to growing evidence that reducing safety net burdens can increase enrollment of eligibles across programs (Wu and Meyer, 2021; Fox et al., 2023; Schmidt et al., 2024).

In sum, this paper shows how safety net penalties impact long-run economic security. By linking individual data on multiple program enrollment and quarterly earnings to detailed records of each violation of TANF work requirements, we show that sanctioning removes resources on net. We highlight that making penalties more severe not only leads to broad safety net dis-enrollment, but also reduces attachment to the formal labor sector, suggesting that families rely on less stable resource streams instead. Reducing penalties and administrative burdens, especially those that link access to core assistance programs, would thus likely increase economic security among a very economically marginalized group.

2 Institutional Background and Policy Details

The 1996 Personal Responsibility and Work Opportunity Reconciliation Act (i.e. "welfare reform") replaced Aid to Families with Dependent Children (AFDC) with TANF, with the aim of reducing welfare dependency. Relative to AFDC, TANF included five year lifetime time limits and enforced work requirements through sanctions that either reduce benefit income or terminate

benefits.[7] Since its implementation, state TANF programs have become increasingly heterogeneous and the number of TANF participants has declined from 4.7 million cases in January 1996 to 1.3 million cases in January 2015.[8] Sanction scope and severity have also evolved substantially; in 1996, nearly all states used partial sanctions that decreased benefit amounts, but by 2011, 44 states had adopted complete closure policies that require reapplication to restore benefits after a sanction.[9]

2.1 Michigan's TANF program

Michigan's TANF program – the Family Independence Program (FIP) – provides monthly cash assistance to households with children. To apply for the program, each applicant must participate in a case-worker interview and submit documents to verify income and asset eligibility.[10] We refer to individuals subject to work requirements and responsible for applying and verifying eligibility as "beneficiaries." Once eligibility is verified, all able-bodied adults must attend a 21-day job training program and adhere to work requirements. The stated goal of these requirements is to ensure that "recipients of FIP engage in employment and self-sufficiency related activities so they can become self-supporting" (MDHHS, 2024b).

To meet requirements, participants must engage in "employment-related" activities for 30 hours per week – 20 hours per week if they care for a child under the age of 6, or a combined 50 hours per week if there are two workers in the TANF case.[11] Other than formal employment, activities that count towards the first 20 hours include job search, job readiness training, vocational training, on-the-job training, providing childcare for others, and community service. Job search hours are limited to 12 weeks per year, with no more than 4 consecutive weeks, and community service hours are capped. While our data does not specify how participants meet requirements, state reporting data from 2011 shows 56% of adult participants did at least some amount of unsubsidized employment, 30% searched for a job, 11% did community service, and 9% took part in vocational education.[12] To verify participation in work activities, caseworkers must receive two consecutive pay stubs, get confirmation from supervisors, or use Equifax employment verification services.

Participants are considered in violation of work requirements if they quit a job, are fired for misconduct or absenteeism, voluntarily reduce their hours or earnings, refuse an offer of employment or hours, do not participate in orientation activities, or fail to report changes to income or employment. Michigan policy closes the entire TANF case from the program for

[7] TANF adults cannot receive more than 5 years of benefits in their lifetime, unless they are granted a "hardship exemption" available for up to 20% of a state's caseload. For more information about subsequent reforms to the TANF program, see Service (2023).

[8] See Office of Family Assistance

[9] See Urban Institute Welfare Rules Database

[10] See Appendix **??** for detailed income eligibility rules and TANF benefit amount calculation formulas.

[11] Workers can claim deferrals from work requirements if they meet certain criteria as listed in (MDHHS, 2024b).

[12] See OFA data Table 6b. Relative to these averages, members of our study population violate work requirements and are less likely to be employed.

increasing amounts of time upon each violation, meaning that members receive zero benefits and must re-apply for benefits once a sanction ends.[13] In addition, sanctioned months count towards Federal and State time limits and reduce total lifetime months of program access. The stated intention of these penalties is to "obtain client compliance with appropriate work and/or self-sufficiency related assignments and to ensure that barriers to such compliance have been identified and removed" (MDHHS, 2024d).

Beyond removing participants from TANF, work sanctions have direct linkages and implications for access to other safety net programs. First of all, SNAP requirements are more lenient than TANF work requirements, as they do not involve an hourly requirement and include more generous deferral reasons (MDHHS, 2024c). Policy states that if a violation of TANF work requirements also violates SNAP work requirements, workers will be removed from the SNAP program for the duration of their TANF sanction period (MDHHS, 2024e). Other case members should remain eligible and enrolled in SNAP during the penalty period; however, they will receive fewer SNAP benefits in correspondence with a smaller assistance unit size.[14] Secondly, losing access to TANF during a work sanction means also losing access to categorical eligibility, which allows TANF participants to automatically meet income and asset eligibility when re-certifying for SNAP and Medicaid every 6 to 12 months. This means that, in addition to remembering to re-certify eligibility for themselves and other case members while sanctioned, individuals will need to verify their income and assets with additional documentation.

2.2 Policy Reform

In October 2011, Michigan passed legislation that increased the penalties for work non-compliance, decreased time limits, and changed the treatment of earnings in benefit calculations (House Bill No. 4409 of the 96th legislature). Prior to this, these aspects of the program had not been changed since 2007.

Table 1 summarizes the reform's components. First, the bill eliminated the opportunity for beneficiaries to reconcile non-compliance after a first violation of work requirements before losing benefits.[15] Upon a second violation of work requirements, sanction duration increased from three to six months, and from one year to a lifetime ban upon a third violation. Concurrently, Michigan reduced their state time limit from 60 to 48 months and removed the hardship-exemption.[16] Finally, the legislation decreased the benefit reduction rate (BRR) applied to labor earnings above the first

[13] Children are not automatically converted to child-only cases. In our data, approximately 10 percent of children exposed to a work sanction ever appear associated with another TANF case between 2009-2019.

[14] See Appendix **??** for details on how beneficiaries are notified of sanctions, deferral reasons, SNAP General Work Requirements and reasons workers may be exempt.

[15] Prior to the reform, case beneficiaries had an opportunity to meet with a caseworker in-person within 10 business days of their first work sanction and modify their self-sufficiency plan and maintain benefit access. In our data, we either do not observe first sanctions that were avoided through reconciliation, or next to no cases were able to avoid penalties in this way.

[16] See Al-Chanati and Husted (2021) for analysis of these aspects of the 2011 reform.

Table 1: October 2011 Policy Changes

Policy changed	Pre-Oct 2011 Policy	Post-Oct 2011 Policy
1st case sanction	Conciliation process, if fails 3 month closure	No conciliation process, 3 month closure
2nd case sanction	No conciliation process, 3 month closure	No conciliation process, 6 month closure
3rd case sanction	No conciliation process, 12 month closure	No conciliation process, lifetime closure
Time limits	60 months, some exemptions	48 months, no exemptions
Benefit reduction rate	80%	50%

$200, which meant that beneficiaries could earn more while remaining eligible for the program. Nonetheless, in Appendix **??** we show that less than 1 percent of our analysis sample reported earning more than $200, either before or after the reform, indicating limited impact of this reform aspect for our sample.[17]

2.3 Conceptual responses to sanctions

How might TANF participants respond to getting sanctioned? As discussed in Section 2.1, the aim of work sanctions is to motivate participants to identify and resolve barriers to work, so that they may become more economically self-sustaining in the future. Prior to sanctioning, TANF participants meet work requirements through work, training, service or job search; these activities may be disrupted in a variety of ways leading to a work sanction, spanning not finding a job within required time frames, working too few hours, or misunderstanding complex reporting rules. During a work sanction, participants may increase their search effort or intensive margin labor supply in order to meet TANF work requirements in the future or to replace lost benefit resources.

However, being sanctioned represents a large income shock for affected families. To the extent that barriers to work are financial in nature – for example, affording childcare or transportation, buying professional clothing, or paying phone and internet bills – then losing cash assistance benefits might make it more challenging to find a job or work consistent hours. In addition, because affected families still must afford basic necessities, adult members may need to increase time and effort spent on hardship avoidance or coping strategies, such as visiting food banks or moving to a new housing arrangement. Moreover, because removal from TANF also eliminates categorical eligibility, participants will need to produce verification of income and assets in the

[17] These data come from reported income measures used by case-workers to calculate TANF benefit amounts. In the administrative UI data, we see that more TANF recipients have earnings that would place them on the benefit phase out region; however, these data are not used to apply the BRR by caseworkers. Average quarterly earnings are $592 or less among those subject to work sanctions between October 2009-October 2013. See Table 2.

event of SNAP or Medicaid re-determination during a work sanction. If they do not remember they are due to re-certify, or fail to produce the correct documentation in a timely manner, families might lose access to other safety net programs.

When policy reform increases sanction severity, the expected value of TANF enrollment decreases because the financial risks of violating work requirements have gone up. To the extent that TANF beneficiaries are able to identify and resolve barriers to work, the reform should encourage greater work effort and reduce the number of sanctions that take place on average. However, if participants are already exerting maximum effort or have slim margins of adjustment, they may not be able to fully control whether they violate requirements, regardless of penalty length. Conditional on being sanctioned, the reform increases the amount of foregone benefit income due to sanctioning, which both increases incentives to offset lost benefits and further constrains the budget. By comparing responses to losing three months versus six months of benefit income due to sanctioning, we can empirically test which of these mechanisms has more impact on financial resources both during and after penalties.

3 Administrative Data

We use administrative data from the Michigan Department of Health and Human Services (MDHHS) that covers the universe of households enrolled in TANF between 2009 and 2019. With unique TANF assistance unit and person-level identifiers, we can track individual family members across TANF cases and over time. For each month that a person is enrolled in TANF, we observe their case grant amounts, federal and state TANF time limit counts, work requirement or deferral status, and rich demographics including race, ethnicity, age, gender and census tract of residence. In addition, we observe all applications to and exits from TANF, including detailed reasons that a case was denied enrollment or removed from the program. As such, we can precisely identify each violation of work requirements and track the number of months that TANF benefits were withheld in our data.

We link these detailed TANF records to administrative SNAP enrollment, Medicaid enrollment and earnings data.[18] First, if a person was enrolled in TANF for at least one month between 2009 and 2019, we observe monthly enrollment in other social safety net programs administered by MDHHS for the full period, including SNAP and Medicaid. Because our program enrollment data is unique at the person level, we can track changes in safety net access when household members transition TANF cases over time. Second, we link individuals to their Unemployment Insurance quarterly earnings records beginning in 2009 through three years after their final exit from TANF or through December 2018, whichever comes first.[19] Using these two sources of administrative

[18] See Appendix C for details on data components, coverage, cleaning and linkage.

[19] If they first enroll in TANF after 2009, earnings data begins upon enrollment. The average beneficiary has 25 quarters of populated UI records in our analysis sample, ranging from 14 to 40 quarters depending on the length and number of

data, we construct individual and case-level measures of safety net attachment and labor supply.

While these data provide a rich empirical setting to study responses to work sanctions, we do not observe exact SNAP grant amounts, or program eligibility if not enrolled. As described in Appendix B, we use the SNAP benefit formula to approximate SNAP benefits, based on observed household size and one-third of observed quarterly earnings (a proxy for monthly earnings). Similarly, we infer eligibility for TANF and SNAP when not enrolled with eligibility formulas, one-third of observed quarterly earnings, and last observed program-specific case size. We construct a measure of total household financial resources by summing together observed TANF benefits, imputed SNAP benefits, and observed quarterly earnings.

To estimate effects of increasing sanction duration in 2011, we restrict our sample to TANF beneficiaries that were subject to work requirements between October 2009 and October 2013, spanning two years on either side of the reform to account for differential selection into TANF depending on time of the year. This restriction has the additional advantage of removing observations sanctioned after Medicaid expansion in April 2014. Next, we abstract from other margins of the 2011 reform by removing any case ever subject to a hardship exemption, as well as those whose work sanctions occurred when any case member had more than 48 months of state TANF use or 60 months of federal TANF use.

Using information on the number of months that TANF benefits were withheld and the chronological ordering of TANF exits, we identify each time a case was sanctioned for violating work requirements. After collapsing to the beneficiary-month level, our final analysis sample covers roughly 37,000 beneficiaries sanctioned between October 2009 and October 2013, with data starting in January 2009 through three years after a beneficiary's final exit from TANF.

3.1 Descriptive Statistics

Table 2 compares economic and demographic characteristics of TANF beneficiaries while enrolled in TANF between October 2009 and October 2013. Panel A compares the average demographic characteristics of those that are never sanctioned (column 1), to those with one sanction (column 2) or two sanctions (column 3) during this time. We see that, relative to beneficiaries that never violate work requirements, sanctioned beneficiaries are more likely to identify as Black non-Hispanic, single mothers, be younger in age, and care for younger children.[20] Those with two work sanctions are even more likely to exhibit these characteristics, relative to those with only one work sanction.

TANF spells. We adjust earnings to be comparable in 2015 dollars using the quarterly Consumer Price Index retrieved from the Federal Reserve Bank of St. Louis' FRED database. Dollar values are windsorized at the 99th percentile. These data do not include information about types of jobs, employers or industries.

[20]Prior research documents that Black non-Hispanic individuals are more likely to be sanctioned by case-workers (Schram et al., 2009; Kalil et al., 2002), and research in other social service contexts finds that Black non-Hispanic groups are penalized at disparate rates. See Baron et al. (2024) for evidence on foster care placement, and Arnold et al. (2022) for evidence on bail decisions.

Table 2: Characteristics of TANF beneficiaries enrolled October 2009-2013

	(1) No sanctions	(2) Only 1 sanction	(3) 2 sanctions
A. Demographics			
White, Non-Hispanic	0.44	0.40	0.36
Black, Non-Hispanic	0.47	0.52	0.55
Female	0.89	0.93	0.96
Married or partnered	0.15	0.12	0.09
Age of beneficiary	29.7	26.8	25.3
Number of children	1.82	1.77	1.86
Age of youngest child	4.15	3.26	2.69
B. Program receipt and labor supply			
# TANF case members	2.84	2.75	2.81
Avg. TANF Spell Length	17.8	14.2	12.7
Avg. TANF Grant	394	424	439
Enrolled in SNAP	0.95	0.95	0.94
Enrolled in Medicaid	0.95	0.95	0.95
Quarterly Employment	0.41	0.33	0.28
Quarterly Earnings if working	2,552	1,810	1,440
# Unique Beneficiaries	74,142	27,583	9,475

Notes: Statistics are computed on a sample of TANF beneficiaries during months of active TANF enrollment between October 2009-October 2013. We drop those exposed to hardship exemptions or with time limit counters above state and Federal cutoff thresholds. We compare those with no work sanctions to those whose first or second sanctions took place between October 2009 and October 2013.

Panel B compares average program participation and labor supply measures while enrolled in TANF. We see that sanctioned groups have shorter TANF spells, higher TANF grants, but relatively similar levels of SNAP and Medicaid enrollment. However, being sanctioned is correlated with lower quarterly employment and earnings. This aligns with the fact that sanctioned workers experience frictions that lead to violating work-requirements; however, demographic differences may also underline this pattern. Because sanctioned workers are younger and more likely to be single mothers, they may have less labor market experience and more care giving demands relative to older or partnered parents. Moreover, while all beneficiaries have children, those subject to work sanctions have more and younger children, which likely translates to requiring more intensive childcare.

These descriptive statistics highlight that sanctioned beneficiaries differ in ways that likely make supplying labor and navigating complicated program requirements more challenging. To quantify the effects of sanctions on longer term economic security, comparisons between groups that are sanctioned and groups that are never sanctioned will be biased by these differences. Instead, we leverage variation in sanction timing, which allows us to make comparisons between cases subject to the same number of sanctions. Because our policy reform of interest increased the severity of second or greater sanctions, we will next focus on characteristics of beneficiaries that are sanctioned two times, with a second sanction taking place either before or after the reform.

Table A.1 compares characteristics of beneficiaries whose second sanction took place before or after October 2011 for months when they are enrolled in TANF between October 2009 and October 2013. We see that average characteristics differ for these groups, as those sanctioned after the reform are slightly older on average, have slightly older children, are more likely to identify as Black non-Hispanic, and have higher measures of formal labor supply.[21] As these observable characteristics may be correlated with program enrollment and labor supply, comparisons of trajectories surrounding second sanctions before and after the reform may still be biased by changing composition. We describe steps to address this source of bias in the following section.

4 Estimation Strategy

We first document how program participation and labor supply evolve surrounding second work sanctions. To do so, we regress outcomes Y_{it} on relative timing indicators $\mathbb{I}[t = j]$.

$$Y_{it} = \alpha + \sum_{j \neq 0} \theta_t \mathbb{I}[t = j] + \gamma_t + \beta' X_i + \epsilon_{it} \tag{1}$$

For monthly outcomes, t ranges from six months before to 24 months after a sanction, with the omitted category being $j = 0$, the month that a sanction takes place. For quarterly outcomes, t ranges from four quarters before to eight quarters after, with the omitted category being $j = -1$, the quarter prior to a work sanction, as work sanctions take place at varying times during quarter 0. We can estimate these models separately on a panel of second work sanctions that take place prior to the reform or after the reform, restricting to unit-time observations that are balanced and non-missing in event time.[22]

To absorb variation in outcomes attributable to seasonal or cyclical patterns, such as recovery from the Great Recession, we include month and year fixed effects (γ_t). Standard errors are clustered at the person level, to account for within-person residual correlation. While our time fixed effects absorb some changes in cohort characteristics over time, we include control variables (X_i) for pre-sanction characteristics that may be correlated with outcomes of interest to absorb remaining confounding variation. These characteristics are measured in the period prior to sanctioning and include a rich set of demographic and prior safety net utilization variables.[23] The θ_t coefficients

[21] See Figure A.3 and Figure A.2 for plots over time of average beneficiary characteristics in the first month of a TANF spell leading to a first or second sanction, respectively. We see that while characteristics are changing over time, the policy reform is not associated with discrete changes in composition.

[22] We do not include an additional control group of those not-yet or never treated when estimating specification 1.

[23] Covariates include categorical variables for beneficiary racial/ethnic identity, number of children, beneficiary age, age of youngest child, number of TANF case members, number of SNAP case members, Federal/State TANF months used to date, and length of current TANF spell; indicator variables if married/partnered, if female, or if demographic information is missing; continuous variables for the months between a 1st and 2nd sanction, and the average proportion of case members enrolled in SNAP and Medicaid; and interaction terms between race, number of children, beneficiary age, and age of youngest child. See Appendix C for more information.

thus capture the average difference between an outcome in period t and the omitted time period.[24]

To identify causal effects of increased sanction length, we can pool observations surrounding second sanctions taking place between October 2009-October 2013 and compare responses after a six-month penalty relative to a three-month penalty in a difference-in-differences framework. Specification 2 interacts terms with an indicator equal to one if the sanction occurs after the reform ($\mathbb{I}[Post]$), capturing the additional difference in outcomes for post-reform sanctions and allowing the impact of covariates to differ by policy regime. Under the assumption that post-reform sanction trajectories would evolve in parallel with pre-reform sanction trajectories, absent the increase in sanction length, β_t captures the causal effect of increasing sanction severity. Because work sanctions increased along multiple dimensions – an additional three months without access to TANF after a second work sanction, and a lifetime ban instead of a 12-month closure after a third work sanction – our main estimates capture both of these effects.

$$Y_{it} = \alpha + \mu_1 \mathbb{I}[Post] + \sum_{j \neq 0} \theta_t \mathbb{I}[t = j] + \sum_{j \neq 0} \beta_t \mathbb{I}[Post]\mathbb{I}[t = j] + \gamma_t + X_i + \mathbb{I}[Post]X_i + \epsilon_{it} \tag{2}$$

The parallel-trends assumption would be violated if beneficiaries sanctioned after the reform respond differently to work sanctions, relative to those sanctioned before the reform, due to observable or unobservable traits other than the length of time they are removed from TANF. For example, if those sanctioned after the reform faced larger barriers to work or higher program compliance costs that affect safety net attachment and work choices, then they may be less likely than those sanctioned before the reform to return to TANF regardless of penalty length. As shown in Table A.1, those sanctioned after the reform are more likely to identify as Black non-Hispanic, which would bias our treatment effects assuming that one's race or ethnicity drives differential responses to sanctioning.

To address this potential threat, we re-weight our sample so that beneficiaries with second sanctions after the reform have the same average observable characteristics as those with second sanctions before the reform (DiNardo, 2002). We construct these weights with a sample of all beneficiaries that have two work sanctions and regress an indicator for post-reform second sanction on a vector of observable characteristics measured in the period prior to sanctioning. We use the estimated coefficients to generate propensity scores ($\hat{p}$) and apply inverse probability weights as follows:

[24] An alternative approach would be to estimate a standard two-way-fixed effects estimation, with individual fixed effects, rather than pre-sanction covariates, and an additional control group including not-yet, never or already sanctioned individuals, e.g. unit-time observations outside of the second sanction event windows. However, when treatment effects vary over time, which they do in our setting as shown in Section 5, this introduces concerns of negative weighting (Goodman-Bacon, 2021). To remove this potential concern, we do not rely on this control group to identify effects, and instead estimate responses for observations in the second sanction event time window with detailed control variables. Additional robustness that includes not-yet treated individuals in a weighted, stacked difference-in-differences is in progress (Cengiz et al., 2019; Wing et al., 2024).

$$\omega_i = \begin{cases} \frac{(1-\hat{p}_i)}{\hat{p}_i}, & \text{if } \mathbb{I}[Post]_i = 1. \\ 1, & \text{otherwise.} \end{cases} \tag{3}$$

In Table A.2, we compare before-reform and after reform average characteristics, both with and without our propensity score weights. Our weights mitigate much of the observable imbalance. To more formally assess balance, we regress each characteristic in a time period prior to sanctioning on an indicator equal to one if the sanction takes place after the reform. In Figure A.5, we scale the resulting coefficients by each characteristic's before-reform average and show that remaining differences are very small in magnitude. Moreover, we find no evidence of pre-trends: our main specification delivers estimates that are statistically indistinguishable from zero prior to sanctioning (no anticipation) and isolates variation attributable to increasing severity of penalties.

Nonetheless, unobservable differences not captured by this weighting strategy may still threaten identification. For example, if our reform of interest coincided with a larger shift in how caseworkers enforce policy, then this may have induced discrete changes in the proportion of TANF beneficiaries subject to work sanctions, or the average characteristics of sanctioned beneficiaries. When we compare the proportion of beneficiaries subject to work requirements who receive a first or second work sanction in each month surrounding the policy reform (Figure A.1), as well as their average characteristics (Figure A.3 and A.2), we can statistically reject that a discrete change takes place at the time of the policy change. This suggests that the reform was not associated with an immediate drop in sanctioning likelihood or type of person sanctioned, either due to caseworker discretion or worker behavior. To further test if the reform was associated with changes in which workers selected into second sanctioning, we show robustness to a version of our main specification that restricts to second sanctions whose first work sanction took place prior to the reform (Figure A.17).

4.1 Triple difference specification

A final concern for identification is that individuals sanctioned after the reform may respond differently to work sanctions, regardless of their length, not due to individual traits, but because of changing secular and cyclical conditions of the economy. Given that we study a reform taking place during the recovery from the Great Recession, it is likely that those sanctioned after the reform (i.e. between October 2011 and October 2013) faced a stronger labor market than those sanctioned before the reform (i.e. between October 2009 and September 2011). This may have two important implications: first, because jobs might be more available, those that end up being sanctioned after the reform might be those that face the highest unobservable barriers to work. And second, because the labor market was stronger after the reform, sanctioned individuals could have increased labor supply more easily after their work sanctions, which would bias our employment

estimates upward. Indeed, we see in Table A.1 that average employment and earnings were higher after the reform.

As such, we apply caution and implement an alternative triple difference specification that includes an additional control group of those sanctioned only once before relative to after the policy change. Regardless of sanction timing, those with a first work sanction were subject to a three-month penalty, but they would have been exposed to the same changing economic conditions as those sanctioned for the second time.[25] However, because future second and third sanction penalties were more severe after the reform, those sanctioned only once may also change their behavior in anticipation of future sanctions; as such, by including this additional control group, we plausibly remove some variation due to changing economic conditions, while also removing some of the behavioral response to longer future work sanctions.

We estimate the triple difference model on a pooled sample of data surrounding second work sanctions and surrounding first work sanctions among beneficiaries that are only ever sanctioned once. We first directly assess how trajectories surrounding first sanctions evolved depending on whether they take place before or after the reform by estimating a difference-in-differences as described in Specification 2. Then, we difference out the response surrounding first sanctions from the response surrounding second sanctions as follows:

$$\begin{aligned} Y_{it} = \alpha &+ \sum_{j\neq 0} \theta_t \mathbb{I}[t=j] + X_i + \gamma_t \\ &+ \mu_1 \mathbb{I}[Post] + \sum_{j\neq 0} \Gamma_t \mathbb{I}[Post]\mathbb{I}[t=j] + \mathbb{I}[Post]X_i + \mathbb{I}[Post]\gamma_t \\ &+ \mu_2 \mathbb{I}[2nd] + \sum_{j\neq 0} \kappa_t \mathbb{I}[2nd]\mathbb{I}[t=j] + \mathbb{I}[2nd]X_i + \mathbb{I}[2nd]\gamma_t \\ &+ \mu_3 \mathbb{I}[2nd]\mathbb{I}[Post] + \sum_{j\neq 0} \beta_t \mathbb{I}[2nd]\mathbb{I}[Post]\mathbb{I}[t=j] + \mathbb{I}[2nd]\mathbb{I}[Post]X_i + \mathbb{I}[2nd]\mathbb{I}[Post]\gamma_t + \epsilon_{it} \end{aligned} \tag{4}$$

Specification 4 adds and fully interacts an indicator for whether a sanction was a second sanction ($\mathbb{I}[2nd]$) to specification 2. The coefficients θ_t now estimate the difference in average outcomes relative to the month of the sanction surrounding first work sanctions prior to the reform; $\theta_t + \kappa_t$ for second sanctions prior to the reform; $\theta_t + \Gamma_t$ for first sanctions after the reform; and $\theta_t + \kappa_t + \Gamma_t + \beta_t$ for second sanctions after the reform. To adjust for any treatment effect heterogeneity, we apply our propensity score weighting strategy to first and second work sanction groups and include pre-sanction covariates. Our coefficient of interest, β_t, captures the additional before-after reform difference in average outcomes surrounding second sanctions, net of the before-after

[25] We compare average employment rates among those sanctioned for both the first and second time surrounding the policy reform in Figure A.4. We see that employment increases gradually – not discretely– for both groups, suggesting that they were similarly exposed to improving economic conditions.

reform difference in average outcomes surrounding first sanctions. This estimate can be interpreted causally if we assume that these differences would have evolved in parallel for those subject to first or second sanctions, if not for the reform that directly increased second sanction duration.

In sum, our main difference-in-differences models are propensity score-weighted and include controls for pre-sanction observable characteristics and time-series fixed effects. In Figure A.17, we show that our main results are robust across a variety of specification choices: with only time series fixed effects, with time series fixed effects and propensity score weights, and with individual fixed effects rather than pre-sanction covariates. While our triple-difference specification does not qualitatively change our main findings, we discuss the results below to contextualize the magnitude of additional sources of variation. In particular, because first sanction beneficiaries may have anticipated future harsher penalties, i.e. a lifetime ban after a third violation of work requirements, the triple-difference plausibly provides an upper bound for variation in safety net attachment and labor supply due to an additional three months without access to TANF.

5 Results

When beneficiaries are sanctioned for the second time, they are removed from TANF for three months if the sanction occurs prior to the reform and six months if it occurs after the reform. Once a sanction ends, they can decide whether to re-apply for TANF. In Figure 1, we plot estimates of the proportion of beneficiaries that have ever returned to TANF for at least 1 month by a given date after the second sanction.[26]

Looking first at coefficients estimated in the six months leading up to a second work sanction, panel 1a highlights that the reform was not associated with differential trends in TANF enrollment prior to sanctioning. We next see that sanctions have a clear and binding effect on TANF enrollment: 100% of workers enrolled in the month of a work sanction lose access to TANF in the following month. Beneficiaries with sanctions prior to the reform stay dis-enrolled for three months, while those sanctioned after the reform are dis-enrolled for six months.[27] After a sanction ends, beneficiaries begin to return to TANF, but those subject to longer penalties return at much slower rates. Two years after sanctioning, 77% of beneficiaries subject to three-month penalties have re-enrolled in TANF, while only 42% of those subject to six month penalties have. To quantify differences in reattachment since sanction expiration, we re-center event timing in panel 1b so that 0 refers to the month that a sanction ends. We see that the reform decreased TANF re-attachment after two years by 26.8 percentage points, or 35% of the pre-reform rate.

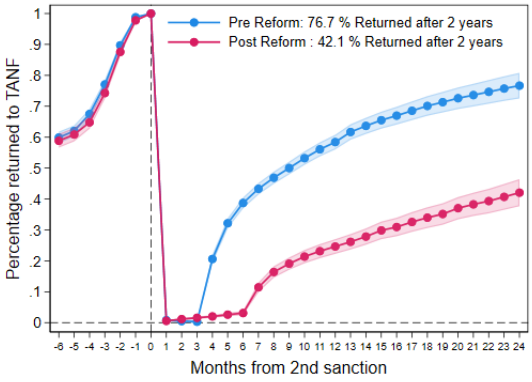
In Figure A.7, we compare the effect of the reform on responses following first versus

[26] Appendix Figure A.6 plots average monthly enrollment in TANF. Because TANF spells often only span a couple of months, monthly enrollment obscures cumulative reattachment to TANF.

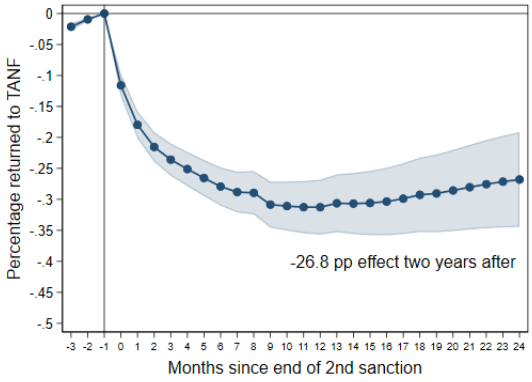
[27] Of the 4,834 beneficiaries in our analysis sample with second sanctions after the reform, only 38 of them (0.8 percent) appear enrolled in TANF prior to the 6 month sanction expiration.

Figure 1: Percent of beneficiaries that return to TANF

(a) TANF attachment trajectories



(b) Difference-in-Differences β_t



Notes: Figure plots estimates from equation (1) in 1a and equation (2) in 1b. Y-axis units are percentage points and x-axis plots months relative to the month of a second work sanction in 1a and months relative to the *last* month of a second work sanction in 1b. Outcome is equal to TANF enrollment of beneficiaries in each month for periods -6 through 0. For periods 1 through 24, the outcome is equal to 1 if a beneficiary has returned to TANF by that time relative to sanctioning. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

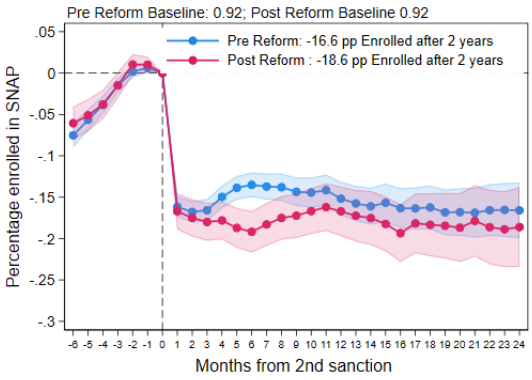
second sanctions, alongside estimates that difference these responses (i.e. the triple difference coefficients from specification 4). Panel A.7a shows that beneficiaries sanctioned for the first time after the reform were around 11.6 percentage points less likely to have ever returned to TANF two years after their sanction, relative to those receiving their first sanction before the reform. When we adjust for this effect in our triple difference model, we find that longer second sanction duration alone reduced the probability beneficiaries returned to TANF after 2 years by 20.6 percentage points in A.7b. This implies that 77% of the policy's effect on TANF re-attachment can be attributed to increasing duration, rather than responses to changing economic conditions or anticipation of future penalties.

5.1 Safety Net Enrollment

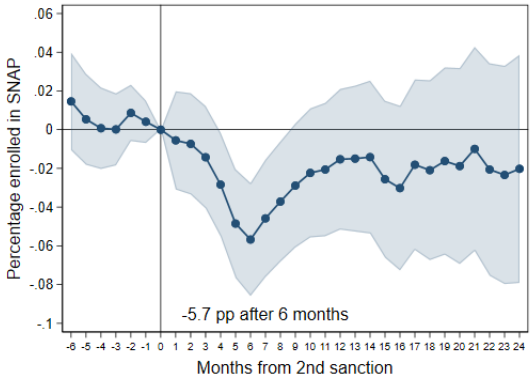
How did this decreased attachment to TANF impact enrollment in other safety net programs? In Figure 2, we compare monthly SNAP enrollment surrounding second sanctions that take place before versus after the reform. In Figure 2a, we see that around 15-20% percent of workers lose access to SNAP immediately following their work sanction, regardless of when this sanction takes place. This sudden drop is unsurprising, given that some violations of TANF work requirements are also violations of SNAP work requirements. These workers either also violated SNAP work requirements, did not meet a good cause exemption or did not complete the process to file for this exemption with their case worker. Enrollment does not return to baseline once sanctions ends and beneficiaries can return to SNAP. Rather, SNAP enrollment remains lower for the following two years, representing a roughly 20% decrease in enrollment compared to the month of sanctioning.

Figure 2: SNAP enrollment of beneficiaries

(a) SNAP enrollment trajectories



(b) Difference-in-Differences β_t



Notes: Figure plots estimates from equation (1) in 2a and equation (2) in 2b. Y-axis units are percentage points and x-axis plots months relative to the month of a second work sanction. Outcome is SNAP enrollment of beneficiaries in each month. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

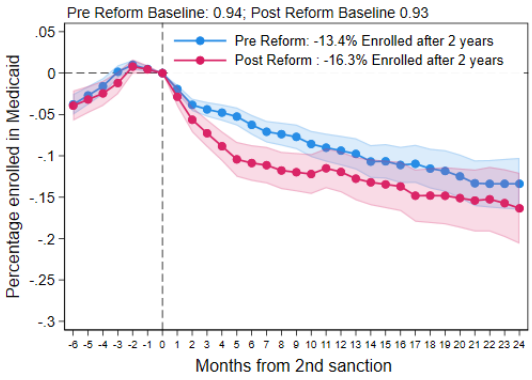
As seen in Figure 2b, average enrollment declines during the sanctioned months, as sanctioned cases that initially maintained SNAP enrollment fail to re-certify eligibility. Because these individuals are removed from TANF during this time, they have lost categorical eligibility for SNAP. This means that if they need to re-certify SNAP eligibility during their work sanction, they must verify income and asset eligibility with MDHHS.[28] Because verification requires documentation and additional contact with caseworkers, these additional administrative burdens can lead to decreased likelihood that eligible individuals successfully re-certify. Indeed, we see that during the three additional penalty months, SNAP enrollment of beneficiaries sanctioned after the reform continues to decline, suggesting that increased re-certification burdens while removed from TANF bind for some portion of sanctioned beneficiaries. As a result, our difference-in-differences estimates show that beneficiaries sanctioned after the reform are 5.7 percentage points less likely to be enrolled in SNAP six months after being sanctioned, relative to those sanctioned before the reform. This means that increasing penalty duration was associated with a 42% larger decline in SNAP enrollment six month after sanctioning.

Turning to Medicaid, Figure 3a shows that Medicaid enrollment declines steadily, rather than discretely, after sanctioning. This makes sense given that there is no mechanical link between TANF sanctioning and Medicaid. Instead, Medicaid enrollment falls off gradually during sanctioned months, likely due to failure to re-certify eligibility. Two years after a harsher sanction, workers are around 16 percentage points less likely to be enrolled in Medicaid, 17% lower than in the month of sanctioning. Taken together, these safety net findings reveal that sanctions – regardless of whether they span 3 or 6 months – result in persistent declines in enrollment of core assistance programs. In Figure 3b, we show that three additional sanction months translate to a 4.6 percentage points

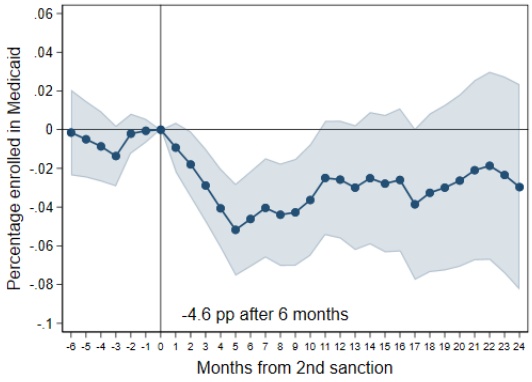
[28] See (MDHHS, 2024a) for a description of this process.

Figure 3: Medicaid enrollment of beneficiaries

(a) Medicaid enrollment trajectories



(b) Difference-in-Differences β_t



Notes: Figure plots estimates from equation (1) in 3a and equation (2) in 3b. Y-axis units are percentage points and x-axis plots months relative to the month of a second work sanction. Outcome is Medicaid enrollment of beneficiaries in each month. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

reduction in the proportion of beneficiaries enrolled in Medicaid six months after sanctioning; or in other words, a 74% larger decline in Medicaid enrollment relative to those sanctioned for three months. In sum, we find that increasing TANF sanction duration serves to exacerbate enrollment gaps while removed from TANF, but the reform did not impact the already substantial longer-term SNAP and Medicaid enrollment reductions.

We show in Figures A.8 and A.9 that including the third control group of those with only one work sanction does not substantively change these results. Our triple difference model finds that increasing sanction length alone led to a 6.7 percentage point larger decline in SNAP enrollment (A.8b) and a 4.6 percentage point decline in Medicaid enrollment (A.9b) 6 months after a harsher sanction. This provides additional evidence that the enrollment declines we observe during active sanction months are due to missed re-certification and increased burden without categorical eligibility, rather than responses to broader economic conditions and lower value of the TANF program.

5.2 Labor Supply

Next, we assess whether income losses due to decreased program participation was offset by increased labor market earnings. Because our administrative employment and earnings outcomes are at the quarterly level, while sanctions are administered each month, we consider effects relative to the quarter before sanctioning.[29] Coefficients one quarter after a harsher sanction capture effects

[29]Estimates from quarters 0, 1 and 2 thus combine effects of those whose sanctions took place at varying times. For example, post-reform sanctions that take place in the first month of quarter 0 will end in the first month of quarter 2, but sanctions that took place in the last month of quarter 0 will only end in the last month of quarter 2. Thus, responses

when all sanctions are in effect for at least one month of the quarter, and coefficients three quarters after a harsher sanction capture effects once all sanctions have expired.

Figure 4 compares quarterly employment (Figure 4a) and earnings (Figure 4c) of sanctioned workers, relative to the quarter before their work sanction. We see that both measures remain relatively stable in the year leading up to a work sanction. During the quarter of a work sanction, when beneficiaries are most likely all actively enrolled in TANF and subject to work requirements for at least part of the quarter, employment rises by around 5 percentage points, which translates to around $200 more in average quarterly earnings. As beneficiaries are sanctioned at varying times in quarter 0, sanctions may remain in effect until quarter 2 if sanctioned before the reform, and until quarter 3 if sanctioned after the reform. Employment rates remain roughly stable throughout quarters 1 and 2, indicating that the average sanctioned beneficiary does not meaningfully increase extensive margin labor to replace lost benefit income during their sanction.[30]

Beginning three quarters after sanctioning, when all post-reform sanctions have expired, we see that employment of those subject to six-month penalties begins to decline, while employment of those subject to three-month penalties steadily increases. Two years after sanctioning, the former group is 2.1 percentage points less likely (6.4% reduction) to be formally employed relative to the quarter prior to their sanction, whereas the latter group is 11.7 percentage points more likely (47% increase) to be formally employed. As a result, the difference-in-differences estimates in Figure 4b indicate that increasing the length of a sanction caused a 13.8 percentage point reduction in the probability that beneficiaries were formally employed two years after sanctioning, which represents a 55% decrease in employment relative to the pre-reform baseline quarter. Although we cannot reject a null effect in Figure 4d, we sum together coefficients on quarters 1-8 to quantify an average labor earnings reduction of $796 over this time.

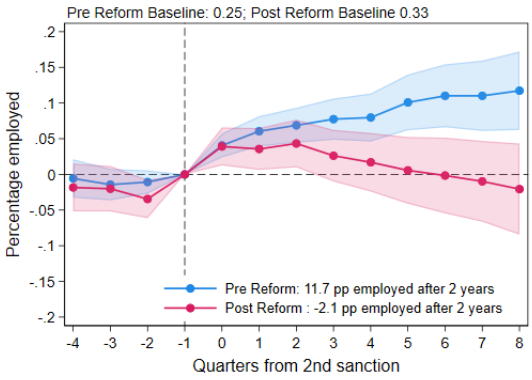
The average employment rate in the quarter prior to sanctioning was 25% among those sanctioned before the reform, relative to 33% among those sanctioned after the reform. This difference may reflect both the fact that the macro-economy was improving out of the Great Recession, as well as the extent to which beneficiaries increase employment in anticipation of harsher penalties after the reform. Nonetheless, we see that employment rates before and after the reform trend in parallel for quarters preceding second work sanctions, as is needed for our identifying assumption. In addition, when we compare employment responses among those subject to only one work sanction before versus after the reform in A.11a – groups removed from TANF for three months regardless of sanction timing, but exposed to similar economic conditions and harsher future penalties – we see the reform led to no significant employment response. As shown in A.11b, our triple difference removes this magnitude from our main estimates, finding that

while being sanctioned are captured by coefficients on quarters 0 and 1 for the former group, but quarters 1 and 2 for the latter group.

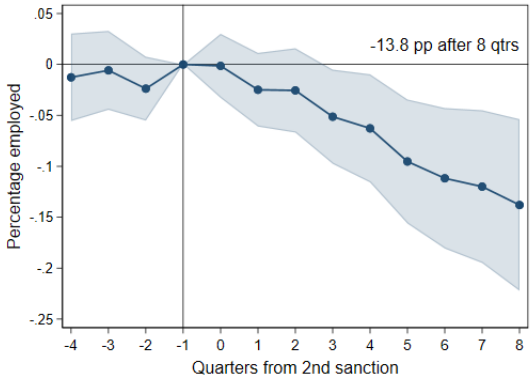
[30] We show results for quarterly earnings conditional on being positive in A.10a. Among this group, there is a very strong earnings increase in quarters 1 and 2 when sanctions are in effect, suggesting that conditional on being employed, workers increased intensive margin labor supply.

Figure 4: Employment and earnings of beneficiaries

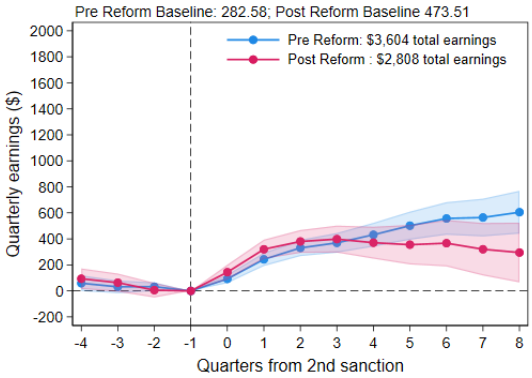
(a) Employment trajectories



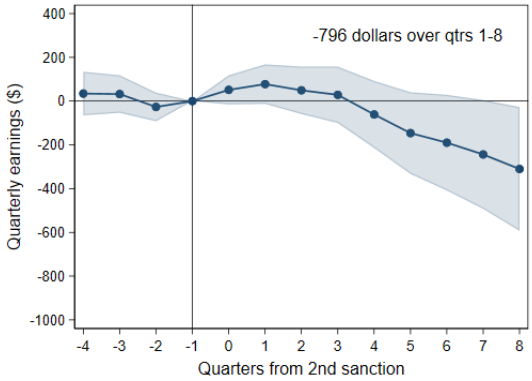
(b) Difference-in-Differences β_t



(c) Earnings trajectories



(d) Difference-in-Differences β_t

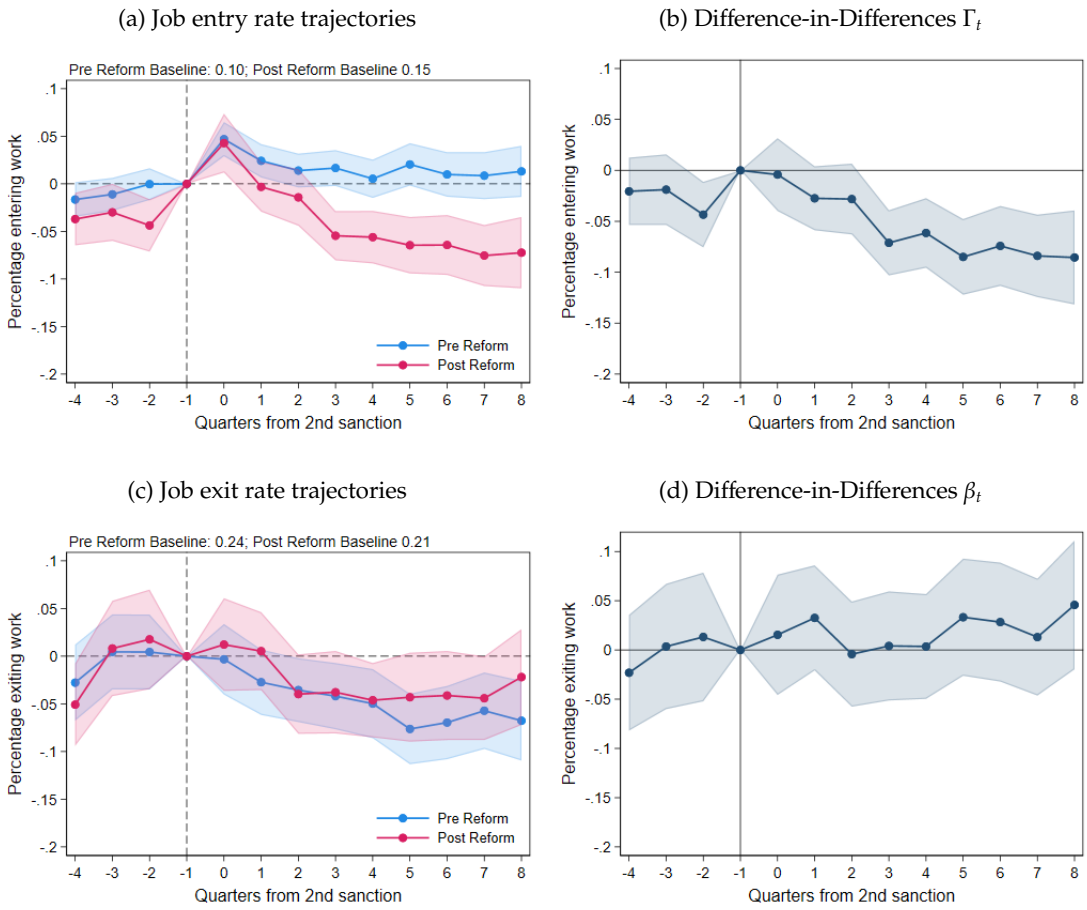


Notes: Figure plots estimates from equation (1) in 4a and 4c, and from equation (2) in 4b and 4d. The X-axis plots quarters relative to quarter of a second work sanction. For top panels, y-axis units are percentage points, and the outcome is an indicator variable equal to one if a beneficiary has positive quarterly earnings. For bottom panels, outcome is quarterly earnings, has been windsorized at the 99th percentile and adjusted to 2015$. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

the longer sanction reform alone led to an 8.7 percentage point reduction in formal employment 8 quarters after a second work sanction. This provides additional evidence that increasing penalty durations meaningfully decreases formal employment, even net of changing economic conditions and anticipation of future penalties.

Finally, we explore the extent to which this decline in formal employment was driven by transitions into and out of employment in Figure 5. We see that a similar proportion of individuals transition into employment (Figure 5a) and out of employment (Figure 5c) prior to their work sanction, regardless of second sanction timing. During the quarter of a work sanction, the job entry rate of both groups increases by around 5 percentage points, driving the increase in employment observed in Figure 4. Among those sanctioned prior to the reform, the proportion of beneficiaries

Figure 5: Percent transition between employment and non-employment



Notes: Figure plots estimates from equation (1) in 5a and 5c, and Figures (5b) and 5d plot coefficients from equation 2. Y-axis units are percentage points and x-axis plots quarters relative to quarter of a second work sanction. In top panels, the outcome is an indicator variable equal to one if a beneficiary was not employed in the prior quarter but is employed in the current quarter. In the bottom panels, the outcome is an indicator variable equal to one if a beneficiary was employed in the prior quarter, but not employed in the current quarter. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

transitioning into employment drops in the quarter following a sanction and remains slightly positive, but statistically indistinguishable from zero, for the following quarters. By contrast, those sanctioned after the reform are far less likely to transition into formal employment after their six-month sanctions. We find no difference in the rate of job exit, as shown in Figure 5c. This implies that the decline in formal employment shown in Figure 4 stems from decreasing rates of finding work, rather than increasing rates of losing a job. This might occur if, for instance, the larger negative income shock due to more time without TANF income makes costs of formal job search too high. Another explanation could be that the decreased likelihood that a sanctioned individual returns to the TANF program after a harsher second sanction means that formal work is less valuable.

In summary, we find that work sanctions are associated with persistent decreases in TANF attachment. Regardless of penalty length, sanctioned beneficiaries decrease enrollment in SNAP and Medicaid, such that take-up of both programs is around 20 percent lower two years after sanctions. While work sanctions are in effect, we do not find substantial increases in earnings, and moreover, when penalties increase, we see declines in both employment in earnings two years after sanctions take place.

6 Household spillovers

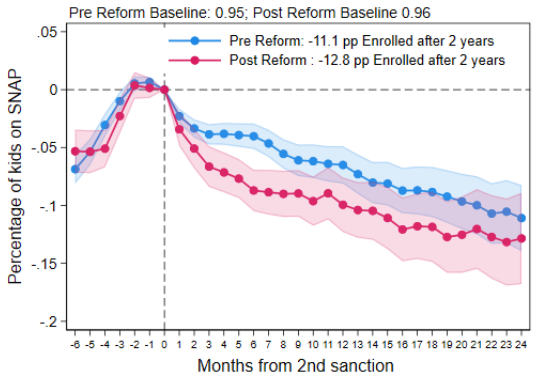
Being sanctioned for work noncompliance likely has implications for members of TANF cases beyond just beneficiaries. In approximately 85 percent of cases, all non-beneficiary case members are children, whose program enrollment depends on an adult complying with re-certification rules and timelines. If sanctioned beneficiaries are responsible for maintaining access of dependents, but do not realize that their children remain eligible during sanctions, SNAP and Medicaid enrollment of children might lapse. This could also happen if a beneficiary attempts to re-certify but does not verify income or assets now that they have lost categorical eligibility. If a non-sanctioned case member or relative is able to apply for TANF and add children to their case, it may be possible for child case-members to maintain program access.

We first test whether case members respond to sanctions by forming new TANF assistance units and applying for benefits without the members that violated work requirements. Figure A.12 compares the total TANF benefits associated with all members of a case exposed to sanctions before and after the reform. This measure includes zeros when cases are not enrolled in TANF and thus receiving no benefits; as such, these coefficients can be interpreted as the total amount of TANF dollars distributed to individuals exposed to second work sanctions, relative to average grants during the sanction month. In panel A.12a, we see that both before and after the reform, average TANF benefits drop by around $450 in the month following a work sanction and remain at this level for the duration of the sanction. After a sanction ends, a portion of cases return to TANF and begin receiving benefit income. Our difference-in-differences estimates in panel A.12b indicate that increasing penalties removed $282 more TANF dollars from sanctioned families. In panel A.12c, we compare the proportion of cases in which a member receives TANF benefits from a *different* TANF case, in order to capture transitions to alternative non-sanctioned case units. We see that this occurs in less than 1 percent of cases subject to sanctions, highlighting that a negligible number of case transitions occur in response to work sanctions.

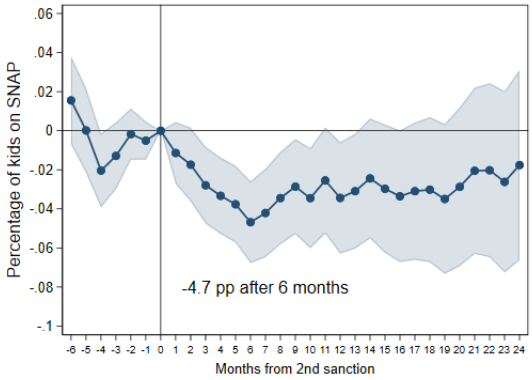
Turning to enrollment in other programs, non-sanctioned case members remain eligible for programs during and after work sanctions, but their access still depends on timely re-certification and compliance with SNAP and Medicaid rules. We find that SNAP and Medicaid enrollment among other case members also decline after work sanctions, as shown in Figure 6. As with sanctioned beneficiaries, a gap in enrollment appears during additional sanction months, which our

Figure 6: Safety net enrollment of case members

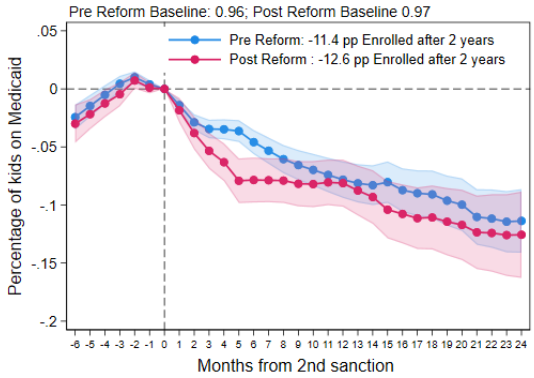
(a) SNAP enrollment trajectories



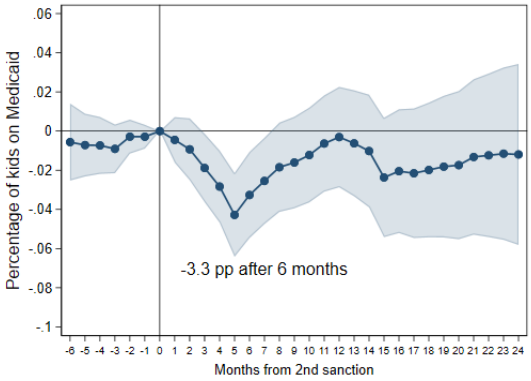
(b) Difference-in-Differences Γ_t



(c) Medicaid enrollment trajectories



(d) Difference-in-Differences Γ_t



Notes: Figure plots estimates from equation 1 in 6a and 6c and equation 2 in 6b and 6d. Y-axis units are percentage points and x-axis plots months relative to month of a second work sanction. Outcome is equal to the SNAP enrollment rate (top panels) or Medicaid enrollment rate (bottom panels) of all non-beneficiary case members exposed to the work sanction event. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

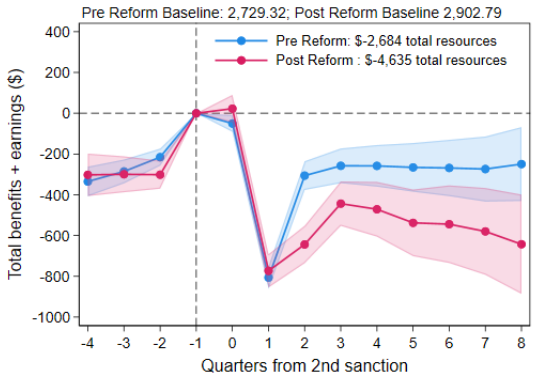
difference-in-differences model quantifies as a 4.7 percentage point decrease in SNAP attachment (panel 6b) and a 3.3 percentage point decrease in Medicaid attachment (panel 6d. While these gaps close once sanctions expire, enrollment in both programs continues to decline. Two years after sanctioning, case members exposed to work sanctions, regardless of their duration, are around 12 percentage points less likely to be enrolled in either SNAP or Medicaid (panels 6b, 6c). This highlights how removing beneficiaries from TANF during sanctions can result in lasting enrollment decreases for those that should be theoretically unaffected.

Finally, given the size of the negative income shock when TANF benefits are removed during sanctions, we might expect other non-sanctioned workers to respond by increasing labor supply. To test this, we restrict to cases that include more than one working-age adult at the time of sanctioning. Figure A.14 compares the employment rate of workers in these cases. Although we

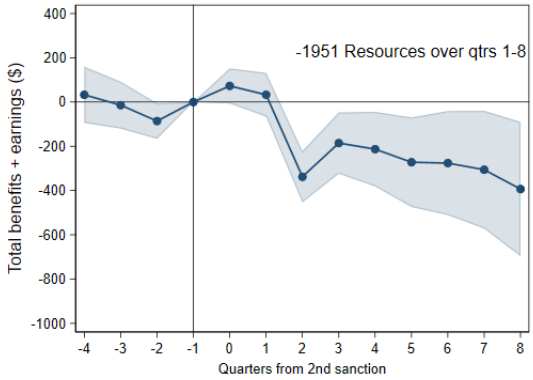
have limited statistical power due to sample size, we see no evidence of increased employment, suggesting that beneficiaries and other adult household members do not offset income losses in this way.

Figure 7: Household resources (TANF + SNAP + total earnings)

(a) Event Studies



(b) Difference-in-Differences Γ_t



Notes: Figure plots estimates from equation 1 in 7a and equation 2 in 7b. Y-axis units are dollars and x-axis plots quarters relative to quarter of a second work sanction. Outcome is equal to the sum of total TANF and SNAP benefit dollars, as well as all formal labor earnings, associated with all case members exposed to the work sanction event; outcome has been adjusted to 2015 dollars. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

We summarize our findings by adding together total TANF benefits and quarterly earnings accruing to all case members (beneficiary and non-beneficiaries), with imputed SNAP benefits.[31] Figure 7 shows that household resources evolve in parallel from one year prior through the quarter of a work sanction. One quarter after a work sanction, cases have around $800 fewer resources regardless of sanction duration. This shows that labor supply responses do not offset reduced benefit income from TANF and SNAP while sanctions are in effect. Two quarters after a work sanction, resources of those sanctioned after the reform remain depressed, as cases still exposed to work sanctions have around $400 fewer resources as a result of the policy change (shown in panel 7b). During subsequent quarters, financial resources of those subject to harsher penalties remain well below those sanctioned before the reform, reflecting the decline in cumulative TANF reattachment and formal employment.

Summing together coefficients for quarters 1-8, our difference-in-differences model quantifies that harsher penalties reduced net financial resources by an additional $1951 over the two years following a work sanction. Relative to average amount of resources foregone among those subject to second sanctions prior to the reform ($2,684), this equates to a 73% larger decline due to harsher penalties. In Figure A.15, we compare coefficients in panel 7b to estimates for household labor

[31] See Figure A.13 for quantification of changes to SNAP benefit amounts, given observed SNAP enrollment. We see that harsher sanctions led to $183 fewer SNAP dollars for sanctioned case members. We detail how SNAP benefits are imputed in Appendix B.

market earnings to show that resource reductions in quarters 2-3 stem from lower attachment to safety net programs, while reductions in 6-8 are driven by deteriorating employment. In Figure A.16, we show that the triple difference quantifies a smaller resource reduction of $1423 due to the attenuated labor supply response.

7 Conclusion

We study the universe of individuals enrolled in Michigan's cash assistance program between 2009-2013 to quantify economic responses to work sanctions and understand how increasing sanction severity alters behavior. We show that penalties for violating work requirements result in persistent reductions in household resources over time. When beneficiaries are sanctioned, regardless of the penalty length, enrollment in TANF, SNAP and Medicaid is significantly reduced for at least the following two years, and lost benefit income is not offset by increased labor market earnings. Moreover, as beneficiaries are often responsible for re-certifying eligibility of household members, we find that work sanctions are associated with decreased safety net attachment of non-sanctioned case members, the majority of whom are children.

When penalty duration increases from three to six months, beneficiaries are much less likely to return to TANF after sanctions end. This enrollment decline further reduces attachment to SNAP and Medicaid for beneficiaries and case members while penalties are active, as more individuals are at risk of missing re-certification while removed from TANF. In addition, we show that longer work sanctions are associated with decreasing employment over the subsequent two years, driven by a decreasing rate of entry into formal sector employment. This suggests that rather than substituting for formal employment, TANF may actually help alleviate financial or access barriers associated with finding and maintaining these types of jobs. When work sanctions make the TANF program less accessible, costs associated with formal sector jobs increase, and individuals may exit this sector in response. Summing together the value of TANF benefits, SNAP benefits, and formal labor earnings of all case members exposed to work sanctions, we find that increasing penalty duration from 3 to 6 months resulted in a 73% reduction in household resources over the subsequent two years.

Our findings have important implications for well-being. Indeed, as sanction policies have become increasingly severe over time, workers on the margin of TANF enrollment are increasingly likely to exit the program, which may underlie decreasing TANF enrollment in recent decades (Parolin, 2021). Our paper suggests that while sanctions accomplish their goal of decreasing welfare use, they do so at the cost of greater resource instability, which may have large and lasting effects for family well-being and child development (Hill et al., 2013; Hardy et al., 2019). In addition, losing access to cash assistance has been shown to increase housing instability and food insecurity (Parolin, 2021; Shaefer et al., 2020), as well as decrease educational attainment and future employment for children (Dustmann et al., 2024).

Furthermore, we show that removing families from TANF has lasting consequences for enrollment in SNAP and Medicaid, which likely has meaningful impacts, especially for young children. SNAP enrollment has been shown to decrease household food insecurity and the likelihood of falling behind on housing, utility and medical expenses (Shaefer and Gutierrez, 2013). Furthermore, research finds that access to SNAP while in-utero increases birth-weight, while access during childhood improves later life outcomes, including human capital, neighborhood quality, life expectancy, and risk of incarceration (Almond et al., 2011; Hoynes et al., 2016; Bailey et al., 2024; Mueller-Smith et al., 2023). Medicaid enrollment has been causally linked to lower infant mortality, higher birth weight, better health later in life, decreased mortality, increased test scores, high school and college completion rates (Hoynes et al., 2016; Miller et al., 2021; East et al., 2023; Miller and Wherry, 2024). If work sanctions reduce access to these core assistance programs, they may translate to worse outcomes across these myriad dimensions.

More broadly, this study contextualizes how Americans experiencing deep poverty make ends meet. Despite being required to work, members of our study population have very low formal earnings and experience frequent employment transitions and program churn (Edin and Shaefer, 2015). Our findings reveal that safety net penalties and subsequent spillovers decrease already limited resources and may exacerbate economic insecurity for this group. We show that individuals subject to harsher penalties are much less likely to enter formal sector employment after their sanctions expire, which may be a result of increased financial barriers to work or decreased returns to formal work when individuals do not return to TANF (Card and Hyslop, 2005). In lieu of formal sector jobs, it is possible that families rely on informal work, financially motivated criminal activity, or simply make do with less (Edin and Lein, 1997; Nightingale and Wandner, 2011; Shaefer et al., 2015; Mueller-Smith et al., 2023). This may have additional economic ramifications, not only because informal employment is much more variable, but also because informal work does not confer access to refundable tax credits or social insurance programs. Taken together, our findings suggest that reducing safety net penalties has the potential to increase economic stability and access to resources for economically vulnerable families.

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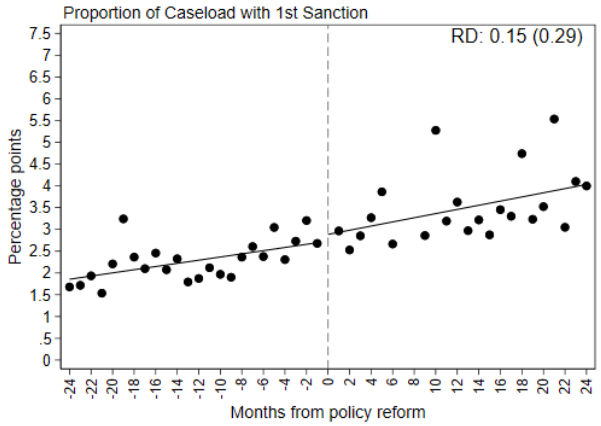
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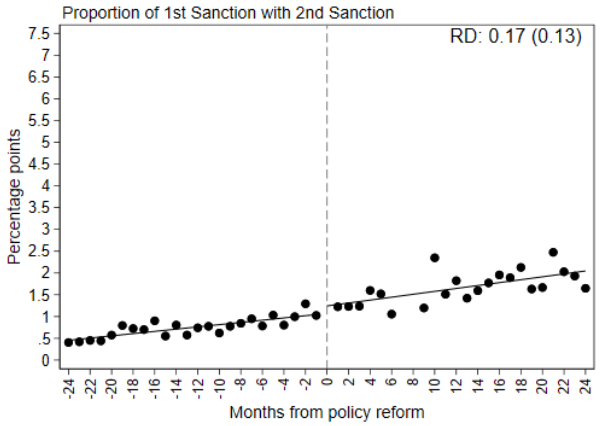
A Appendix Tables and Figures

Figure A.1: Proportion of TANF caseload with sanctions from October 2009 to October 2013

(a) % with 1st work sanction



(b) % with 2nd work sanction



Notes: Plots show the proportion of TANF beneficiaries subject to work requirements with 1st and 2nd work sanctions in each month surrounding the policy reform. The x-axis plots months relative to October 2011, and the y-axis plots percentage points. The proportion of beneficiaries with 2nd work sanctions is computed as the fraction of beneficiaries who have already had a 1st work sanction. In the upper-right-hand corner, we present the RD estimate and standard error in parentheses.

Table A.1: Characteristics of 2nd sanction group, by timing

	(1) Before Reform	(2) After Reform
A. Demographics		
White, Non-Hispanic	0.42	0.36
Black, Non-Hispanic	0.49	0.55
Female	0.95	0.95
Married or partnered	0.10	0.09
Age of beneficiary	25.29	26.43
Number of children	1.93	2.00
Age of youngest child	2.74	2.97
B. Program receipt and labor supply		
# TANF case members	2.88	2.92
Months of TANF Spell	9.36	9.25
TANF Grant	443	438
Enrolled in SNAP	0.93	0.94
Enrolled in Medicaid	0.95	0.95
Quarterly employment	0.29	0.36
Quarterly earnings if employed	1,317	1,619
# Unique Beneficiaries	4,016	3,350

Notes: Statistics are computed on sample of TANF beneficiaries that were sanctioned for the second time between October 2009-October 2013. We compare characteristics while enrolled in TANF in our analysis sample time period.

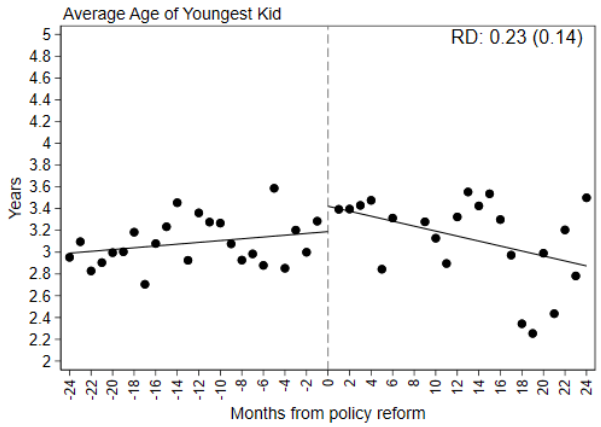
Table A.2: Before-After reform average characteristics, with and without weights

	Un-weighted			Weighted		
	(1) Before	(2) After Δ	(3) T-statistic	(4) Before	(5) After Δ	(6) T-statistic
Female	0.94	-0.00	-0.29	0.94	0.01	0.81
Hispanic	0.06	-0.01	-2.40	0.06	-0.00	-0.03
Black NH	0.43	0.07	6.82	0.45	-0.02	-1.57
White NH	0.46	-0.05	-5.17	0.44	0.01	0.71
Age	25.2	1.49	11.2	25.2	0.49	2.97
Spouse or Partner	0.13	-0.03	-4.47	0.09	0.01	0.82
Youngest kid age	2.86	0.31	4.03	2.92	0.16	1.57
# kids	1.75	0.06	3.38	1.74	0.01	0.57
TANF Case size	2.74	0.05	2.43	2.70	0.10	3.10
TANF spell length	5.06	-0.08	-1.88	5.09	0.06	1.11
Federal TANF use	41.2	-2.32	-8.03	40.87	0.31	0.74
Michigan FIP use	35.85	-4.69	-26.40	35.73	-0.27	-1.36
Months Since 1st	10.37	7.83	39.89	10.39	0.86	4.65

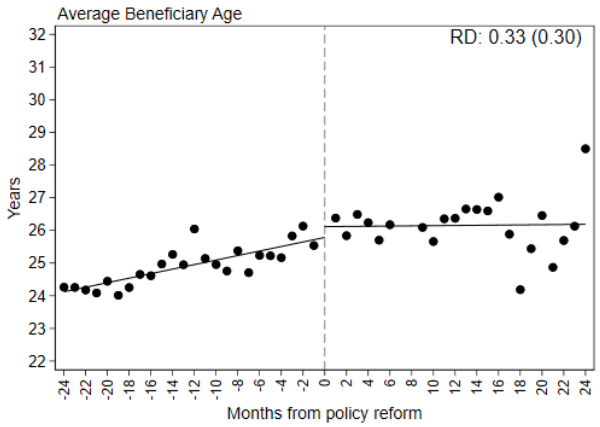
Note: To calculate statistics, we restrict to data in the month prior to a second work sanction, and regress each characteristics on an indicator if the sanction takes place after the reform, with and without weights. We show constant terms in columns 1 and 4, the post-reform indicator coefficient in columns 2 and 5, and the coefficient scaled by its standard error in columns 3 and 6.

Figure A.2: Characteristics of those with 2nd sanction surrounding reform

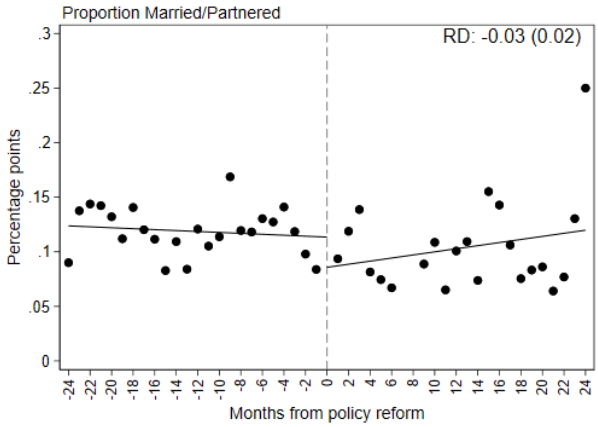
(a) Avg. Age of Youngest Kid



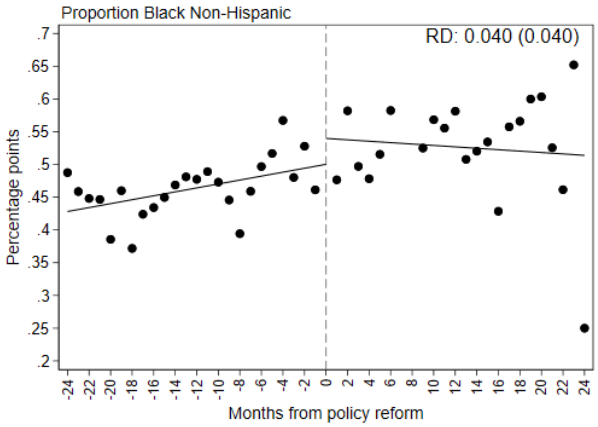
(b) Avg. Beneficiary Age



(c) % Married or partnered



(d) % Black non-Hispanic

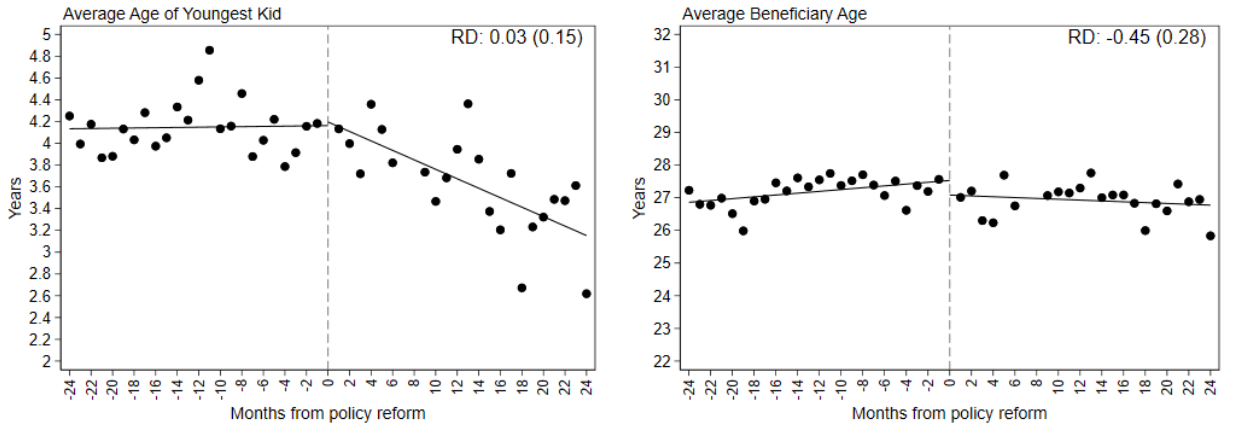


Note: To make plots, we restrict to data in the first month of a TANF spell in which a 2nd sanction takes place, then collapse characteristics by time relative to the policy reform. Zero refers to October 2011; negative values refer months prior to the reform, and positive values refer months after the reform. We regress each characteristic on an indicator equal to one if the sanction month occurs after the reform, a continuous variable for the quadratic of relative event timing, and the interaction between this indicator and continuous variable. At the top of each panel, we display the estimate coefficient, e.g. "RD," and its standard error in parentheses, which tests if the policy reform was associated with a discrete change in the composition of sanctioned beneficiaries.

Figure A.3: Characteristics of those with 1st sanction surrounding reform

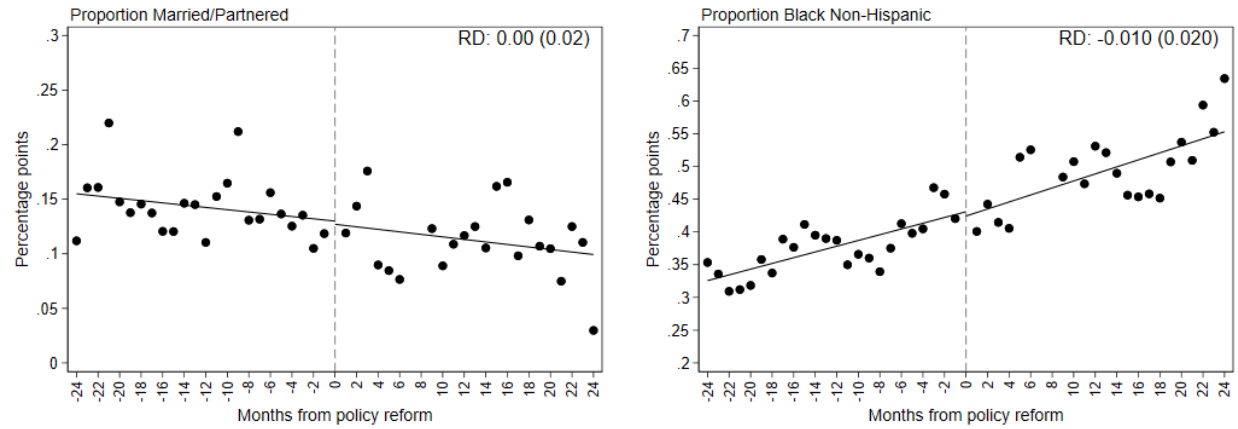
(a) Avg. Age of Youngest Kid

(b) Avg. Beneficiary Age



(c) % Married or partnered

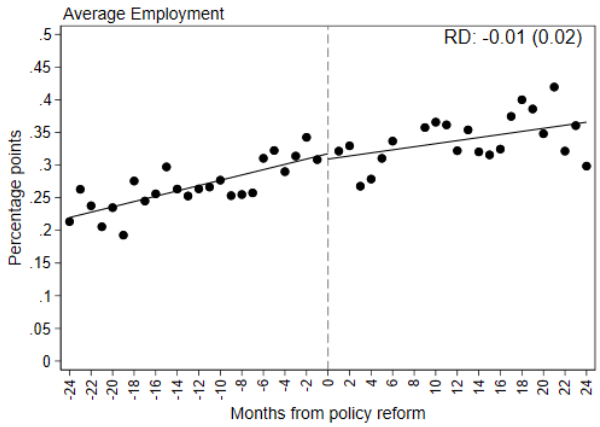
(d) % Black non-Hispanic



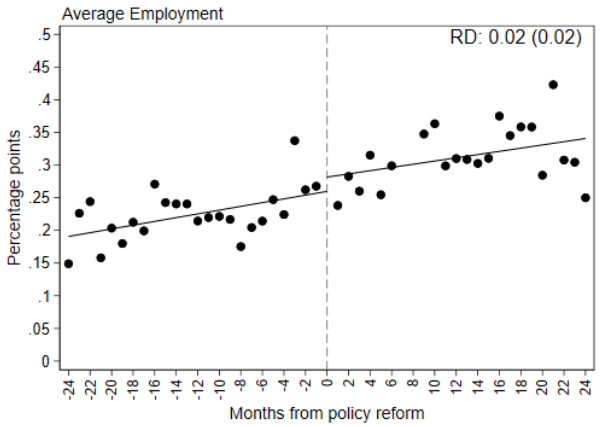
Note: To make plots, we restrict to data in the first month of a TANF spell in which a 1st sanction takes place, then collapse characteristics by time relative to the policy reform. Zero refers to October 2011; negative values refer months prior to the reform, and positive values refer months after the reform. We regress each characteristic on an indicator equal to one if the sanction occurs after the reform, a continuous variable for the quadratic of relative event timing, and the interaction between this indicator and continuous variable. At the top of each panel, we display the estimate coefficient, e.g. "RD," and its standard error in parentheses, which tests if the policy reform was associated with a discrete change in the composition of sanctioned beneficiaries.

Figure A.4: Average employment for 1st and 2nd sanctions surrounding reform

(a) Avg. Employment Before 1st



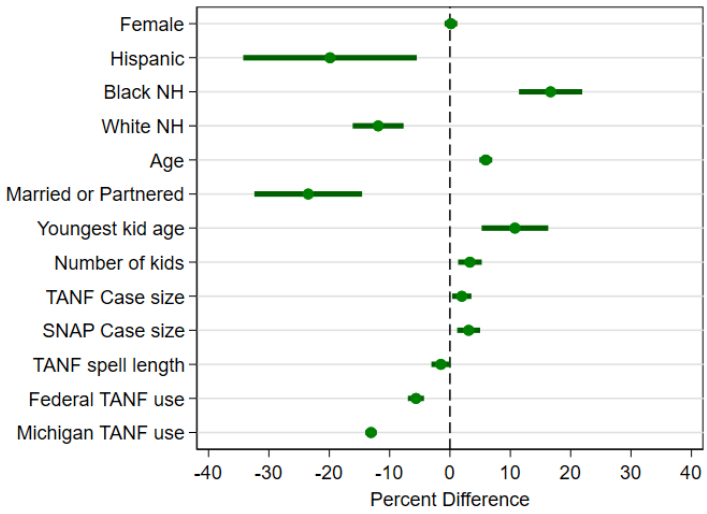
(b) Avg. Employment Before 2nd



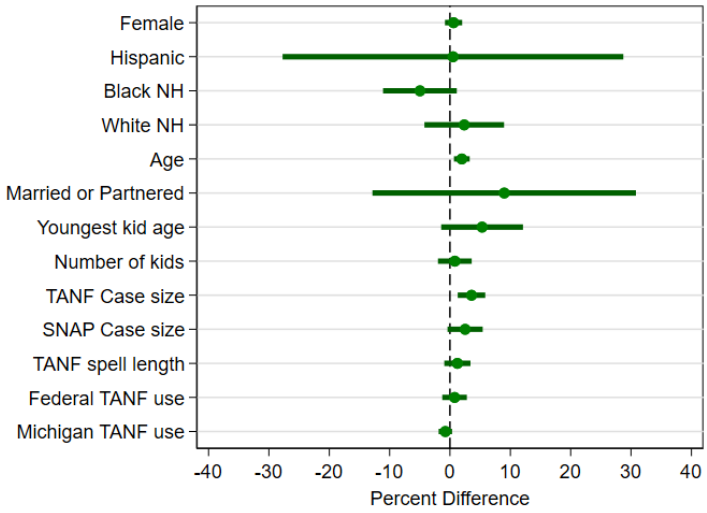
Note: To make plots, we restrict to data in the first month of a TANF spell in which a 1st or 2nd sanction takes place, then collapse employment by time relative to the policy reform. Zero refers to October 2011; negative values refer months prior to the reform, and positive values refer months after the reform. We regress average employment on an indicator equal to one if the sanction occurs after the reform, a continuous variable for the quadratic of relative event timing, and the interaction between this indicator and continuous variable. At the top of each panel, we display the estimate coefficient, e.g. "RD," and its standard error in parentheses, which tests if the policy reform was associated with a discrete change in employment of sanctioned beneficiaries.

Figure A.5: Effect size of pre-sanction observable difference

(a) Unweighted



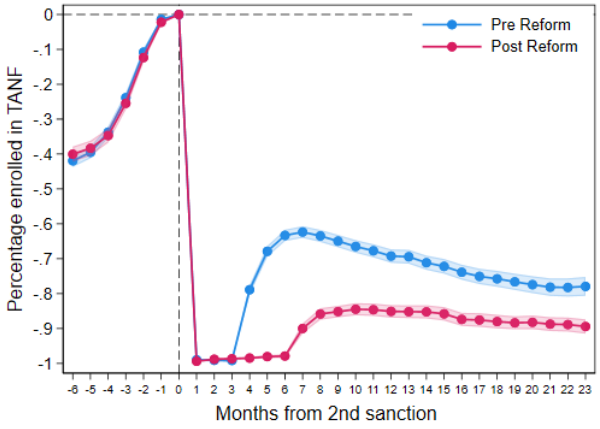
(b) Weighted



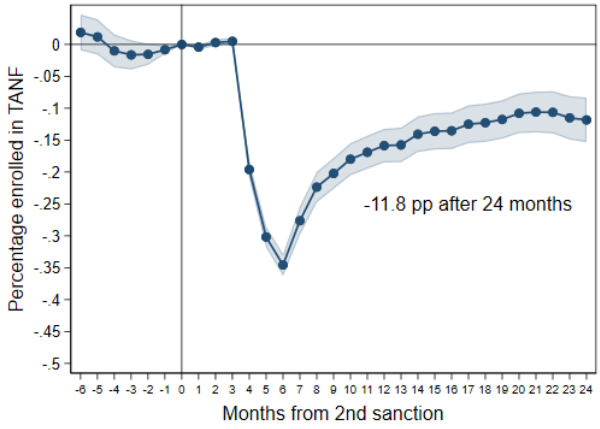
Note: To calculate effect sizes, we restrict to analysis sample data in the month prior to a second work sanction, and regress each characteristics on an indicator if the sanction takes place after the reform, with and without weights. We test the significance of the post-reform indicator coefficient, scaled by the constant term and plot results coefficients and confidence intervals, centered at zero. Panel A.5a shows results without propensity score weights, and panel A.5b shows results with propensity score weights.

Figure A.6: % Beneficiaries enrolled in TANF each month

(a) Monthly TANF enrollment trajectories



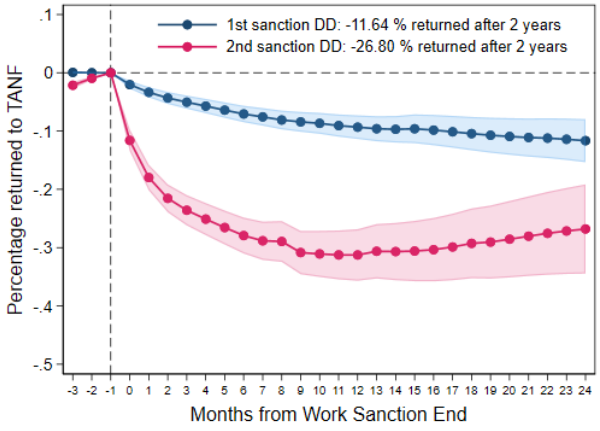
(b) Difference-in-Differences β_t



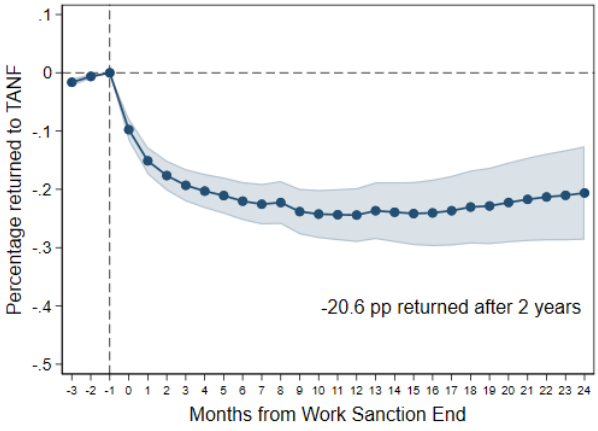
Notes: Figure plots estimates from equation (1) in 1a and equation (2) in the 1b. Y-axis units are percentage points and x-axis plots months relative to the month of a second work sanction. Outcome is TANF enrollment of beneficiaries in each month. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.7: Triple difference, cumulative TANF reattachment

(a) Before-After Reform Differences



(b) DDD Coefficients

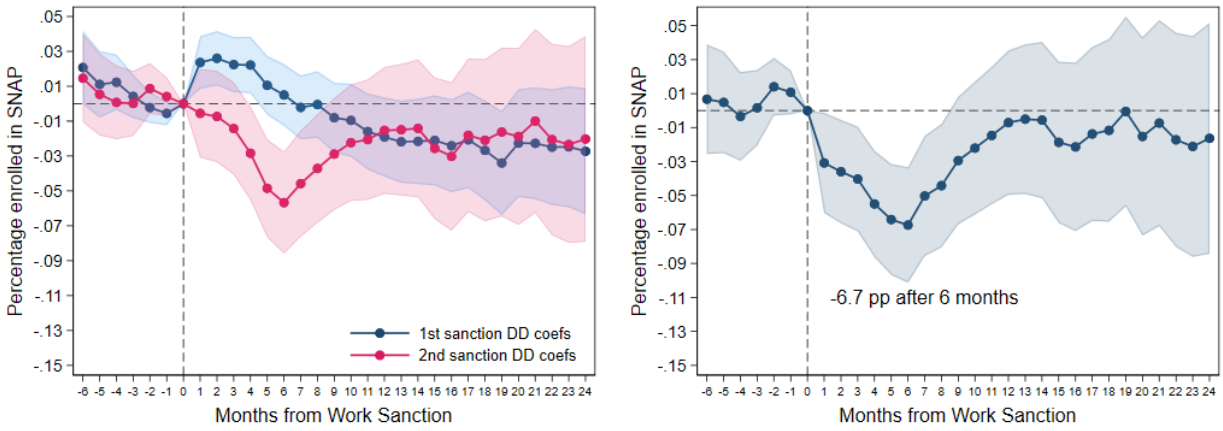


Notes: Figure A.7a compares estimates of specification (2) separately for 1st and 2nd work sanction groups, while A.7b plots coefficients from the triple difference specification (4) . Y-axis units are percentage points and x-axis plots months relative to the month of a work sanction. Outcome is the equal to TANF enrollment of beneficiaries in each month for periods -6 through 0. For periods 1 through 24, the outcome is equal to 1 if a beneficiary has returned to TANF by that time relative to sanctioning. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.8: Triple difference, SNAP enrollment

(a) Before-After Reform Differences

(b) DDD Coefficients

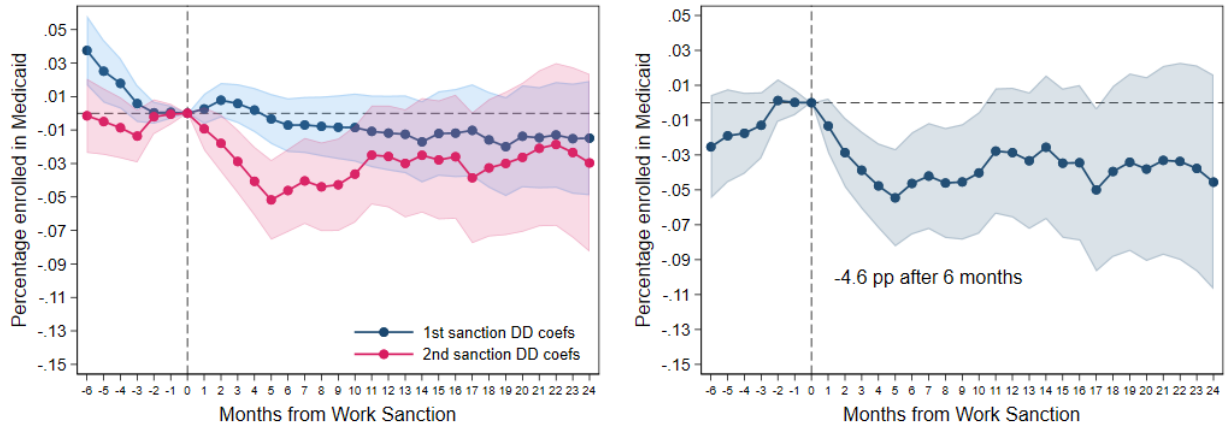


Notes: Figure A.8a compares estimates of specification (2) separately for 1st and 2nd work sanction groups, while A.8b plots coefficients from the triple difference specification (4). Y-axis units are percentage points and x-axis plots months relative to the month of a work sanction. The outcome is equal to SNAP enrollment of beneficiaries in each month. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.9: Triple difference, Medicaid enrollment

(a) Before-After Reform Differences

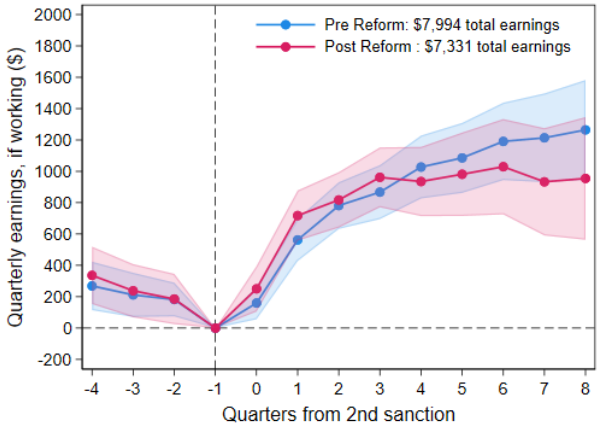
(b) DDD Coefficients



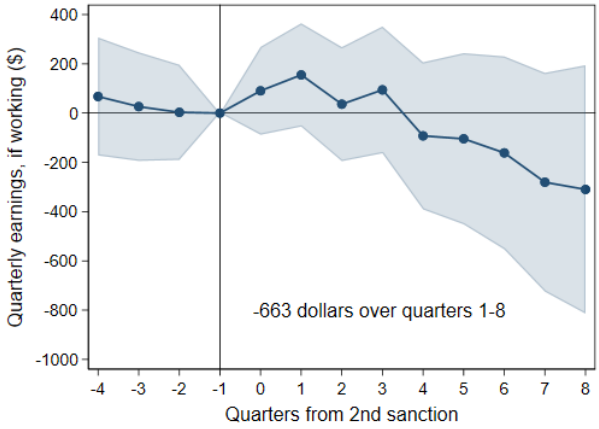
Notes: Figure A.9a compares estimates of specification (2) separately for 1st and 2nd work sanction groups, while A.9b plots coefficients from the triple difference specification (4) . Y-axis units are percentage points and x-axis plots months relative to the month of a work sanction. The outcome is equal to Medicaid enrollment of beneficiaries in each month. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.10: Positive earnings of beneficiaries

(a) Postive earnings trajectories



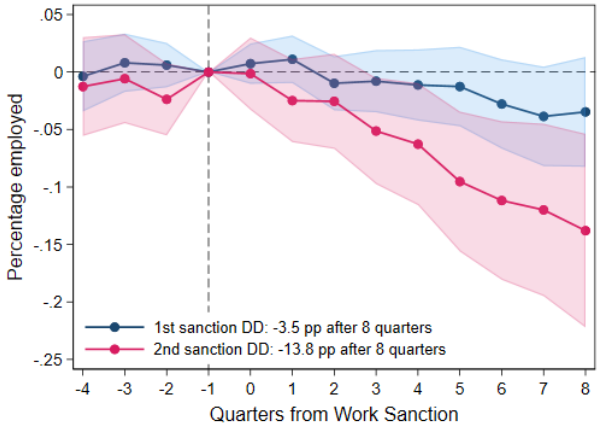
(b) Difference-in-Differences β_t



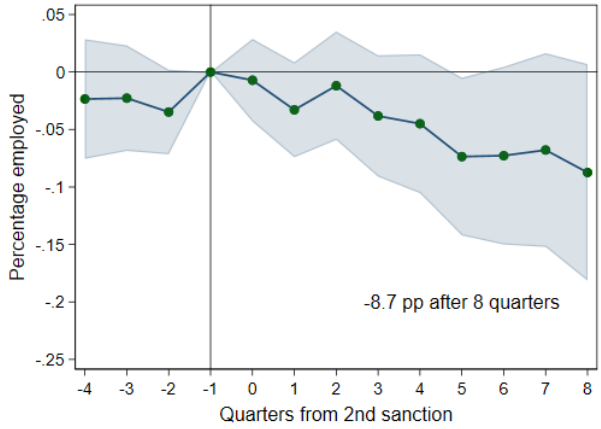
Notes: Figure plots estimates from equation (1) in A.10a and equation (2) in A.10b. Y-axis units are dollars and x-axis plots quarters relative to quarter of a second work sanction. The outcome is quarterly earnings, conditional on a beneficiaries earnings positive earnings. Outcome has been windsorized at the 99th percentile and deflated to 2015$. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.11: Triple difference, beneficiary employment

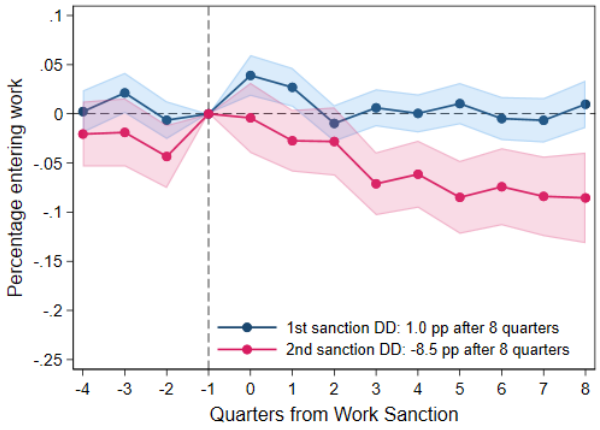
(a) Before-After Reform Differences



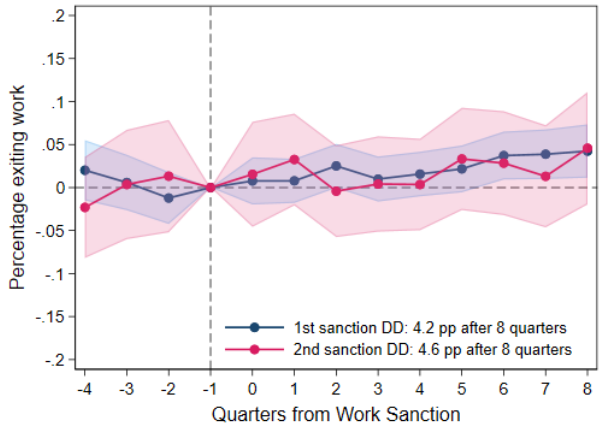
(b) DDD Coefficients



(c) Job entry differences



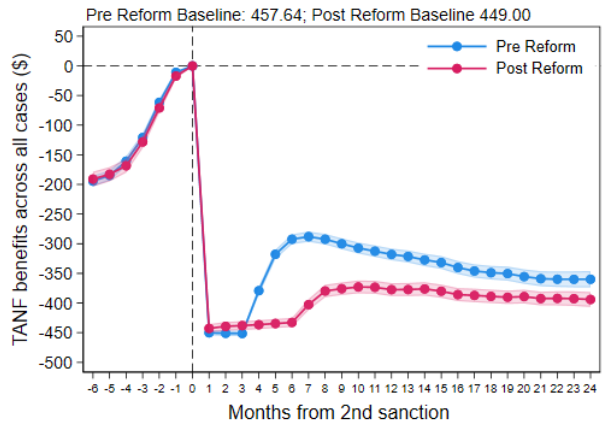
(d) Job exit differences



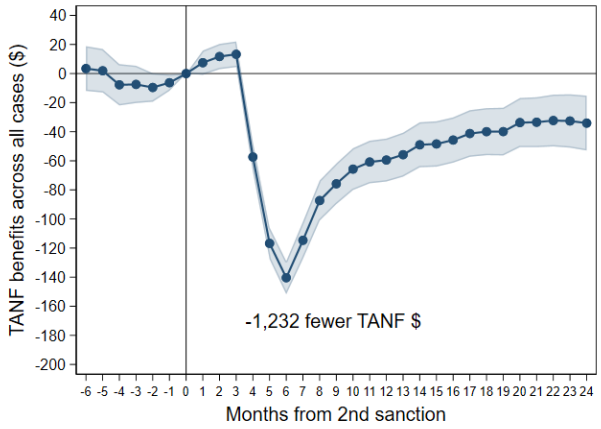
Notes: Figure A.11a, A.11c and A.11d compares estimates of specification (2) separately for 1st and 2nd work sanction groups, while A.11b plots coefficients from the triple difference specification (4) . The x-axis plots quarters relative to the quarter of work sanction. In the top panels, the outcome is an indicator variable equal to one if a beneficiary has positive quarterly earnings. In Figure A.11c, the outcome is an indicator if a beneficiary was not employed last quarter, but is employed in the current quarter; in Figure A.11d, the outcome is an indicator if a beneficiary was employed last quarter, but is not employed this quarter. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.12: TANF benefits of case members

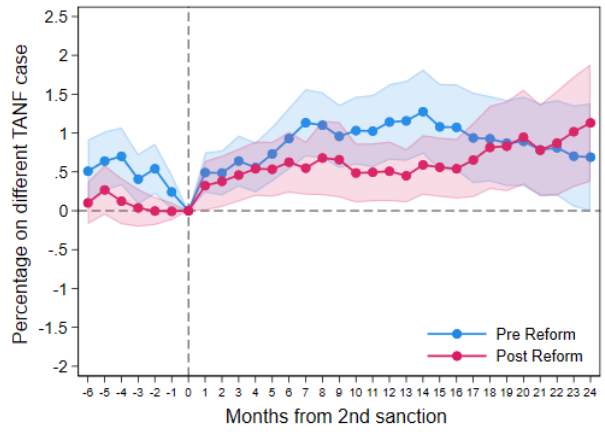
(a) TANF benefits trajectories



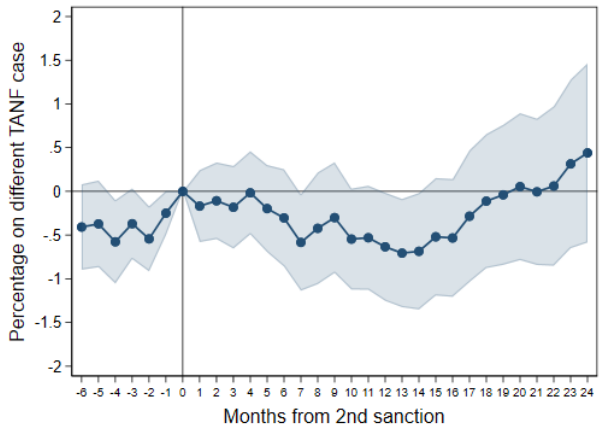
(b) Difference-in-Differences β_t



(c) % new TANF case trajectories



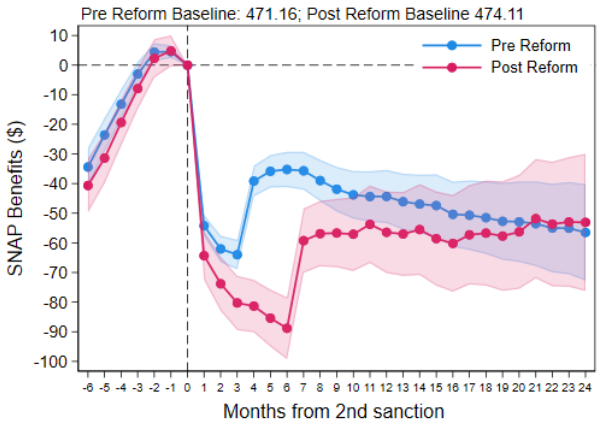
(d) Difference-in-Differences β_t



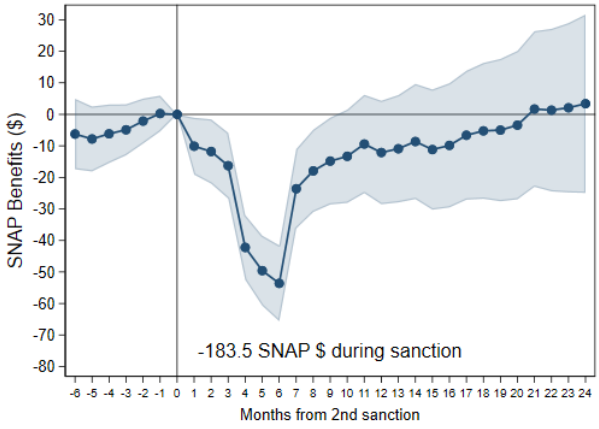
Notes: Figure plots estimates from equation (1) in A.12a, A.12c and equation (2) in A.12b, A.12d. Top panel y-axis units are dollars, bottom panel y-axis units are percentage points, and x-axis plots months relative to month of a second work sanction. Top panels outcome is equal to the total TANF benefit dollars associated with all case members exposed to the work sanction event, and bottom panels outcome is an indicator equal to one if a case member exposed to a work sanction is observed enrolled on a different TANF case. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.13: SNAP benefits of case members

(a) SNAP benefit trajectories



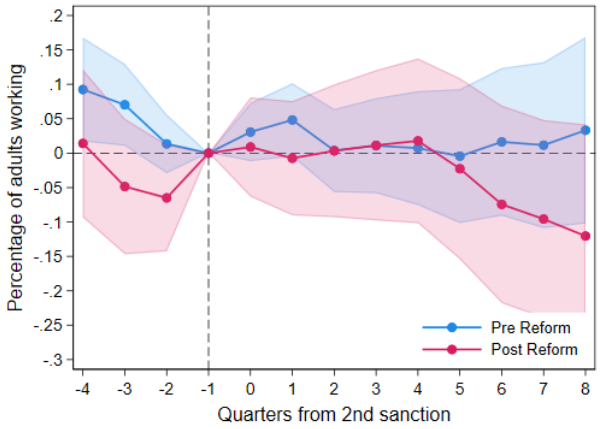
(b) Difference-in-Differences β_t



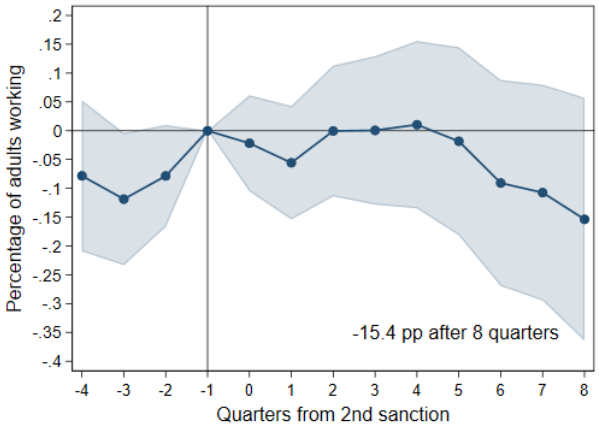
Notes: Figure plots estimates from equation (1) in A.13a and equation 2 in (A.13b). Y-axis units are dollars and x-axis plots months relative to month of a second work sanction. Outcome is equal to the total SNAP benefit dollars associated with all case members exposed to the work sanction event. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.14: Employment if case includes multiple adults

(a) Employment trajectories

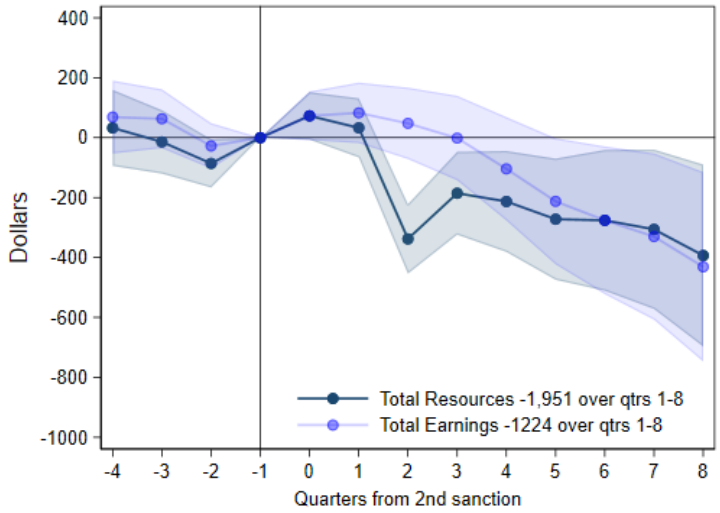


(b) Difference-in-Differences β_t



Notes: Figure plots estimates from equation 1 in A.14a and equation 2 in the A.14b. Y-axis units are percentage points and x-axis plots quarters relative to quarter of a second work sanction. Outcome equal to employment rate of all working age adults in a case exposed to work sanctions. We restrict our sample to cases with more than one working age adult. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.15: Contributions of Earnings versus Benefit Changes

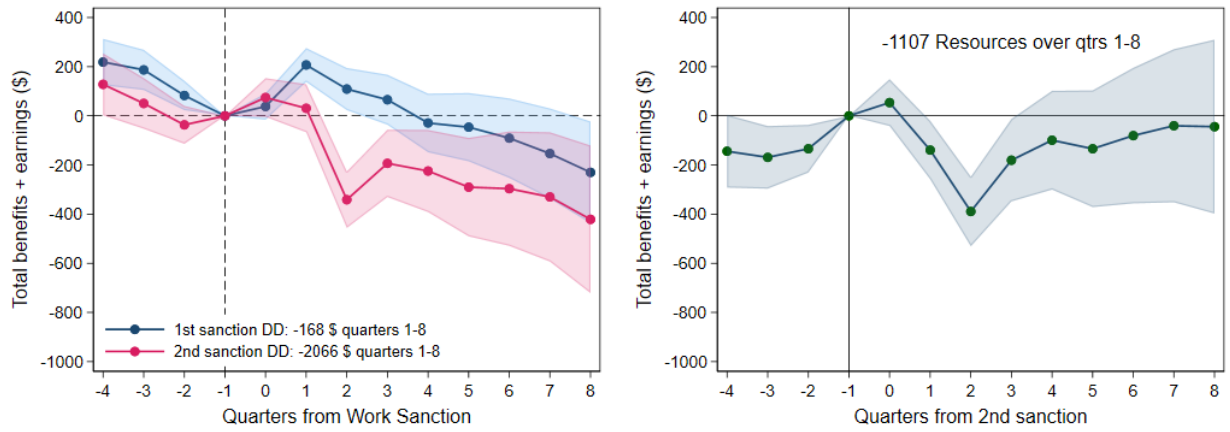


Notes: Figure plots estimates from equation equation (2). Y-axis units are dollars and x-axis plots quarters relative to quarter of a second work sanction. The dark blue line plots coefficients for the outcome of total household resources (SNAP+TANF+earnings), while the light blue line plots coefficients for earnings alone. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.16: Triple difference, household resources

(a) Before-After Reform Differences

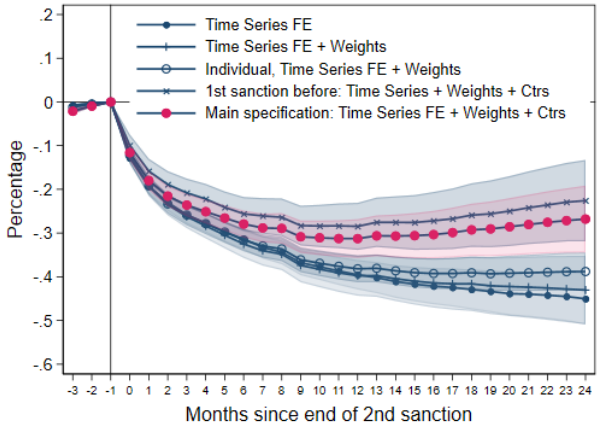
(b) DDD Coefficients



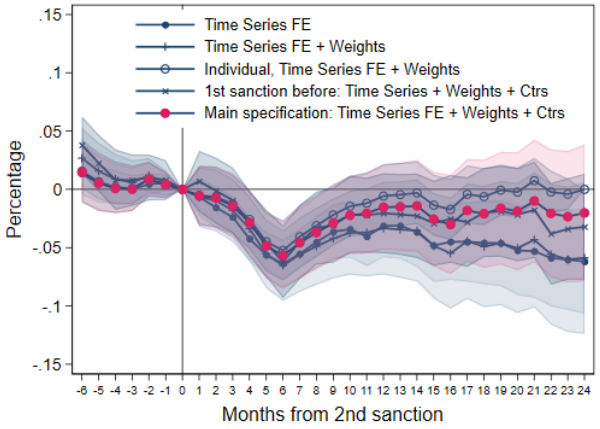
Notes: Figure plots estimates from equation 2 in A.16a and equation 4 in the A.16b. Y-axis units are dollars and x-axis plots quarters relative to quarter of a second work sanction. Outcome is equal to the sum of total TANF and SNAP benefit dollars, as well as all formal labor earnings, associated with all case members exposed to the work sanction event; outcome has been deflated to 2015 dollars. Models include quarter fixed effects, year fixed effects, and pre-sanction covariates as described in text. Coefficients in the left panel are estimated in a model that fully interacts fixed effects and covariates with an indicator equal to one if the work sanction takes place after the reform. Models are propensity score weighted as described in text. Standard errors are clustered at the beneficiary person identifier level.

Figure A.17: Sensitivity and robustness of main results

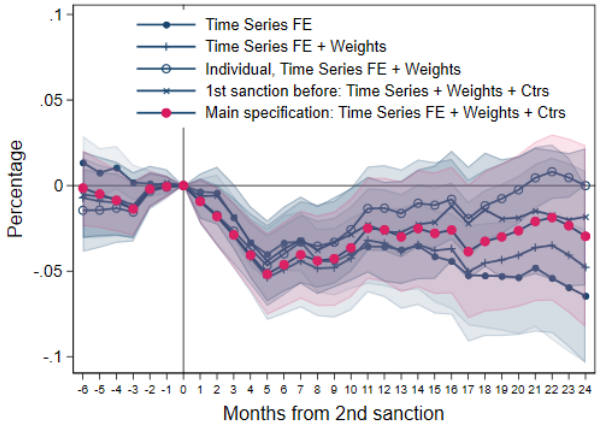
(a) TANF Reattachment



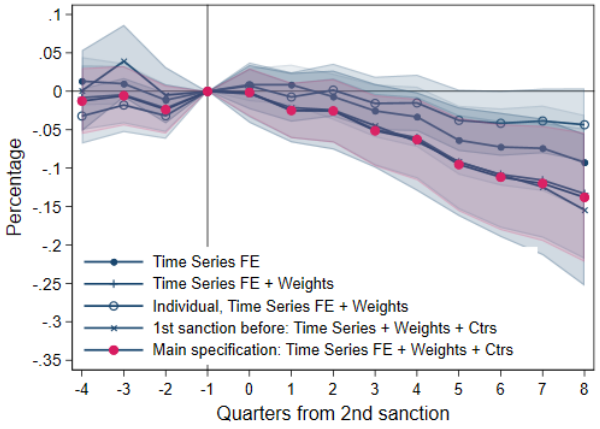
(b) SNAP Enrollment



(c) Medicaid Enrollment



(d) Quarterly Employment



Notes: Figure plots estimates from equation 2 across different specification and sample choices. All models include time-series fixed effects and cluster standard errors at the person level. We compare this baseline version, with a specification that adds propensity score weights (+ markers), a specification with individual fixed effects (hollow markers), our main specification that adds pre-sanction covariates (pink markers), and our main specification that restricts to the group of beneficiaries whose first sanction took place prior to the reform (x markers).

B Eligibility Grant Calculation

While we observe actual enrollment in TANF and SNAP, we are interested in the extent to which households that are eligible for the program do not enroll. As such, we will use stated program eligibility and benefit calculation rules to create proxies for program eligibility, and in the case of SNAP, to impute benefit amounts when enrolled in the program.

For both programs, eligibility and benefit amount depends on the number of people in an assistance unit. To approximate this surrounding a work sanction, we use information about the number of case members enrolled in TANF or SNAP in the month prior to sanctioning. We next estimate monthly household income as one third of the matched quarterly administrative earnings records for the case. During the months that a case is sanctioned, their previous TANF benefit is counted as income for SNAP benefit calculation.

Cases with zero gross income are eligible for both programs and receive benefits that depend on the number of people in their assistance unit. For TANF, this amount is equal to the Budgetary Needs Standard (BNS), which is set by Michigan and varies from X for a single parent with one child to Y for a family of Z; for SNAP, this amount is called the maximum allotment and is set by the USDA's Thrifty Food Plan and varied from $200 for a single adult to $1202 for a family of 8 in 2011. If a case has positive gross income, Michigan TANF benefit amounts are calculated by subtracting $200 from earned income, multiplying this amount by a benefit reduction rate (BRR), and then subtracting the resulting quantity plus any unearned income from the BNS. Cases are eligible for TANF benefits as long as the remaining quantity is positive. After cases exit TANF, we use these eligibility rules to approximate incomplete take-up of TANF.

SNAP benefit amounts are calculated by first deducting 20 % of monthly earnings from gross income, and then deducting an amount that varies by household size to capture spending on necessities and shelter. SNAP benefit amounts are calculated by first deducting 20 % of monthly earnings, and then deducting an amount that varies by household size to capture spending on necessities and shelter. The remaining quantity is the cases's net income, which must be below 100% of the Federal Poverty Line for a case to qualify for SNAP benefits. SNAP benefit amounts are then equal the relevant maximum allotment minus 30 % of the calculated net income. We use this benefit calculation formula, in addition to the number of enrolled case members and estimated monthly income, to approximate SNAP benefits for each month of our panel.

C Work requirement details

To meet work requirements, all able bodied adults must participate in “employment-related" activities for 30 hours per week if there is one worker in the assistance unit, a combined 50 hours per week if there are two workers in the assistance unit, or 20 hours per week if they care for a child under the age of 6. To verify work, caseworkers must receive two consecutive pay stubs, get confirmation from managers, or through Equifax verification services. There are multiple ways that participants can meet work requirements. Other than formal employment, activities that count towards the first 20 hours include job search, job readiness, vocational training, on-the-job training, providing child care for others, and community service. However, job search hours are limited to 12 weeks per year, with no more than 4 consecutive weeks, and community service hours are capped.[32]

If participants quit a job, are fired for misconduct or absenteeism, voluntarily reduce their hours or earnings, refuse an offer of employment or additional hours, or do not participate in work-training-orientation activities, they are considered in violation of work requirements. When in violation, caseworkers will mail a “Notice of Non-Compliance" to the address on file, which explains the nature of the violation and subsequent penalties to participants (See MDHHS form 2444). In Figure C.1, we show portions of this form that provide key information to beneficiaries. As shown in panel (a), caseworkers will briefly describe the date and reason for the violation of work requirements, as well as the date and time that beneficiaries can talk to their case worker to verify reasons for non-compliance. In panel (b), we show the portion of the form that describes how to contact their caseworker or change their appointment. FInally, panel (c) shows the portion of the form that describes the penalty – whether a beneficiary will lose access to TANF (i.e. FIP), Refugee Cash Asisstance (RCA), or SNAP (FAP) and for how long.

If beneficiaries do not see this letter in a timely manner, they could miss their appointment or be entirely unaware that they will lose benefits. Even if they do see this form in time, the form uses technical and brief language, as well as many acronyms, leaving large scope for mis-understanding or limited comprehension. If workers believe they have been erroneously sanctioned, they have 10 days to meet with their caseworker and provide documentation to avoid this penalty. They can also claim deferrals from these requirements for a list of reasons included in the Notice of Non-Compliance as follows:

- Physically or mentally unable to work, as shown by medical evidence.
- Proof that a reasonable accommodation was requested but employer did not provide.
- Childcare is not “adequate, suitable, affordable" and not within a reasonable distance from your home or work site.

[32] See Michigan Benefits Eligibility Manual 230 A and B.

- Reasonably priced transportation is not available.
- Available employment involves illegal activities.
- Proof of discrimination on the basis of “age, race, disability, gender, color, national origin or religious beliefs."
- Proof of unplanned event or factor that prevents or significantly interferes with employment-related activities. E.g. domestic violence, homelessness, jail, safety risk, hospitalization.
- Quitting a job to take another job with equivalent or greater salary that has been accepted before the quit.
- Total commuting time exceeds two hours per day, not including time to and from child care facilities, OR exceeds three hours per day including time to and from child care facilities.
- Employed full-time for 40 hours per week at at least the state minimum wage.
- Are a single parent with a child under age 6.
- Moved due to another household members job, education or training.
- Have a job that requires you to join, resign from, or refrain from joining a labor union.
- Have a job that is on strike.

C.1 SNAP Work Requirements

In addition, work requirements and enforcement policies have been implemented in SNAP and Medicaid. All able-bodied adults ages 16-59 must meet SNAP General Work Requirements, which include an employment and training program, requirements to accept work when offered, and not voluntarily quit employment or reduce hours below 30 hours per week. Individuals that already work more than 30 hours per week, take care of children under the age of 6, or have disabilities do not need to meet these requirements. If an individual does not care for children, beneficiaries must also work or participate in a work program for at least 80 hours per month in addition to other requirements (Bauer and East, 2023).

Upon violating any SNAP work requirements, beneficiaries are removed from SNAP for a minimum sanction of one month, although as with TANF, these enforcement rules vary across states and over time. Reasons that could qualify a beneficiary to remain enrolled in SNAP upon a violation of TANF work requirements include: job pays below the hourly minimum wage; employment interferes with at least half time enrollment in a education/job training program; the employer makes unreasonable demands or conditions; the person must quit a job and move out of the county; promised work hours do not materialize; the person would be forced to join a union; or, only employment within first 30 days is outside of client experience/field.

Figure C.1: Form mailed to beneficiaries upon sanctioning

(a) Details on violation

NOTICE OF NONCOMPLIANCE

Non Compliant Individual:

Records show that you have refused or failed to participate as required in employment and/or self-sufficiency related activities for FIP, RCA and/or FAP as noted below:

DATES HOW YOU DID NOT COMPLY

A meeting has been scheduled to give you an opportunity to report and verify your reasons for non-compliance. If you want to have a telephone meeting, please call to schedule it **before** you miss your scheduled appointment.

Appointment Date:

Appointment Time:

Appointment Location:

Specialist Comments:

(b) Details on next steps

Case Name	Case Number	Specialist

It is important that you keep your appointment (see above) or call your specialist to prevent this closure before you miss your scheduled appointment. If you need to change the date or time of this meeting, you must reschedule before you miss your scheduled appointment. Your specialist can be reached between the hours of and , Monday – Friday. Please leave a message indicating when and where you can be contacted. If you cannot attend in person and want to participate in a phone conference, please call your specialist at the phone number listed at the top of this notice to set up a phone conference before you miss your scheduled appointment.

It is your responsibility to report and verify reasons for your actions. This is your opportunity to claim barriers that make it hard for you to work. If you do not contact me before your appointment date, I will make a good cause decision for you using the information available to me. You may lose your Family Independence Program (FIP) benefits or your RCA (Refugee Cash Assistance) benefits may be reduced and if you receive Food Assistance, your Food Assistance benefits may be closed or reduced.

☐ This is the first time you have been non-compliant with FIP, RCA, and/or FAP. See below for FIP, RCA, and FAP penalty information.

☐ This is the second time you have been non-compliant with FIP, RCA, and/or FAP. See below for FIP, RCA, and FAP penalty information.

☐ This is at least the third time you have been non-compliant with FIP, RCA, and/or FAP. See below for FIP, RCA, and FAP penalty information.

(c) Details on penalty

Individual Penalty Information. See above for more information about the penalty that applies to your circumstances.*

1st Non-Compliance	2nd Non-Compliance	3rd Non-Compliance
☐ FIP – Your case will close for a minimum of 3 months.*	☐ FIP – Your case will close for a minimum of 6 months.*	☐ FIP – Your case will close for a lifetime sanction.
☐ RCA – You will be disqualified for a minimum of 3 months.	☐ RCA – You will be disqualified for a minimum of 6 months.	☐ RCA – You will be disqualified for a minimum of 6 months.
☐ FAP – You will be disqualified for one month or until compliance, whichever is longer.	☐ FAP – You will be disqualified for 6 months or until compliance, whichever is longer.	☐ FAP – You will be disqualified for 6 months or until compliance, whichever is longer.

*For a two-parent household, refer to your DHS-1605, Notice of Case Action, for the group penalty period.

Good Cause Reasons

You have the right to claim good cause if you believe you should be excused from the FIP or RCA and/or FAP work rules. If you think you have a good cause reason, contact your DHS specialist right away. (NOTE: Reasons for good cause may change.)

IF YOU VERIFY GOOD CAUSE, YOUR FIP, RCA AND/OR FAP CASE WILL NOT CLOSE OR BE REDUCED. **You must verify your good cause before or during your triage appointment.**

D Change to TANF Benefit Reduction Rate

The 2011 reform reduced the TANF benefit reduction rate from 80 to 50 percent. This change meant that at every earnings level higher than the earnings disregard of $200, cases received higher benefits after the reform than they would have received prior to the reform. This change also meant that cases could earn more before losing benefits completely. Theoretically, this change should have incentivized higher earnings among work-required adults on TANF, independent of the change in sanction severity. If adults on TANF did earn more as a result of this change in the benefit reduction rate, our estimates of the effect of harsher sanctions on earnings would be biased upwards.

To test this, we use income data reported at application to estimate the share of cases earning below the earnings disregard, in the pre-reform phase-out region, or above the pre-reform phase out region, separately for cases that had their second work sanction before vs after the policy reform (Table D.1). We find that cases are less likely to be earning below the disregard when the benefit reduction rate is lower, but the difference is small (3.4 percentage points). Both before and after the reform, cases are overwhelmingly likely to have earnings below the disregard, and less than 1 percent of cases would locate on the new phaseout region. This finding suggests any bias generated by this concurrent policy reform is likely to be small.

Table D.1: Location on TANF budget set at entry

	Before Oct 2011	After Oct 2011	*t*-stat of difference
% Below disregard	90.5	87.1	4.2
% Original phaseout region	9.2	12.2	-3.6
% New phaseout region	0.3	0.8	-2.6

E Data preparation

To construct our data, we begin with a series of text files provided to us by the Michigan Department of Health and Human Services. There are 11 separate files of administrative records that include unique identifiers for each individual (person_id) and each TANF case (case_id) that we can use to combine files after we reshape data to unit:month or unit:quarter panel structure.

1. **PS_Recipient_Eligibility_FIP**: Contains information used to determine eligibility for all individuals with TANF eligibility between 2008 and fiscal year 2020.
2. **PS_Time_Limits** Contains state, federal TANF time limit counters for every adult enrolled in TANF. Link with unique person identifier.
3. **PS_Quarterly_Wages**: Contains quarterly data from Michigan Unemployment Insurance Agency, linked by MDHHS. Link with unique person identifier.
4. **PS_Recipient_Eligibility_OtherPrograms**: Contains other public assistance program eligibility spells for all individuals ever enrolled in TANF. Link with unique person identifier.
5. **PS_Recipient_Demographics**: Gender, date of birth, date of death, race, ethnicity, veteran, and migrant status of all persons ever enrolled in TANF. Link with unique person identifier.
6. **PS_Case_Income_Grant_Amts**: Budget information reported by beneficiary at time of application that is used to determine TANF grant amount. Link with TANF case identifier.
7. **PS_Case_Location:** Contains county, city, zipcode, census tract, school district of case physical location. Link with TANF case identifier. Unclear when this file is updated, as date ranges do not correspond to eligibility episodes.
8. **PS_FIP_Applications:** Contains identifier for case beneficiary, application date, decision date, application decision (approved or denied). Link with TANF case identifier.
9. **PS_FIP_Application_Denial_Reasons**: Contains application date and denial reason. Link to PS_FIP_Applications with TANF case identifier.
10. **PS_Closure_Case_Notice_Reasons:** Contains date and reason for closure of entire case. Link to PS_Closure_Person_Notice_Reasons with TANF case identifier to find which member violates requirements.
11. **PS_Closure_Person_Notice_Reasons:** Contains date and reason for closure. Unqiue person and TANF case identifiers.

Data coverage notes: Due to a change in the data processing system, records load on through 2008 so coverage is incomplete. We begin our panel in January 2009 when monthly TANF caseload

counts stabilized.

Data linkage and sample creation: After each sub-panel is cleaned and prepared (i.e. such that it is unique at the person:month or case:person:month level), we combine files as follows:

1. Start with **PS_Recipient_Eligibility_FIP**, which tells us the grantee and participant person_id associated with each case number over time.
2. Merge to **PS_Time_Limits**, which contains recorded benefits and time limit counters for all adults and grantees. If a benefit amount appears in this file, this means TANF was issued that month, i.e. the associated people are enrolled in the program.
    - Identify all cases with a member granted a hardship exemption (granted to up to 20% of the caseload prior to October 2011). Identify all individuals enrolled in case with hardship exempt member, and all subsequent cases with which they are affiliated. Drop all individuals exposed to the hardship exemption.
    - Identify all cases with a member subject to work requirements. Identify all subsequent cases with which they affiliated. Drop cases with no members currently or formerly subject to work requirements.
3. Merge with **PS_Recipient_Demographics**.
    - Construct age variable as the current month:year relative to listed birth-date. Drop unborn children and top code age to 100.
    - Create control variables for race/ethnicity, married/partner status, number of children, number of children under the age of 6, average age of children, age of youngest child, and number of children enrolled in TANF when active.
4. Merge with **PS_Recipient_Eligibility_OtherPrograms** for information on SNAP and Medicaid enrollment each month.
    - If no matched record, set enrollment indicator to 0.
    - Create variables for the proportion of children and non-grantee members enrolled in SNAP and Medicaid each month.
5. Merge with **PS_Quarterly_Wages** at the person:quarter level.
    - Adjust earnings with 2015 quarterly Consumer Price Index.
    - Identify all members with matched earnings records in a given quarter (i.e. “workers").
    - Create variables for employment if earnings are positive and case employment as the proportion of workers with positive earnings.

6. Merge with panel of work sanctions and frequency (see next section for details).
    - Identify each individual exposed to first and second work sanctions and create flags for any subsequent case affiliation.
7. Save panel unique at person:month of all individuals exposed to TANF work requirements and not exposed to the hardship exemption between January 2009 and December 2018.
8. Restrict to individuals ever listed as a grantee (i.e. TANF beneficiary). Populate case_id with last active TANF case.
9. Merge with **PS_Case_Income_Grant_Amts** to verify child-only months, budgetary needs standard, and income reported at application. 7
10. Merge with **PS_Case_Location** to identify each zipcode and county affiliated with all active TANF cases. Assume individuals are located at last recorded address when not enrolled in TANF.
11. Merge with **PS_FIP_Applications** and **PS_FIP_Application_Denial_Reasons** to identify months with submitted TANF applications, decisions, and reasons for denial. This data loads on in 2010, so censored for some of the pre-reform sample.
12. Verify panel is unqiue at the beneficiary:month level, and create remaining variables:
    - Top code earnings at the 99th percentile of the non-zero distribution.
    - Merge on Bureau of Local Area Unemployment Statistics measures for county employment and e-pop.
    - Merge on data of total TANF benefits accruing to any case member exposed to a first or second work sanction.
    - Merge on data of SNAP and Medicaid enrollment rates of any case members exposed to work sanctions.
    - Variables for TANF spell frequency and length, entry and exit into TANF, days between application and work sanction, number of TANF applications to date, indicators if work sanctions take place before or after reform, indicator if multiple adults when sanctioned, flows into employment/unemployment, indicators if ever returned to TANF after 1st or 2nd work sanction, indicator if 1st or 2nd sanction takes place between October 2009 and October 2013, indicators for placement on TANF budget set according to reported income at application.
13. Save beneficiary:month 2009-2019 panel.

Identifying work sanctions: Identify all individuals with a listed closure from TANF between 2008-2020 by combining time limits and case closure files.

1. Restrict to individuals with a listed work sanction, or recorded months with zero benefits in time limit file.
2. Restrict to individuals subject to work requirements.
3. Drop if sanctions occur after January 2019, tsfill the panel at the person_id: month level.
4. Create a variable for spells between listed work sanctions associated with a given person. Count the number of months that TANF benefits are missing or recorded as zero immediately after a work sanction.
5. Create flag if an individual ever returns to TANF after a work sanction.
6. Code verified work sanctions as follows:
    - Observe 3 or 12 months of zero benefits prior to November 2011. N = 37,842
    - Observe 3 or 6 months of zero benefits after October 2011. N = 62,698
    - Observe only 2 months of zero benefits, but three months off of TANF in a closure spell, and evidence that the beneficiary returns to TANF after the sanction. N = 423
    - Observe more than 4 months of zero benefits, but no listed closure. N = 3,349
    - Listed closure, but no months of zero or missing in time limit file, indicates a lifetime ban. N = 21,528
7. We choose to disregard the following cases as non-work sanctions:
    - Instances with only 1 month of zero of missing benefits. Welfare rules database indicates this likely occurs when someone refuses a job or for child support closures.
    - Have a listed closure, but no zero months and return to TANF at a later date. Assume reconciliation was able to happen.
8. Next we create a variable for whether a sanction is 1st, 2nd, or 3rd observed for a given beneficiary.
    - 3rd sanction if 12 sanction months prior to November 2011 (N = 3,956)
    - 2nd sanction if 6 closure months after October 2011 (N = 14,961)
    - 1st sanction if 3 closure months after October 2011 (N = 47,041)
    - 2nd sanction if next observed sanction is 3rd (N = 1,746)
    - 1st sanction if next observed sanction is 2nd (N = 4,782)
    - 2nd sanction if last observed sanction is 1st (N = 1,793)
    - 3rd sanction if last observed sanction is 2nd (N = 1,955)
    - 3rd sanction if no zero benefit or missing benefit months, evidence of previous sanction, evidence that beneficiary never returns to TANF, and after October 2011.

Analysis sample preparation: Begin with beneficiary:month 2009-2019 panel

1. Drop any cases included a member with time limit utilization above 48 state months or 60 federal months. Drop any cases closed from TANF for SSI enrollment.
2. Create event timing indicators surrounding first and second work sanctions.
3. Create balance indicators for events that have a fully populated event time window.
4. Create pre-sanction covariates equal to the value in month prior to a work sanction.
5. Create outcome of TANF reattachment. Equivalent to TANF enrollment prior to sanctioning, then equal to one as soon as individual returns to TANF after sanctioning.
6. Create categorical control variables.
    - TANF spell-months top coded at 7. Number of TANF spells top coded at 3. Number of children top coded at 3. Number of TANF case members top coded at 5.
    - Beneficiary age bins coded as: 0-21, 22-25, 26-29, 30 and older
    - Average kid age bins coded as: 0-1, 1-3, 3-5, 5-9, 9-18
    - Youngest kid age bins coded as: 0, 1-2, 3-4, 5-18
    - TANF time limit use bins coded as quantiles of the within-sanction group distribution.
7. Create indicators for work sanctions that occur in counties whose unemployment rate is among the bottom 25 percent or top 25 percent of the statewide distribution in a given month.
8. Restrict to beneficiaries with first or second work sanctions between October 2009-October 2013.
9. Impute SNAP benefits and TANF eligibility.
10. Create measure of household resources as the sum of TANF benefits, imputed SNAP benefits, and all earnings of affiliated case members.
11. Save beneficiary:month analysis sample. Collapse to quarterly level for labor supply analysis.