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Incentive to Retrench? Institutional Moral Hazard among Federal & State Social Assistance Programs after Welfare Reform¹

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ABSTRACT

This paper investigates whether interactions of federal- and state-administered social assistance programs in the United States provide state governments a financial incentive to cut back on cash assistance for low-income families. We test two complementary hypotheses: First, that the federally-financed Supplemental Nutrition Assistance Program (SNAP) and Supplemental Security Income (SSI) programs act as insurance mechanisms for retrenchments in cash assistance through the state-administered Temporary Assistance for Needy Families (TANF) program, and second, that the structure of TANF provides states a financial incentive to cut back on cash assistance. Applying a differences-in-differences approach on household income data from 1997 to 2014, we find that the federal government insures states for more than half of their retrenchment in TANF cash assistance: A \$50 decline in state spending on cash support leads to an average \$27 increase in federal social assistance expenditures. We find that 39 percent of states' retrenchment in TANF cash assistance is reallocated toward a broad set of expenditures that might otherwise have to be funded through general state revenues. Our findings suggest that state governments have a financial incentive to disinvest in TANF cash assistance and instead shift the burden of social assistance to the federal government.

Keywords: Institutional moral hazard; Temporary Assistance for Needy Families; Supplemental Security Income; Supplemental Nutritional Assistance Program; social policy; federalism

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INTRODUCTION

The behavioral effects of social assistance benefits have long been a focus of policy research and political commentary. Critics of generous social transfers often point to disincentive effects that such benefits might have on an individual's desire or willingness to pursue employment; indeed, concerns of 'benefit dependency' and 'moral hazard' were central motives behind 'welfare reform' and the introduction of the Temporary Assistance for Needy Families (TANF) program in 1996 (Katz, 2001). Policy research has less often focused on the incentive structure facing state governments in deciding how to allocate their social assistance resources. Given that the 50 United States have wide discretion in deciding how to allocate their TANF funds, and that low-income families may use federally-funded social assistance benefits as a substitute for cash transfers from TANF, this paper posits that state governments may experience a 'moral hazard' of their own. Specifically, we investigate whether interactions of federal- and state-administered social assistance programs, as well as the structure of the TANF program, provide state governments a financial incentive to cut back on cash assistance for low-income families.

We hypothesize, first, that the federal government effectively insures state governments for their retrenchment in TANF cash support. Second, we posit that state governments then tend to reallocate recouped TANF funds toward initiatives that might otherwise be funded through general state revenues, such as foster care services, student textbook subsidies, grants to private foundations, Alternative to Abortion programs, dental assistance, compulsive gambler support, and more. As a result, states have a financial incentive to shift the burden of social assistance to the federal government.

In investigating these hypotheses, this paper's primary analytical focus is on the interaction of three social assistance schemes: the state-administered TANF program and the federally-funded Supplemental Nutrition Assistance Program (SNAP, or 'food stamps') and

Supplemental Security Income (SSI, a form of disability assistance) programs. In particular, we assess whether policy-induced retrenchment in the generosity of TANF cash benefits increases the likelihood that low-income families utilize the two federally-funded assistance programs. As we will discuss, prior research has provided contradictory findings regarding the relationship between TANF and SSI, and incomplete findings on the interaction of TANF and SNAP. This paper presents a novel conceptual framework and analytical approach to reconsider the interactions among these three programs.

In doing so, we offer three primary contributions to American welfare state literature. First, we introduce the concept of institutional moral hazard to frame and evaluate the relationship among state- and federally-administered social programs. Moral hazard at the individual level refers to the ability of an insured individual to influence the liability of the insurer (Barr, 2004); similarly, *institutional* moral hazard reflects the ability of state governments to influence the extent to which the federal government will be liable for protecting against the societal risks of poverty and deprivation. Due to asymmetric information across levels of government and incomplete accountability within the TANF program, state governments — for whom the provision of social assistance is ‘insured’ through the existence of federally-administered social programs — can make policy decisions with respect to TANF that shift the burden of social assistance to the federal government. Specifically, we hypothesize that a state government’s decision to reduce the generosity of TANF cash assistance is likely to lead to greater participation rates and mean benefit values of SNAP and SSI benefits among single-parent households, the primary target of TANF benefits.

Second, we use improved microdata on TANF, SNAP, and SSI participation and benefit levels to test the interactions among the three programs. While commonly-used U.S. household income data severely underreports the real extent of means-tested transfers, our augmented version of the Current Population Survey applies benefit imputations from the Urban Institute’s

TRIM3 simulations to more accurately capture program participation. Using the augmented data from 1997 to 2014, we apply a variation of a differences-in-differences method to capture the effects of policy-induced TANF generosity across time, place, and family structure on SNAP and SSI participation. Our primary findings suggest that institutional moral hazard is, indeed, a legitimate concern within the current arrangement of the American welfare state: A \$50 per month policy-induced decline in state TANF cash assistance leads to a \$27 per month increase in federal SNAP and SSI spending among single-parent households. In other words, the federal government insures states for more than half of their retrenchment in TANF cash assistance.

Third, we offer new insight into the financial incentives that exist for states to cut back on their provision of TANF cash assistance and shift the burden of social assistance to the federal government. Our findings suggest that approximately 39 percent of TANF retrenchment in cash assistance is reinvested in a broad set of policies and expenditures – from family dental assistance to grants for private foundations – that might otherwise have to be funded through general state revenues. Such findings fall in line with prior hypotheses that states may use TANF funds to “supplant” existing state spending (Germanis, 2015; U.S. General Accounting Office, 2001).

The sum of these findings help to explain states’ retrenchment in TANF cash assistance throughout the past two decades and offer a new understanding on the interaction among national and subnational social assistance programs across the United States.

BACKGROUND & THEORY

The Decline of TANF

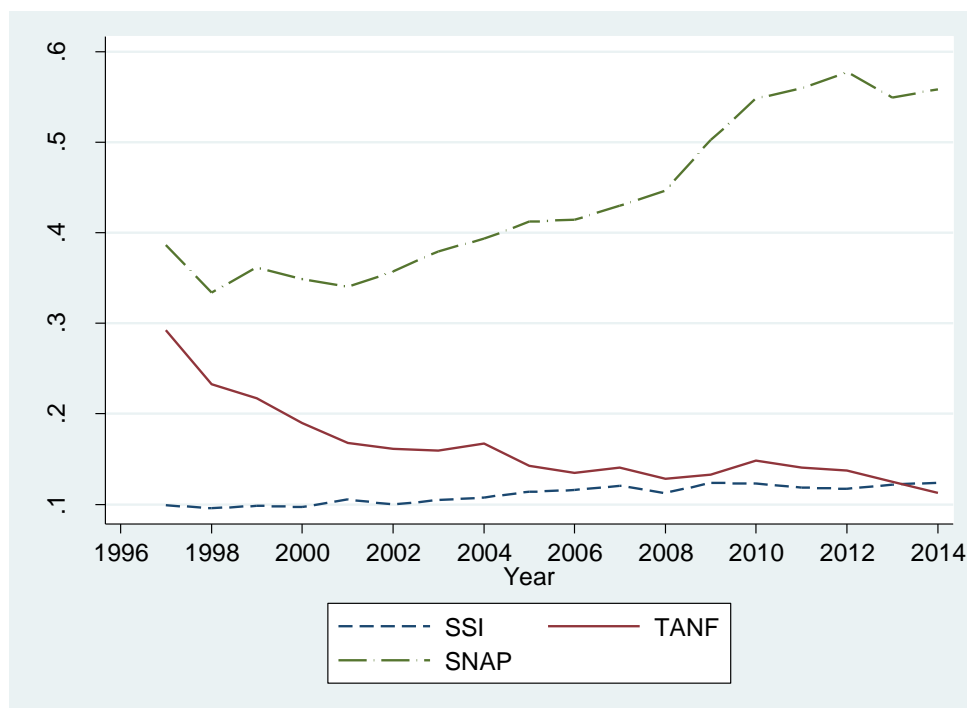
The legislation that introduced TANF transformed three core components of state-administered social assistance. First, it strengthened the conditionality requirements attached to

the receipt of cash assistance. Under Aid to Families with Dependent Children (AFDC), the predecessor program to TANF, families under a certain income threshold were entitled to cash support. With the introduction of TANF, however, the entitlement to cash assistance was ended and recipients would be required to engage in ‘work participation activities’ or employment to continue receiving cash support beyond a certain duration (Falk, 2014). Second, the legislation expanded the scope of the program’s objectives. While AFDC was primarily a cash assistance program, TANF funds can be allocated to any of the program’s four statutory purposes: “to provide assistance to needy families,” “to end the dependence of needy parents on government benefits by promoting job preparation, work, and marriage,” “to prevent and reduce the incidence of out-of-wedlock pregnancies,” and “to encourage the formation and maintenance of two-parent families” (Falk, 2016). Third, TANF replaced the open-ended federal matching scheme with non-indexed block grants and a mandatory ‘Maintenance of Effort’ (MOE) requirement (a certain level of expenditures that states must commit to the program) (Falk, 2016). The replacement of the federal-state match was to ensure that states would “no longer have the promise of increased federal funds as an incentive for greater outlays of state dollars” (Hoke, 1998, p. 128). As we will describe, however, the combination of these three changes may provide states financial incentives to cut back on cash assistance, and may still allow states to induce federal expenditures.

Since the implementation of TANF, caseloads have consistently declined. During the same timeframe (1997 to 2014), caseloads for the federally-funded SNAP and SSI caseloads have increased. Figure 1 depicts the trends in participation rates among the three benefits from 1997 onward among single-parent households – the primary target and beneficiary of the TANF program. As the figure shows, TANF caseloads have fallen from about 30 percent of single parents in 1997 to around 10 percent 2014. By 2014, the share of single parents participating in the SSI program had overtaken the share participating in TANF. The participation rate of single-

parent households in SNAP steadily increased until 2008, then experienced a sharp rise from 2008 onward due to an expansion of benefits and an increase in demand for social assistance after the onset of the economic recession.²

Figure 1: Benefit Participation Rates Among Single-Parent Households (1997 – 2014)



Note: Benefit participation levels are derived from the CPS ASEC applying TRIM3 benefit imputations for TANF, SSI, and SNAP. Participation in a benefit indicates that the household received a positive value of the benefit in the income reference period. Figure is the authors' own.

Two primary explanations have emerged as to why TANF caseloads have fallen so precipitously. On one hand, many have focused on the program's funding structure: The non-indexation of the TANF block grant means that the real value of federal support provided to states declines each year. Since 1996, the real value of the block grants has declined by more than 30 percent (Floyd, Pavetti, & Schott, 2015; Schott, Pavetti, & Floyd, 2015). Others have narrowed in on the increased stringency of TANF conditionality (Soss, Fording, & Schram,

² These patterns of participation rates mirror overall expenditures on the three programs in 2014: SNAP benefits reached nearly \$70 billion in 2014, while SSI payments (toward all family types) reached \$55 billion and TANF expenditures (not limited to cash assistance) reached \$32 billion.

2011; Soss, Schram, Vartanian, & O'Brien, 2001). Work participation requirements, strict sanctioning schemes, and time limits on benefit receipt have each contributed to declines in caseloads (Klerman & Danielson, 2011).

While both explanations hold merit, state spending data suggest that they are incomplete. Though the level of block grants has, indeed, declined throughout the past two decades, the *share* of states' allocations toward cash assistance has declined at a far greater rate. In 1997, for example, the average state allocated 70 percent of its TANF budget toward the provision of cash assistance; by 2014, the average state allocated only 23 percent toward cash support (Center on Budget & Policy Priorities, 2015). And while cross-state research has demonstrated that stricter conditionality requirements do inhibit TANF take-up, even states with relatively loose conditionality rules have seen comparable levels of decline (Center on Budget & Policy Priorities, 2015).

This paper thus turns its attention toward a supplementary explanation for TANF's decline: States may have an opportunity, and even a financial incentive, to shift the burden of social assistance to the federal government through a retrenchment of TANF cash assistance. This possibility rests on two sets of empirical questions, which we evaluate in turn: First, do lower levels of TANF cash assistance 'generosity' lead to higher SNAP and SSI participation rates and average benefit levels among single-parent households? And second, when states cut back on their provision of cash assistance, toward which types of programs and policies do they reallocate their allotment of TANF funds?

We investigate two complementary hypotheses in line with these questions. The first hypothesis (H1_a) – that a retrenchment in TANF cash assistance leads to increased SNAP and SSI expenditures – partially rests on the economic theory of program participation (Keane & Moffitt, 1998; Klerman & Danielson, 2011), or the assumption that families tend to evaluate the employment and social assistance opportunities available to them and act in a way that

maximizes utility. Thus, a decline in the generosity of states' TANF benefits relative to SNAP or SSI benefits may prompt low-income families to pursue one of the latter two programs, if eligible, to maximize their consumption power. Even when this assumption does not hold, a decline in the value of TANF may have a mechanical effect on the value of SNAP benefits among joint beneficiaries, as will be discussed. The null hypothesis (H_{10}) would hold that declines in TANF generosity are not associated with increased SNAP and SSI expenditures.

The second hypothesis (H_{2a}) – that states have a financial *incentive* to retrench – implies that states not only have the *ability* to induce federal expenditures through retrenchment in TANF cash assistance, but also experience a financial benefit in doing so. As states' TANF budgets are largely static over time (the federally-funded block grant is set at a fixed value, and states' MOE spending does not tend to fluctuate much over time), any retrenchment in spending on cash assistance frees up funds that can be allocated toward other categories of policies and programs allowed under TANF's broad mandate. Evidence from government reports and state documents suggests that these 'preserved' resources are often used to fund policies or programs that would otherwise be funded through general state revenues (Germanis, 2015; U.S. General Accounting Office, 2001). These include programs such as foster care services, family health programs, dental assistance, compulsive gambler support, and a variety of other programs or services that are only tangentially related to TANF's core purposes. Indeed, the General Accounting Office (2001) tracked 10 states' TANF funding decisions in 1999-2000 and found that supplantation was a common practice within each. State documents also acknowledge the practice: A state report from Montana, for example, explicitly describes its “innovative and creative uses of TANF and state MOE funds” to “reduce general fund expenditures” (Gervais, 2000, p. 1). The document provides a list of state services that could be shifted under the funding structure of TANF in order to preserve more than \$3.2 million per year of its general state revenues. To our knowledge, however, no study has investigated whether retrenchment in

TANF cash assistance within states over time is associated with an increase in the practice of supplantation. This question is particularly pertinent given that the use of TANF resources to fund these tangentially-related services has steadily increased throughout the past two decades: By 2014, the average state allocated a greater share of TANF funds toward ‘other nonassistance’ and allocations ‘authorized under prior law’ (23.7 percent) than toward the provision of cash assistance (22.6 percent) (Center on Budget & Policy Priorities, 2015; Parolin, 2017b). As the Montana report aptly summarizes: “TANF funds are not infinite, although the possible uses of those funds does seem infinite under the final TANF rules” (Gervais, 2000, p. 15).

If evidence corroborates our two hypotheses, this would suggest that states not only have the ability to induce increases in SNAP and SSI expenditures through a retrenchment of TANF cash assistance (H1_a), but may also may gain financially from doing so (H2_a). As a first step toward assessing these, we now turn toward understanding how the state-run TANF relates to the federally-administered SNAP and SSI programs.

The Interactions Among TANF, SNAP & SSI

Prior research has provided mixed evidence on the interactions between TANF and SSI, as well as between TANF and SNAP. While each is targeted toward low-income households, the programs feature different eligibility criteria, types of support provided, and mechanisms for overlap or interaction.

The federally-funded SNAP, or ‘food stamps’, serves low-income families with benefits earmarked for food and some basic necessities. SNAP interacts with TANF in regard to eligibility and benefit levels. Most straightforwardly, recipients of TANF cash assistance are categorically eligible for SNAP assistance; thus, the majority of TANF beneficiaries are also SNAP beneficiaries. The reverse, however, is not true: Eligibility for SNAP does not grant

access to TANF benefits, and most SNAP beneficiaries do *not* receive TANF cash assistance (Klerman & Danielson, 2011). As Figure 1 shows, nearly 60 percent of single-parent households received SNAP assistance in 2014, while only around 10 percent received TANF cash support. This pattern appears to be partly due to policy changes in both TANF and SNAP since the onset of welfare reform (Blank, 2002; Grogger, Karoly, & Klerman, 2002). As states' TANF policies have become more restrictive, accessibility to SNAP has, in nearly all states, been made easier through modifications of asset limits, reporting requirements, and the duration of recertification periods (Klerman & Danielson, 2011).

Additionally, the expansion of categorical eligibility may contribute to the number of SNAP-without-TANF cash assistance cases. In 2000, the introduction of 'broad-based categorical eligibility' (BBCE) meant that even households in which at least one person receives *noncash* TANF services would be eligible for SNAP benefits (Falk & Aussenberg, 2014). The vast majority of states have since chosen to implement some form of BBCE, which can extend SNAP eligibility to families through a mechanism as simple as offering a brochure or the availability of a telephone hotline (Falk & Aussenberg, 2014). A federal audit concluded that BBCE practices only accounted for 2.6 percent of the total SNAP caseload during the Great Recession (U.S. General Accounting Office, 2012), but other literature suggests that the long-run effects of BBCE on the size of the SNAP caseload may be higher (Ziliak, 2013).

A relationship may also exist between TANF and SNAP benefit levels among households receiving both. The level of SNAP benefits that an eligible household receives is inversely related to its 'net monthly family income.' TANF benefits are included in this definition of net income. Thus, lowering TANF benefits for a family that also receives SNAP may entail an increase in SNAP benefit levels (Center on Budget & Policy Priorities, 2017; Schmidt, Shore-Sheppard, & Watson, 2013). This interaction remains unexplored in much of

prior program interaction research, but is assessed in our analyses as a potential mechanism for states to induce greater levels of federal expenditures through a decrease in TANF generosity.

The extent of interaction between TANF and federally-funded SSI, meanwhile, is also contested. While SSI also provides cash assistance, its eligibility criteria are far more limiting than those of TANF or SNAP: SSI provides assistance for the low-income elderly, blind and/or disabled.³ Nonetheless, prior studies have suggested that declining TANF participation may be associated with an increase SSI participation. Wiseman & Wamhoff (2006), for example, make the case that eligible low-income households have a financial incentive to shift from TANF benefits to SSI, as the latter tends to offer the most support. Moreover, the authors argue that the transition to TANF has also strengthened the incentives for states to shift TANF beneficiaries to SSI. Indeed, the federal government actively encourages states to pursue TANF-SSI transitions (Farrell, 2013). Some empirical evidence exists to support the TANF-SSI interaction effect: Schmidt (2012), for example, finds that adverse economic conditions and the restructuring of AFDC/TANF led to increases in SSI participation. Similarly, Garrett and Glied (2000) provide evidence that families tend to use SSI benefits and cash assistance from TANF as substitutes. Others, however, have casted doubt on the extent to which SSI-TANF transitions occur. In a qualitative case study, for example, Skemer and Bayes (2013) find scant evidence to support the claim that TANF beneficiaries transfer over to SSI.

In addition to providing mixed or incomplete evidence on the relationships between TANF and SNAP/SSI, this prior research features shortcomings on both empirical and conceptual grounds. To start, the prior studies tend to use state- or group-level means as dependent variables, which introduces greater possibility for measurement error (as differences

³ It is unclear as to the extent of eligible TANF households that may also be eligible for SSI. A 2009 study showed that over a quarter of TANF recipients between 22 and 55 years reported some physical, mental or emotional problem that limits their work capacity (Loprest & Maag, 2009); whether such ailments translate into SSI eligibility is often a subjective decision made by ground-level health professionals and SSI administrators. Only three percent of single parent households in our 2014 sample received both TANF and SSI benefits.

in the demographic characteristics of the population across states and years can less adequately be controlled) and disallows for evaluation of how demographic features affect the likelihood of program interaction. Schmidt (2012) and Garrett and Glied (2000) for example, use state-year means of program participation as their outcome variables, while Klerman and Danielson (2011) operationalize clusters of program participants within state-years. We instead use household-level data and include a robust set of demographic controls to more appropriately account for differences in the composition of each state-year's population and to measure the effects of demographic characteristics on TANF, SSI, and SNAP participation. As we discuss in our *Methods & Data* section, we also utilize an augmented version of household income data to more accurately assess program interactions in terms of participation and benefit levels.

In addition to the methodological advancements, we introduce a framework to more appropriately conceptualize the relationship between federal and state-level social assistance programs. Program interaction literature tends to focus solely on individual or household incentives to move across social assistance programs. We demonstrate, however, that state governments, too, are likely to alter their policymaking decisions based on their own incentive structure. Indeed, it is these state policy decisions that then shape the incentive structure facing individuals in deciding how to maximize their income (or, more broadly, their 'utility'). A proper understanding of program interaction must consider not only the incentives of individuals to shift among social programs, but also the incentives of state governments to encourage low-income individuals to move to federally-funded programs.

Institutional Moral Hazard

To conceptualize the relationship between state-financed and federally-financed social assistance programs, we utilize the concept of institutional moral hazard. Moral hazard is generally recognized as an individual-level phenomenon. As defined in *The Economics of the*

Welfare State, the concept refers to a situation in which an insured actor can, due to some level of information asymmetry, manipulate the insurer's liability without the insurer's knowledge (Barr, 2004). A typical example of individual moral hazard is that of health insurance: A risk-prone individual with health insurance may take actions beyond the health insurer's knowledge or control (such as visiting the doctor's office more frequently despite no medical need) that influence the likelihood that the insurance will be utilized. Moral hazard has also been applied in economics, political science, and policy analysis research to conceptualize excessive financial risk-taking (Akerlof, Romer, Hall, & Mankiw, 1993), the influence of IMF lending on national policymaking processes (Corsetti, Guimarães, & Roubini, 2006), perverse consequences of humanitarian interventions (Kuperman, 2008), and the optimal value of unemployment insurance (Chetty, 2008). Moreover, a concern for moral hazard is at the core of many critiques regarding the level of 'welfare' benefits, as more generous social assistance may discourage beneficiaries from engaging in job training or (re-)entering the labor market (Katz, 2001). Building on the framework of Vandenbroucke, Luigjes, Wood, and Lievens (2016), we extend the concept of moral hazard to the institutional level to frame the relationship of federally-funded and state-funded social assistance programs. In this context, the federal government is the insurer, while the state governments are the insured actors. The provision of social assistance – necessary to protect individuals against income loss and indigence – is the 'risk' being insured.

Due to the level of autonomy provided to states in administering the TANF program, as well as the lack of strict accountability measures and reporting mechanisms to control or monitor state performance, some level of information asymmetry exists between state and federal governments. In a stylized example of institutional moral hazard, we can envision a scenario in which a state halts all TANF cash assistance in a given year (technically allowed under the TANF regulations). If this were to occur, we could reasonably expect that more low-

income households within the state would turn to the federally-funded SNAP or SSI programs as primary means of social support. In this scenario, the federal government's increased financing of social assistance (through SNAP and SSI) can be understood as re-insuring the decline of social assistance (through TANF) among state-level governments. State governments are able to deflect the 'risk' and 'insured loss' of social assistance towards the federal level, inducing more federal spending and potentially creating savings for themselves.

Just as this stylized scenario (states halting all TANF cash benefits) can exacerbate the concern of institutional moral hazard, less extreme variants can lead to a similar pattern of events. Specifically, we hypothesize that a policy-induced reduction in the generosity of TANF cash assistance, or a tightening of TANF income-eligibility criteria, will increase the relative incentive for low-income households to pursue SSI and SNAP benefits. Furthermore, a reduction in TANF cash benefit generosity may, on average, increase the value of SNAP benefits among joint TANF and SNAP beneficiaries.

Importantly, the existence of institutional moral hazard is not contingent on nefarious intention on behalf of state governments, nor is it contingent on state policymakers being fully aware of the precise insurance effect of SNAP and SSI. Rather, the presence of the insurance mechanism itself allows states to cut back on cash assistance without facing the consequences that might otherwise result if the insurance did not exist. Consider, for example, a counterfactual scenario in which the retrenchment of TANF cash assistance were *not* insured through the existence of SNAP and SSI. It is plausible that some state governments would still decide to cut back on cash assistance to the same extent, perhaps for ideological reasons. However, cutting TANF in the absence of SNAP and SSI would likely lead to increases in the severity of poverty and indigence, and, as a result, may plausibly lead to stronger and more immediate political pressure for (a) state governments to reinstate some form of social assistance or (b) federal governments to implement their own social assistance programs (such as SNAP or SSI)

to cover for the absence of state-provided assistance. In other words, the presence of the insurance – SNAP and SSI – affects the relative incentives of state governments to cut back on TANF cash assistance, even if state policymakers are not readily cognizant of those incentives at the time of retrenchment.

In sum, we expect that the federal government effectively acts as an insurer for the provision of social assistance when state governments cut back on their support through the TANF program. The interactions among SNAP, SSI, and TANF create the conditions for institutional moral hazard. We now turn toward investigating the extent to which the phenomenon actually occurs. If the evidence suggests that institutional moral hazard is, indeed, a legitimate concern, we then turn toward understanding whether states merely have the *ability* to induce federal expenditures through retrenchment of TANF cash assistance, or whether the structure of TANF also provides states a financial *incentive* to do so.

DATA & METHODS

Our analytical approach estimates the effect of differences in the generosity of states' TANF benefits on participation rates and observed benefit levels of TANF, SNAP, and SSI. In doing so, we use household income data from an augmented version of the Current Population Survey March Annual Social and Economic Supplement (CPS ASEC). The augmentations to the data partially correct for the substantial underreporting of means-tested transfers (including TANF, SNAP, and SSI). Whereas the uncorrected CPS ASEC survey data misses about half of TANF and SNAP cash transfers in recent years (Meyer & Mittag, 2015), for example, the augmented data comes much closer to capturing the full amount of cash assistance identified in administrative data (Parolin, 2017a). The augmentations use the imputations developed by the Urban Institute's TRIM3 microsimulation model, which matches administrative records on TANF, SNAP, and SSI caseloads across states to impute benefits back into the survey data. The augmented data provides this paper the added value of offering a more accurate depiction of

SNAP, SSI, and TANF participation trends relative to studies using uncorrected versions of the CPS ASEC.⁴

The data covers each year from 1997 to 2014 — the first year of TANF implementation to the most recent year for which data on all variables is available. We limit our sample to single-parent households, as these family types are the primary recipient of social assistance benefits. Only heads of households (the single parents) between the ages of 18 and 65 are included in the analysis. We exclude any parents who are unmarried but cohabitating with another unrelated adult. This results in a sample size of 124,999 single parents.⁵

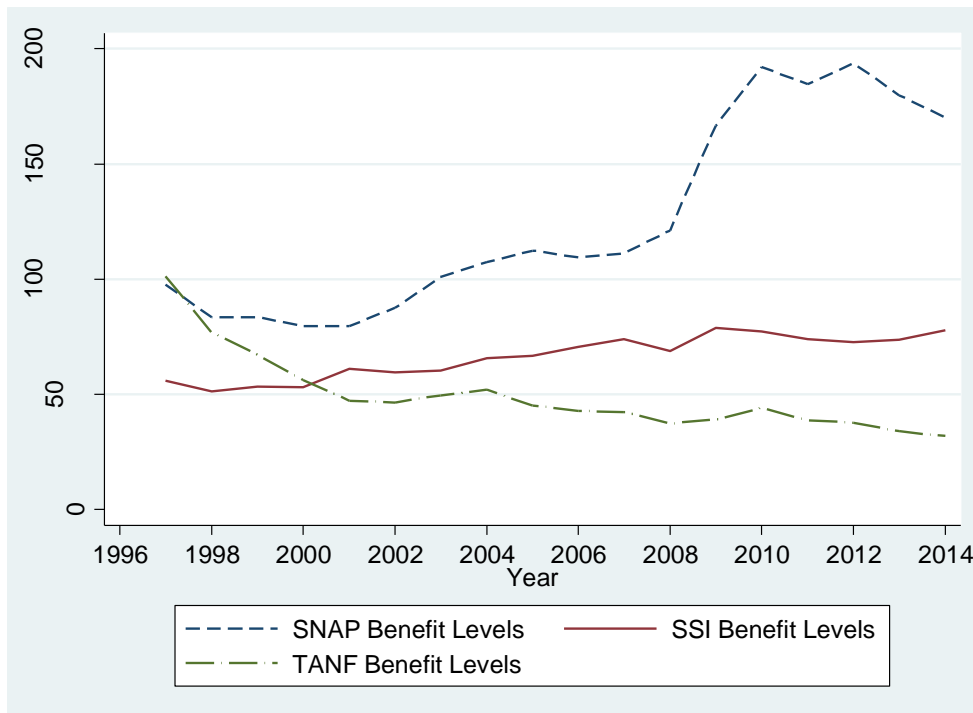
We test two sets of dependent variables: participation rates of benefits and household benefit levels of TANF, SSI, and SNAP. We define a household as ‘participating’ in a benefit if it receives any positive cash value of the benefit in the year of examination. We measure household benefit levels in average monthly values (the annual reported value for a household divided by 12) and in real terms with inflation adjustments derived from the annual CPI-U.

Figure 2 displays trends in real average monthly benefit levels for SNAP, SSI, and TANF among all single-parent households (not limited to just those who receive the benefits). Upon the implementation of TANF in 1997, the average single-parent household received approximately \$100 per month (in 2009 USD) in TANF cash support — similar to the level of SNAP benefits and nearly twice as much as the level of SSI benefits. By 2014, however, the average monthly value of TANF had declined to \$35 per month, while SNAP and SSI have both increased.

⁴ While available evidence suggests that the development of these benefit imputations is analytically sound and provides an improvement over the uncorrected data, the benefit imputations do introduce the possibility of measurement error. If the imputed benefits bias the overlap of household participation in SNAP, TANF, and SSI, for example, our results may be over- or under-stated. To account for this possibility, we re-run our analyses on the standard CPS ASEC data as a sensitivity check (results available upon request). The findings are not substantively different from our primary analysis. Applying the augmented CPS ASEC thus provides a better estimate of the relative effect of a policy-induced changes in TANF, but does not substantially alter our empirical estimates of program interaction.

⁵ In sensitivity checks, we further limit the sample to single mothers, and again to single mothers in prime working age (25-54 years old); results available upon request demonstrate no substantial changes to our findings.

Figure 2: Real Average Annual Benefit Levels (2009 USD) Among Single-Parent Households (1997 – 2014)



Note: Benefit levels are derived from the CPS ASEC applying TRIM3 benefit imputations for TANF, SSI, and SNAP. Mean benefit levels include all single-parent households, including those that received zero value of the benefit during the income reference period. Figure is the authors’ own.

Our primary explanatory variable is the generosity of TANF benefits. We define ‘generosity’ as a combination of the *level* of TANF cash benefits a given household can receive and the *income eligibility criteria* used to define who can gain access to TANF benefits in a given state and year. As we will describe in the next section, we construct a ‘simulated’ TANF variable to reflect policy-induced changes in the generosity of TANF within states and demographic groups across time.

Demographic & State Control Variables

We include a variety of individual, household, and state-year controls in our analyses. Individual and household controls include the sex of the household head (a dummy variable if the head is female), the employment status of the household (a dummy variable indicating

whether the lone parent is jobless), education level of the lone parent (dummy variables less than high school degree, college degree, with high school degree as the reference group), age of the lone parent (dummy variables for under 25, between 25 and 34, or 55 to 65, with between 35 to 54 as the reference group), race/ethnicity of the lone parent (black, Hispanic, other race, or Asian, with white as the reference group), and a dummy variable indicating whether the household is located in a rural geographic area.

State-year controls include a state's real GDP per capita, union density, unemployment rate, and real value of the state's statutory minimum wage (with the federally-mandated minimum wage serving as the minimum value for each state-year). Our primary analytical focus is on the effect of policy-induced changes in TANF generosity on TANF, SSI, and SNAP; given that access to TANF benefits is unequal across time and state, however, we also a set of three variables to indicate the strictness of TANF sanctions: dummies to indicate whether the state-year features immediate full-family sanctions, TANF time limits less than 60 months, and TANF family caps (Soss, Fording, & Schram, 2008; University of Kentucky Center for Poverty Research, 2016). We also control for the maximum value of SNAP benefits for the respective family size.⁶ Finally, we also include the real value of a state's SSI supplement, if applicable, to account for the small heterogeneity that may exist in state SSI benefit generosity. State, year, and family-sized fixed effects are included in the model. As federal changes to maximum SSI benefits are perfectly collinear with our year dummy, we do not include these into our analysis.

⁶ While the federal government funds and sets the levels of SNAP benefits, states can make policy decisions that affect the relative accessibility of the benefits. As comprehensive data on states' SNAP policies – such as fingerprint requirements or the length of recertification periods – is only available until 2011 (Economic Research Service, 2017), we do not include these indicators into our primary analysis. In a robustness check available upon request, we trim our analysis to 1997 to 2011 and include eight indicators of SNAP accessibility during this time frame. Adding these does not alter our findings: No statistically significant difference is found in the estimated effect of TANF generosity on the outcome variables in the model including the SNAP indicators versus the model excluding them. As such, we give priority to our extended analysis (1997 to 2014) that excludes the SNAP policies.

Analytical Strategy

We apply a variation of the differences-in-differences (DD) method to evaluate the effects of policy-induced changes in TANF generosity on our outcomes variables (SNAP, SSI, and TANF participation rates and observed benefit levels). A standard DD model compares the effects of a change in policy on a treatment group (those whom the policy change affects) and a control group; thus, the method is most appropriate when there is a single policy change or treatment event. With respect to TANF, however, many policy changes have occurred across the 50 states at different times throughout the past two decades.

To fully account for these changes across time and place, we follow Hoynes and Luttmer (2010) and Hoynes and Patel (2015) in constructing a ‘simulated’ TANF generosity variable that captures changes in TANF generosity across year, state, and household size. The intent of the simulated TANF variable is to provide a single indicator that reflects *policy-induced* changes in TANF generosity within states over time, independent of demographic or other compositional changes that may occur within the population. Different from a standard DD model, this treatment variable is continuous (non-binary). A similar method has been used in prior research to estimate the effects of policy-induced changes in the Earned Income Tax Credit, income tax brackets, healthcare expansion, and other social assistance programs (Cutler & Gruber, 1996; Eissa & Hoynes, 2004; Hoynes & Patel, 2015; Jones & Michelmore, 2016; Milligan & Stabile, 2011; Schmidt et al., 2013).

Before describing the calculation of the simulated TANF generosity variable, we emphasize two important features of our analytical approach. First, our TANF generosity variable only captures differences in states’ TANF policies and *not* differences in individual characteristics or demographic features that vary across state or year. An alternative approach that uses differences in state-year means of observed TANF benefit receipt to predict differences in SSI and SNAP receipt would be susceptible to a number of confounding factors

in the relationship between TANF generosity and the outcome variables. Our approach is largely able to avoid these concerns.

Second, our conceptualization of TANF generosity takes into account the level of TANF cash benefits to which an eligible household would be entitled *and* the income eligibility criteria used to define who can gain access to TANF benefits in a given state and year. Given that benefit levels and income-eligibility thresholds are both determined at the state level and fluctuate across state and year, both should be taken into account when assessing the relative generosity of TANF assistance. Simply applying the maximum TANF benefit level for a family of three in a given state-year, for example, provides an incomplete assessment of generosity: While it meets the first condition of measuring policy and not demographic differences across state or time, it does not take into account which income levels are actually eligible in a given state and year. Our simulated generosity variable meets those standards.

The construction of the simulated TANF generosity variable proceeds in five steps: First, we open our sample of single parents in 1997, the first year of our analysis, and create 17 identical copies of the sample to represent each subsequent year of examination (1998 to 2014). Thus, we now have 18 copies of the exact same sample of single parents with the only difference in each being the year (1997 through 2014) attached to the samples. Second, we convert the income values in each of the replicated samples (the 18 copies) from 1997 USD to current dollars using the CPI-U. After this step, we now have the same sample of single parents in each year from 1997 to 2014 with the only difference in the 18 samples being the inflation adjustments in household incomes. Third, we create 51 identical copies of each year's sample to represent the 50 states and Washington, D.C.⁷ For example, we take the 1997 version of our sample of single parents and copy it 51 times, then do the same for our 1998 sample, and so on

⁷ In results available up request, we perform a robustness check that excludes Alaska, Hawaii, and Washington, D.C. from the primary findings, as these states tend to offer higher TANF and SNAP benefits (in Alaska and Hawaii, this is generally due to higher costs of living) relative to the 48 contiguous and recognized states. The results, however, are not substantively altered.

for each year. Within each of the 51 samples we have just created, we transfer all households within the sample to the same state of residence. In the first of the 51 samples for each year, for example, we ‘move’ all households to the state of Alabama. In the second sample for each year, we move all households to the state of Alaska, and so on. The purpose of this step is to ensure that demographic differences across states will not affect the value of the TANF generosity calculation; all of our simulated state-year samples now have the exact same population of single parents, so differences in TANF generosity can only be attributed to differences in policy. Fourth, we use TANF policy parameters from the Urban Institute’s Welfare Rules Database to calculate income eligibility for TANF and, if eligible, the TANF benefit value that each household could receive in each of the replicated samples based on policy rules in the specific state and year. In doing so, we take into account the number of children in the household (1, 2, 3, or 4+) when assessing income eligibility and the level of benefits to which the household, if eligible, could receive. This calculation is explained in more detail in Appendix I.⁸ Finally, we compute the average TANF benefit value for each ‘year-state-household size’ cluster (18 years * 51 states * 4 household sizes = 3,672 clusters) in real dollars. For example, our sample of single parents with two children in the state of Washington in 1997 could receive an average TANF benefit of \$113 per household; for the same family type living in Washington in 2014, however, the average TANF benefit is \$71 (both values in 2009 USD). This difference in average benefit is only due to policy changes made within the state of Washington between 1997 and 2014, and not due to demographic characteristics of the state that have changed over time.

The average values for each cluster are merged back into our original dataset (based on the ‘year-state-household size’ cluster of each respective household) and operationalized as the simulated TANF generosity variable. The evolution of the simulated TANF generosity for each

⁸ All appendices are available at the end of this article as it appears in JPAM online. Go to the publisher’s website and use the search engine to locate the article at <http://onlinelibrary.wiley.com>.

household size from 1997 to 2014 is presented in Appendix I.⁹ The model utilizing this variable to predict observed TANF, SNAP, and SSI receipt is specified as follows:

$$(1) \quad y_{istf} = \beta_0 + \beta_1 \text{SIMTANF}_{stf} + \beta_2 X_i + \beta_3 \alpha_{st} + \delta_s + \gamma_t + \lambda_f + \varepsilon_i$$

where i indexes individuals, s indexes states, t indexes years, and f indexes the size of the household. Y_{istf} is the outcome of interest: SNAP, SSI, or TANF take-up or benefit levels for a lone parent in his or her respective ‘state-year-household size’ (stf) cluster. β_1 is the primary coefficient of interest, and is used to assess the effects of differences in TANF generosity on the outcome variables. X_i is a vector of demographic controls at the individual level, as described previously, while α_{st} controls for the state-year characteristics. State (δ_s), year (γ_t), and household size (λ_f) fixed effects control for, respectively, time invariant differences on the outcome variable that vary across state, national trends or policies that apply across all states but vary by year, and household size effects that may influence the outcome variables. We apply robust standard errors clustered at the state level.¹⁰

In this modified DD model, the simulated TANF generosity provides us an estimation of how policy-induced changes in the generosity of TANF benefits affect TANF, SNAP, and SSI take-up and benefit value. While this is sufficient to evaluate the existence of institutional moral hazard, it does not provide an estimate of how actual TANF *expenditures* on cash assistance relate to spending on SSI and SNAP. For example, a \$50 per month policy-induced decrease in TANF generosity does not necessarily lead to a \$50 per month decrease in the average observed receipt (‘expenditures’) of TANF benefits among lone-parent families. If the change in TANF policy parameters affects benefits levels *and* participation rates among lone-parent households, then such a decrease in TANF generosity might lead to lower participation

⁹ All appendices are available at the end of this article as it appears in JPAM online. Go to the publisher’s website and use the search engine to locate the article at <http://onlinelibrary.wiley.com>.

¹⁰ We perform linear probability models when assessing the effect of TANF generosity on participation in TANF, SNAP, and SSI; in results available upon request, we also re-run these analyses using logistic regression models, but the findings are not substantively altered.

rates *and* lower benefit levels among those household who do participate, causing the average observed receipt of TANF benefits to fall by more than \$50 per month.

To account for this possibility and to further contextualize our findings, we apply a two-stage least-squares (2SLS) estimation to evaluate the relationship between policy-induced changes in TANF *expenditures* (the sum of TANF cash assistance benefits allocated to single-parent households) versus federal expenditures on SSI and SNAP benefits. This follows similar 2SLS estimations applied in Hoynes and Patel (2015) and Schmidt et al. (2013). The first stage estimates the effect of TANF generosity on observed TANF benefit values, as follows:

$$(2) \quad TANF_{istf} = \beta_0 + \beta_1 SIMTANF_{stf} + \beta_2 X_i + \beta_3 \alpha_{st} + \delta_s + \gamma_t + \lambda_f + \epsilon_i$$

The slope of β_1 provides us the relationship between policy-induced differences in TANF generosity on the actual TANF benefits that lone-parent households receive. We can then apply the predicted value of observed TANF benefits ($TANF_{istf}$) in our second-stage equation. This is specified as:

$$(3) \quad y_{istf} = \beta_0 + \beta_1 \widehat{TANF}_{istf} + \beta_2 X_i + \beta_3 \alpha_{st} + \delta_s + \gamma_t + \lambda_f + \epsilon_i$$

Using equation (3), we can estimate the effect of policy-driven decreases in TANF cash assistance spending among single-parent households (\widehat{TANF}_{istf}) on SNAP and SSI spending levels (y_{istf}). For example, we can estimate the monthly increase in SNAP expenditures due to TANF policy changes that reduce the average receipt of TANF benefits by \$50 per month.

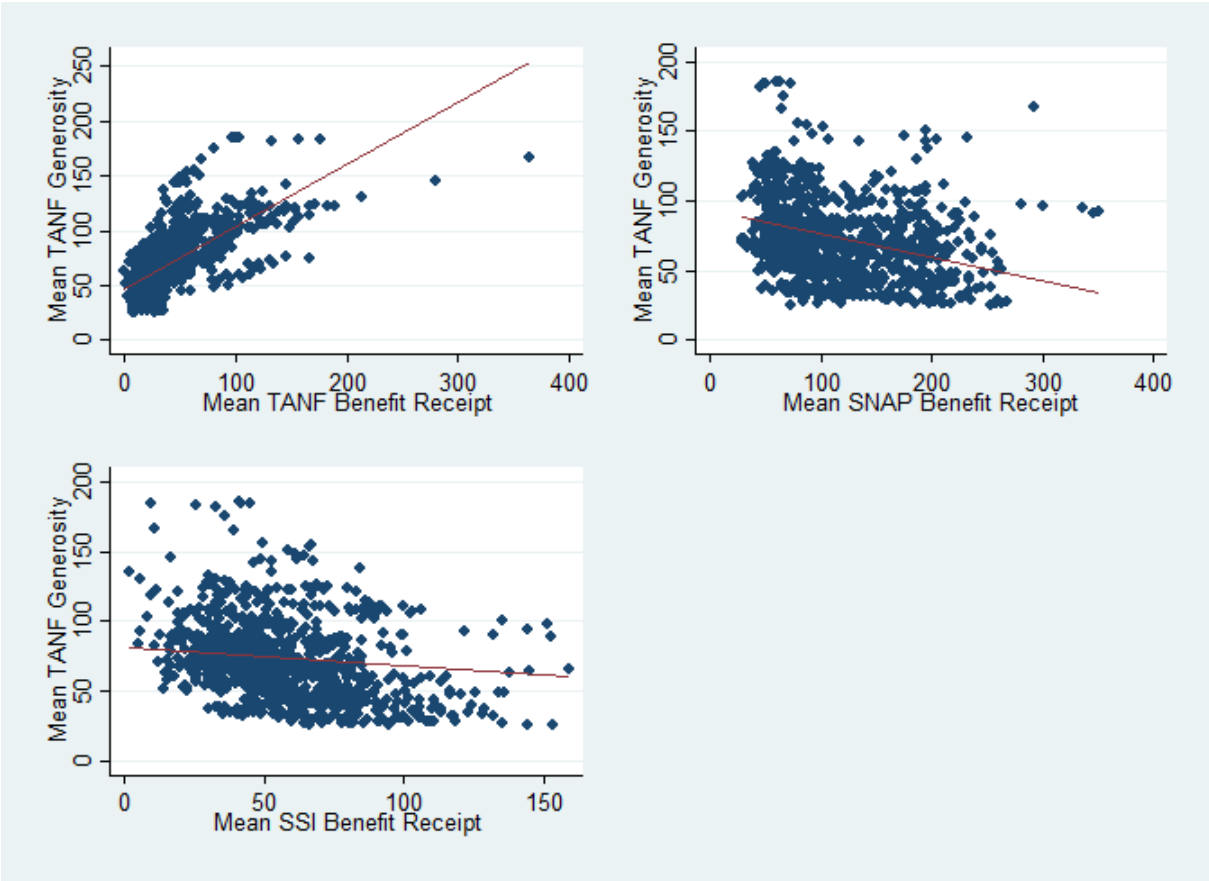
FINDINGS

Descriptive Findings

We first present descriptive findings with respect to the relationship of the simulated TANF generosity variable and mean TANF, SSI, and SNAP benefit values among single-parent families at the state-year level. In Figure 3, the average simulated TANF generosity for each

state-year is plotted on the Y-axis. On the X-axis is, as labeled accordingly, the observed state-year mean of the benefit levels for the three programs.

Figure 3: Bivariate Relationship Between Mean TANF Generosity in State-Year and Mean Observed TANF, SNAP, and SSI Benefit Receipt



Note: The correlations for TANF, SNAP, and SSI benefit receipt are, respectively, $r=0.79$, $r=-0.32$, and $r=-0.09$. Alaska, Hawaii, and Washington, D.C. tend to feature benefit values that deviate from the 48 contiguous United States (for example, these three states represent the apparent outliers in TANF benefit receipt figure). When these three states are removed, the correlations for TANF, SNAP, and SSI benefit receipt are, respectively, $r=0.84$, $r=-0.36$, and $r=-0.07$.

As expected, a strong positive correlation ($r=0.79$) exists between simulated TANF generosity and the observed average TANF benefit levels in a state-year. In other words, in state-years where the generosity of TANF benefits is higher (through higher benefit levels and/or higher income cutoffs applied to TANF eligibility), this does, indeed, appear to lead to higher average TANF values among single-parent households. A negative relationship ($r=-0.32$), however, appears to exist between TANF generosity and average observed SNAP

benefits, as well as TANF generosity and mean SSI benefits ($r=-0.09$). In other words, a *higher* generosity of TANF benefits is associated with *lower* observed values of the two federally-administered programs. Though these findings provide initial support for our primary hypothesis, they are, of course, merely descriptive patterns. We now turn to our regression models to formally evaluate the relationships among the three programs.

Estimation Results

We begin by presenting our results for the effect of a state's TANF generosity on the likelihood of *participation* in the three programs. Table 1 describes these findings. The first column shows that greater TANF generosity does, indeed, relate to higher levels of TANF participation. Specifically, we can estimate that a \$50 per month (about one standard deviation) policy-induced *decrease* in the generosity of TANF benefits reduces the likelihood of participation among single-parent households by approximately 5.1 percentage points. Given that 11.3 percent of such households utilized TANF benefits in 2014, a decline of this magnitude reflects a 40.8 percent decrease in TANF participation. The results also suggest that a higher minimum wage within the state decreases the likelihood of TANF participation (presumably due to higher market incomes and less need and eligibility for social assistance), while the presence of immediate full-family TANF sanctions depresses participation. At the individual level, we find the expected patterns: The likelihood of TANF participation is higher among the less educated, younger household heads, jobless parents, female parents, and black or Hispanic parents.

Table 1: Linear probability model estimating effect of state TANF generosity on TANF, SSI & SNAP participation

	TANF participation	SSI participation	SNAP participation
Simulated TANF generosity	0.00102*** (5.00)	-0.000362*** (-5.04)	-0.000221 (-1.55)
State controls			
State GDP per cap.	0.0802 (0.96)	-0.0159 (-0.53)	-0.157 (-1.34)
State union density	0.335 (1.88)	-0.0337 (-0.40)	0.0698 (0.24)
State unemployment rate	0.00416 (1.38)	-0.00315* (-2.32)	0.00228 (0.48)
State minimum wage	-0.0145* (-2.29)	0.000368 (0.14)	-0.0171*** (-3.61)
TANF, immediate full-family sanction	-0.0473*** (-4.90)	0.00250 (0.55)	0.0146 (1.02)
Strict TANF time limits	-0.0222 (-1.66)	-0.00268 (-0.69)	0.0113 (0.59)
TANF family cap	0.0210 (1.34)	0.00725 (1.36)	-0.00194 (-0.16)
State SSI supplement	-0.000386 (-1.97)	0.0000394 (0.43)	-0.000520** (-2.81)
Max SNAP benefits	0.000245 (1.33)	0.000414** (2.96)	0.0000735 (0.48)
Demographic controls			
Female head	0.0505*** (8.54)	0.0178*** (6.56)	0.135*** (23.93)
Jobless household	0.204*** (10.81)	0.179*** (33.26)	0.367*** (67.04)
Less than high school	0.0648*** (10.78)	0.0348*** (10.58)	0.107*** (31.88)
College degree	-0.0310*** (-5.70)	-0.0355*** (-17.11)	-0.142*** (-21.43)

Under 25 years old	0.0993 ^{***} (12.91)	-0.0353 ^{***} (-6.91)	0.147 ^{***} (20.34)
25 to 34 years old	0.0234 ^{***} (4.61)	-0.0297 ^{***} (-10.91)	0.0781 ^{***} (12.34)
55 to 65 years old	0.0447 ^{***} (6.59)	0.0628 ^{***} (11.99)	-0.00986 (-1.44)
Black	0.0658 ^{***} (15.05)	0.0289 ^{***} (9.51)	0.0783 ^{***} (14.01)
Hispanic	0.0247 ^{***} (5.87)	0.0257 ^{***} (4.40)	0.0391 ^{**} (3.19)
Other race	0.00555 (0.57)	0.0250 ^{***} (4.19)	0.0510 ^{***} (4.55)
Asian	-0.0212 [*] (-2.26)	0.0319 ^{***} (5.08)	-0.0396 ^{***} (-5.70)
Rural	0.00648 (1.67)	0.0111 ^{**} (2.68)	0.0476 ^{***} (7.67)
State fixed effects	X	X	X
Year fixed effects	X	X	X
Family size fixed effects	X	X	X
Observations	124999	124999	124999

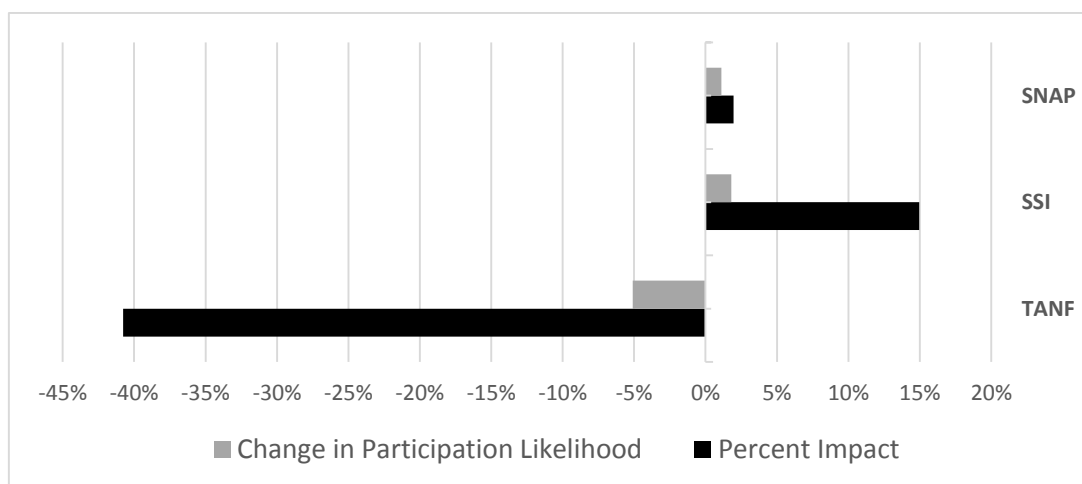
Note: *t* statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The second column displays the estimates for the likelihood of SSI participation. Here, we find an inverse relationship between the generosity of TANF benefits and the utilization of SSI among single-parent families. A \$50 per month policy-induced *decrease* in the generosity of TANF benefits leads to an average estimated 1.8 percent *increase* in SSI participation. No other state-level variables display a significant relationship; all individual-level variables, however, do so. The relative likelihood of SSI participation is higher among families with more children, jobless households, less educated parents, older parents, non-white parents, and rural households.

The third column shows that the simulated TANF generosity is not significantly related to SNAP participation among single-parent households. This finding aligns with our expectations: On one hand, lower TANF generosity leads to lower TANF participation, and TANF participation grants eligibility for SNAP; on the other hand, lower TANF generosity increases the relative incentive for a household to pursue SNAP benefits directly. The opposing forces effectively ‘cancel out’ and the estimated effect on participation is close to zero. This may be not the case for household benefit values, however; this is the focus of the next set of analyses.

Figure 4: Effect of \$50/mo Decrease in TANF Generosity on TANF, SSI & SNAP Participation Rates



Note: Figure depicts results from Table 1.

Figure 4 graphically displays the primary findings from these three prior models. The lighter (gray) bars represent the change in participation likelihood for the respective program in the event of a \$50 per month policy-induced decrease in TANF benefits. The darker (black) bars represent the ‘percent impact’ of a \$50 per month decrease on benefit participation in 2014. This is calculated by taking the estimated percentage point change (the gray bars) divided by the total participation rate in the benefit in 2014. Thus, a \$50 decline in TANF generosity is associated with an estimated 15 percent increase in SSI participation among single-parent

households (a jump from 12.4 to 14.2 percent of households in 2014) and, as noted before, a more than 40 percent decrease in TANF participation (a decline from 11.3 to 6.2 percent).

We now move to estimating the effect of TANF generosity on the *benefit levels* of the three programs. Table 2 presents the results.

Table 2: Estimated effect of state TANF generosity on TANF, SSI & SNAP benefit value

	Monthly TANF benefits	Monthly SSI benefits	Monthly SNAP benefits
Simulated TANF generosity	1.511*** (8.29)	-0.244*** (-3.92)	-0.577*** (-4.76)
State controls			
State GDP per cap.	-62.30 (-1.54)	-24.10 (-1.14)	-7.752 (-0.22)
State union density	6.405 (0.07)	-14.34 (-0.21)	-80.45 (-0.89)
State unemployment rate	-0.275 (-0.15)	-2.591* (-2.56)	0.637 (0.50)
State minimum wage	-8.789** (-3.30)	-2.095 (-1.15)	-4.859** (-3.18)
TANF, immediate full- family sanction	-6.936 (-1.68)	-1.811 (-0.69)	5.172 (1.38)
Strict TANF time limits	-10.59 (-1.79)	-6.860* (-2.01)	7.533 (0.67)
TANF family cap	2.319 (0.49)	8.630* (2.06)	2.391 (0.33)
State SSI supplement	-0.236** (-2.68)	0.126 (1.99)	-0.0729 (-1.39)
Max SNAP benefits	-0.112 (-1.71)	0.395*** (3.50)	1.552*** (9.25)
Demographic controls			
Female head	15.01*** (3.88)	8.175*** (3.63)	39.09*** (23.46)

Jobless household	81.07*** (4.65)	114.5*** (28.83)	123.7*** (60.94)
Less than high school	22.95*** (4.77)	24.37*** (12.52)	37.46*** (29.04)
College degree	-5.283** (-2.91)	-20.06*** (-15.33)	-32.20*** (-16.50)
Under 25 years old	24.27*** (5.58)	-19.89*** (-6.17)	53.58*** (22.26)
25 to 34 years old	6.580** (3.12)	-19.96*** (-9.77)	25.54*** (16.94)
55 to 65 years old	12.73*** (6.19)	39.39*** (8.31)	1.979 (0.78)
Black	19.67*** (7.27)	18.73*** (11.25)	25.01*** (10.11)
Hispanic	9.805*** (3.59)	16.59*** (3.70)	6.070 (1.31)
Other race	2.690 (0.80)	10.59* (2.67)	19.57*** (4.26)
Asian	-10.60 (-1.61)	20.93*** (3.85)	-14.77*** (-5.75)
Rural	-1.556 (-1.34)	5.623* (2.21)	11.68*** (5.73)
State fixed effects	X	X	X
Year fixed effects	X	X	X
Family size fixed effects	X	X	X
Observations	124999	124999	124999

Note: *t* statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The first column demonstrates that, as expected, greater TANF generosity leads to higher observed TANF benefit levels. Specifically, a \$50 per month decrease in TANF generosity is associated with an average \$75 per month decrease in observed TANF benefits.

The second and third columns present what are perhaps the more consequential results. We find that TANF generosity is negatively associated with both SSI and SNAP benefit values.

In other words, a policy-induced decrease in TANF generosity is associated with an increase in SSI and SNAP benefit levels among single-parent households. Specifically, we can estimate that a \$50 decrease in TANF generosity would increase SSI benefits by an average estimated \$12 per month, while SNAP benefits would increase by an average of \$29 per month. In sum, the \$50 policy-induced decrease in TANF generosity results in a \$75 decrease in TANF benefits for the average lone parent household, but a \$42 increase in combined SNAP and SSI benefits.

Importantly, however, these results do not tell us how actual state *expenditures* toward cash assistance relate to federal SSI and SNAP expenditures. As described in equations (2) and (3) in the prior section, we perform a two-stage least-squares estimation to predict how policy-induced decreases in *allocated* TANF benefits relate to increases in allocated SNAP and SSI benefits. Table 3 shows the results.

Table 3: Two-Stage least-squares estimation of policy-induced changes in TANF benefit receipt on SSI & SNAP benefit values

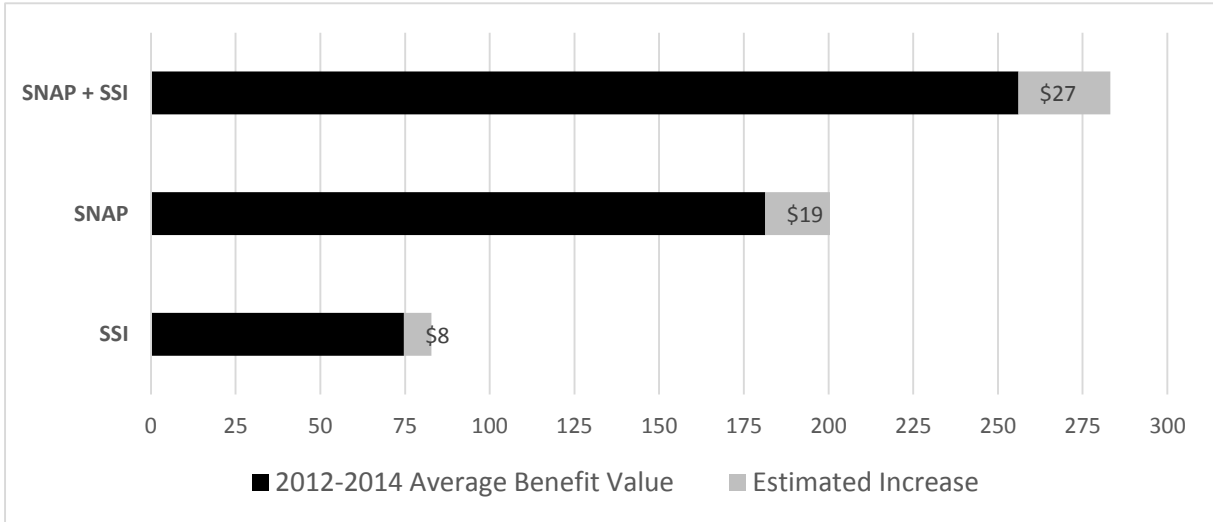
	Monthly SSI benefits	Monthly SNAP benefits	Monthly SSI + SNAP benefits
Monthly TANF benefits	-0.162*** (-4.03)	-0.382*** (-5.38)	-0.543*** (-5.42)
Demographic controls	X	X	X
State controls	X	X	X
State fixed effects	X	X	X
Year fixed effects	X	X	X
Family size fixed effects	X	X	X
Observations	124999	124999	124999

Note: *t* statistics in parentheses. Demographic and state-level controls are identical to those used in prior models (see Table 1, Table 2).

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The same demographic and state-level controls as in the prior models are included. Here, we interpret the primary effects as the expected difference in mean SSI and/or SNAP benefit levels due to policy-induced differences in TANF cash expenditures. The direction of the results is the same as in Table 2, but the magnitudes of the differences are slightly smaller. Figure 5, below, contextualizes the findings.

Figure 5: Effect of \$50/mo Policy-Induced Decrease in TANF Benefit Values on Average SSI & SNAP Benefit Values



Note: Figure depicts results from Table 3.

A \$50 per month policy-induced decrease in received TANF benefits is associated with an average increase of \$27 per month in combined SNAP and SSI spending among lone-parent households. We estimate that about \$19 of these gains in federal spending are due to increases in SNAP benefits, and about \$8 per month from increases in SSI benefits. Put differently, the federal government insures more than half of states’ retrenchment of TANF cash assistance.

For further contextualization of the findings, we can also estimate a counterfactual change in TANF and SNAP/SSI spending in 2014 if each state were to have the same TANF generosity it offered in 1997. For example, how would TANF and SNAP/SSI expenditures differ if the state of Washington had not cut its generosity by 40 percent (in real terms) between

1997 and 2014? Moreover, if each state had decided not to retrench, how much more would they collectively spend on cash assistance? According to our estimates, state governments would have spent a collective \$3.1 billion (2014 USD) more on cash assistance through TANF in 2014 if each state's generosity were the same as it was in 1997. As a result of this increase in TANF allocations, we estimate that combined federal spending on SNAP and SSI for lone-parent households would decrease by \$1.1 billion in 2014.¹¹ The net gain for low-income lone-parent households would thus be about \$2 billion more in additional social assistance spending in 2014, and in a form – cash assistance – that can be spent on a broader bundle of necessities relative to food stamps and is more accessible relative to disability assistance. As these calculations only take TANF benefit levels and income eligibility criteria into account, they are likely to underestimate the real extent of TANF gains and SNAP/SSI losses that would occur under if states equalized all conditionality rules (such as lifetime time limits), sanctioning penalties, and outreach efforts.

The collection of findings supports our primary hypothesis and suggest that institutional moral hazard is, indeed, a legitimate concern among the federal and subnational social assistance programs: Through a retrenchment in TANF cash benefits, states can induce greater social expenditures on behalf of the federal government.

DISCUSSION: INCENTIVE TO RETRENCH?

Why might states desire to cut back on cash assistance through the TANF program and shift the burden of social assistance to the federally-funded SNAP and SSI? While we cannot fully dissect the motives of state policymakers, we can examine their TANF resource

¹¹ \$3.1 billion is the sum of each state's counterfactual TANF allotment in 2014 had TANF generosity remained at 1997 levels. Each state's counterfactual allotment was calculated as the product of the gain in TANF generosity if the state reverted to 1997 generosity, the estimated effect of TANF generosity on average received TANF benefits (1.511, from Table 2), and the number of lone-parent households in the state as derived from a three-year weighted average in the CPS ASEC over 2012 to 2014. The SNAP/SSI estimates are similarly calculated.

allocations after cutting back on cash assistance. Due to the ‘block grant’ funding structure of TANF, retrenchment in cash assistance leaves states with preserved TANF funds that must generally then be allocated toward another set of programs or services. Evaluating how states reallocate their preserved TANF funds after retrenchment sheds light on the potential motivations behind states’ decisions to cut back on cash support. Given the possibility of supplantation, might states experience a financial incentive to cut back on TANF cash assistance and reallocate the preserved funds toward programs that would otherwise need to be funded through general state revenues? This was the basis of our second hypotheses and is the question to which we now turn.

The incentive structure facing states in deciding how to allocate their TANF funds has direct relevance for the concept of institutional moral hazard and the observed decline of TANF cash assistance throughout the past two decades. Given that the federal government insures (to a large extent) the provision of cash assistance, state governments may allocate their TANF budgets under a set of different conditions than if the insurance mechanism of SNAP and SSI were not present. Indeed, if the average state is primarily concerned with budget maximization, or decreasing its annual expenditures, the insurance mechanism of SNAP and SSI may incentivize the state to redirect funds away from cash assistance and instead toward one of the other TANF spending categories. Prior literature has categorized these non-cash TANF spending categories into three primary clusters, each of which aligns with the purposes explicitly listed in TANF legislation: the facilitation and incentivization of employment (‘work’), the discouragement of single motherhood (‘family’), and other services (‘other’) (Center on Budget & Policy Priorities, 2015; Parolin, 2017b).

The ‘other’ spending category includes transfers to the Social Service Block Grant (SSBG), funds that are ‘authorized under prior law’ (AUPL), and other nonassistance – the latter being the subcategory often used to describe policies or programs (such as family health

services, compulsive gambler assistance, and so on) that do not meet TANF's core purposes, but can nonetheless be funded through TANF resources rather than general state revenues.¹²

We use state TANF spending data to empirically evaluate how changes in states' TANF allocations toward cash support relate to changes in allocations toward these other three spending categories. We perform a first differences equation regressing the change in the share of a state's TANF budget allocated toward cash assistance on the change in the share of the TANF budget allocated toward 'other services.' We then perform similar models evaluating how change in 'cash' relates to change in the 'work' and 'family' spending categories, as well as the subcategories of these three sets of expenditures. As each variable represents the relative share (or percentage) of a state's TANF budget, the coefficients from the first differences equations tell us, for example, the average share of a state's TANF budget that is reallocated toward 'other services' when a state cuts back on cash assistance. Spending data for each spans the years 1997 to 2014 and comes from the Center on Budget & Policy Priorities. Table 4 presents the results from the three models.

The findings suggest that 56.5 percent of TANF funds saved from retrenchment in cash assistance are reallocated toward the 'promotion and incentivization of employment.' Within this category of spending, childcare assistance – including TANF transfers to the Child Care & Development Block Grant – makes up the largest subcategory of reallocation; an estimated 48.2 percent of TANF cash retrenchment is reallocated toward childcare support. Smaller reallocations are also directed toward refundable tax credits (an estimated 6 percent) and work activities and training, though both of these latter subcategories are statistically insignificant.

¹² Formally, AUPL spending is separated into two categories: assistance and nonassistance AUPL. Assistance AUPL includes "expenditures were previously authorized under AFDC and cover expenses for services such as juvenile justice or state foster care," while nonassistance AUPL includes "expenditures were previously authorized under AFDC but do not fulfill the purposes of TANF" (Derr et. al 2009).

Table 4: Decomposition of states' TANF budget reallocations after retrenchment in TANF cash assistance (1997 to 2014)

Spending category & subcategories	Share of reallocation after cash retrenchment	P> t
Promotion & incentivization of employment	56.5%	0.00
Childcare assistance	48.2%	0.00
Refundable tax credits	6.0%	0.08
Work activities & training, transportation assistance, individual development accounts	2.3%	0.71
Other services	39.1%	0.00
Authorized Under Prior Law	3.8%	0.23
Other nonassistance	17.6%	0.02
Transfers to Social Services Block Grant	17.7%	0.02
Discouragement of lone motherhood	1.4%	0.54
Pregnancy prevention	1.4%	0.39
Maintenance of two-parent families	0.0%	0.98

Note: Estimated shares of reallocation are derived from models regressing the change in a state's allocation toward the respective category on change in the share of a state's TANF budget allocated toward cash assistance. Only years in which states' allocated a smaller share of TANF budgets toward cash assistance than the year prior are included (n=557). Data spans the 50 states, plus Washington, DC, from 1997 to 2014. The total sum does not equal 100 percent, as some minor categories (such as spending on 'Administrations & Systems' are not included).

The second largest set of allotments is the 'other services' category. Here, we find that about 39 percent of TANF cash retrenchment is reallocated toward these tangentially-related policies and programs. Among the subcategories, we estimate that about 17.6 percent of preserved TANF funds are reallocated to 'other nonassistance' – the label most often applied to policies or programs previously funded through general state revenues (Derr et al., 2009). We also find that an average of 17.7 percent of TANF cash retrenchment is reallocated toward transfers to the SSBG – a flexible set of resources that states use to fund child welfare services, services for elderly adults, counseling and supportive services, and disability services (Pavetti & Floyd, 2016). Finally, we do not find significant evidence that states' preserved funds from the retrenchment of cash assistance are reallocated toward pregnancy prevention or the maintenance of two-parent families.¹³

¹³ We also test these relationships in an expanded model with state demographic, political, and economic controls. We do not find, however, that the state controls moderate the relationship between changes in 'cash' and changes

While our findings do not allow us to parse the precise motives of state policymakers, they nonetheless provide a compelling case that states can and do benefit financially from retrenching their allocation of TANF cash assistance. For every dollar pulled from cash assistance, we estimate that approximately 40 cents, on average, is then reinvested into programs and policies that do not meet the core purposes of TANF and may ordinarily be funded using general state revenues for every dollar of TANF cash retrenchment. In other words, states may reap financial benefit from shifting TANF funds from ‘cash’ toward ‘other services’, while the insurance function of SNAP and SSI plausibly allows states to more easily pursue such ends. Not only can states shift the burden of social assistance to the federal government through retrenchment of their TANF cash assistance, but the evidence suggests that the structure of TANF provides them a financial incentive to do so.

CONCLUSION

This paper set out to examine whether state governments have the ability, and even a financial incentive, to cut back on TANF cash assistance and shift the burden of social assistance to the federal government. In doing so, we introduced a framework – institutional moral hazard – to conceptualize the relationship between state- and federally-run social assistance programs. Rather than focusing solely on individual or household incentives to utilize certain social programs, our framework also recognizes the incentive structures facing state governments in deciding whether to scale back their provision of cash assistance. Improving on prior quantitative evaluations of program interaction, we apply an augmented set of household-level data and a novel analytical approach to estimate how differences in states’ TANF generosity relate to participation and benefit values of the federally-funded SNAP and SSI programs.

in the other three categories. Moreover, a full assessment and discussion of determinants of states’ TANF spending is beyond the scope of this paper.

Our findings suggest that the federal government insures states for more than half of their retrenchment in TANF cash assistance: A \$50 per month decline in state spending on cash support leads to an average \$27 per month increase in federal spending on SNAP and SSI benefits. We also find that the institutional arrangement of federal- and state-run social assistance programs provides states a financial *incentive* to cut back on cash assistance for low-income families. For every dollar that states save through a retrenchment of cash assistance, approximately 40 percent of the TANF funds are reallocated toward a broad set of programs and services that do not meet the core purposes of TANF and may otherwise need to be funded through general state revenues. These findings offer implications for future welfare state research, as well as for policy decisions related to social assistance or the decentralization of federal programs. We elaborate on these in turn.

On the theoretical and conceptual front, this paper offers several contributions to American welfare state and program interaction literature. First, the framework of institutional moral hazard offers a more appropriate conceptualization of the relationship of federal and subnational social assistance programs. While prior program interaction literature has focused primarily on the incentives for individuals to shift across social assistance programs, our framework places the incentives facing state governments squarely into analytical focus. Just as individuals or households generally aim to maximize their utility, so, too, do state governments; understanding these processes in conjunction leads to better program interaction research. In this analysis, the focus on the incentives facing state governments and state policy decisions provides new insight on the decline of the TANF throughout the past two decades: While many have focused on the declining real value of TANF block grants or the increase in conditionality requirements as an explanation for TANF's decline, our evidence suggests that these prior theorizations are incomplete. Instead, the decline of TANF must be viewed in the context of the incentive structures that allow state governments to benefit financially from

allocating their TANF budgets *away* from the provision of cash assistance and shifting the burden of social assistance to the federal government.

Our findings also have several implications for future policymaking decisions. First, federal policymakers should question whether the incentives offered to state governments to cut back on their provision of cash assistance are an intended or desirable feature of the TANF program. On one hand, the ‘insurance’ that the federal governments provide to state governments ensures that even when states cut back on cash support, many low-income families still have access to some form of social assistance benefits. Still, SNAP and SSI benefits are not a perfect replacement for direct cash assistance: SNAP benefits are restricted to food products, whereas cash assistance from TANF can more readily be spent on non-food necessities. And while some low-income households are able to transition onto SSI, those who cannot demonstrate some evidence of a disability are unlikely to gain access to the benefits. Thus, for the average lone-parent household, the gains in SNAP and SSI benefits are not enough to offset the decline of potential TANF benefits, and the provision of food stamps and disability benefits remain qualitatively different from the provision of direct cash support.

Similarly, the ability of states to use TANF funds to cover expenses for foster care services, family dental programs, textbook subsidies, and other forms of ‘nonassistance’ could be perceived as a positive feature of the program. Few, after all, would argue that such programs are unimportant. The broad set of programs and policies toward which states can allocate TANF funds, however, raises questions as to the program’s intent and the consequences for families in need of cash support. Consider that by 2014, 10 states – Illinois, Texas, Georgia, Arkansas, South Carolina, Louisiana, North Carolina, Oklahoma, Indiana, and, Arizona – allocated less than 10 percent of their TANF budgets toward the provision of cash assistance. In the same year, the average state allocated more TANF funds toward programs ‘authorized under prior law’ and ‘other nonassistance’ than toward the provision of cash support. Moving forward,

policymakers might consider whether the program, in its current manifestation, appropriately suits the needs of low-income Americans. Installing more stringent accountability mechanisms on the types of programs toward which states can allocate TANF funds, or instituting minimum standards of cash assistance provision, are two of many possible steps toward curbing the threat of institutional moral hazard.

Finally, several possibilities exist for future research to build on our findings or to address the limitations of our study. First, future research should continue to parse the intention and motives of policymakers in determining how to allocate their TANF funds. Though our evaluation of state TANF spending data makes a compelling case that states recognize a financial incentive to cut back on cash support, our reliance on quantitative data is nonetheless limiting in its ability to capture the precise motives of state governments. Second, as our conceptualization of TANF generosity focuses primarily on benefit levels and income eligibility standards, we are likely to underestimate the extent to which state policy decisions lead to declines in received TANF benefits and gains in SNAP/SSI benefits. Future analyses might go further to understand how state outreach efforts and differences in conditionality or sanctioning schemes exacerbate the threat of institutional moral hazard. Moreover, future analyses of institutional moral hazard in the U.S. might expand beyond the TANF program and seek to understand how differences in states' statutory minimum wage policies, for example, relate to increased federal expenditures on SNAP, SSI or the Earned Income Tax Credit. Additionally, variations of our empirical approach can be expanded to include two-parent families or childless households to provide a broader empirical picture of the relationship between state and federal programs. More generally, future research should continue to measure and understand the consequences of differences in state-level social policies. As this study shows, state governments function as institutions that generate differences in the accessibility or generosity of social assistance programs. The sources of this state-level variation, as well its

consequences for low-income households, deserve increasing attention as American welfare state research moves forward.

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APPENDIX

Appendix I: Calculation & Trends in Simulated TANF Generosity

We largely follow Hoynes and Luttmer (2010) and Hoynes and Patel (2015) in calculating our simulated TANF generosity variable. We define ‘generosity’ as a combination of the level of potential TANF cash benefits and the income eligibility criteria used to define who can gain access to TANF benefits in a given state and year.

We first determine whether each household meets the income eligibility criteria given the household’s respective state, year, and family size. Importantly, we only assess income eligibility and not eligibility rules relating to asset tests, lifetime time limits, work requirements, drug testing, or other parameters that may vary across state and time. Income eligibility criteria are derived from the Urban Institute’s Welfare Rules Databook and Database (2015). If the household’s gross and/or net income exceed the eligibility cutoff in the respective state and year, we deem it ineligible and set its simulated TANF benefit to zero. Among income-eligible households, the TANF benefit formula is then applied as follows:

$$B = M - P*(I-D)$$

where B is the calculated TANF benefit level; M is the maximum TANF benefit level given the state, year, and family size; I is the net countable income (market wages and unearned income) for benefit calculation purposes; P is the relative earnings disregard (a share of net countable income that goes uncounted for benefit calculation purposes); and D is the flat earnings disregard (a dollar value that goes uncounted in benefit calculation purposes).

As described in the paper, we estimate the mean benefit level for each state, year, and family-size cluster, then merge the mean benefit value back into our primary dataset matching based on the cluster to which each household belongs. The figures below depict trends in the simulated TANF generosity variable over time by family type, as well as year-to-year changes by state.

Figure A1.1: Evolution of Mean Simulated Monthly TANF Generosity (2009 USD) Values by Number of Children in Household (1997 to 2014)

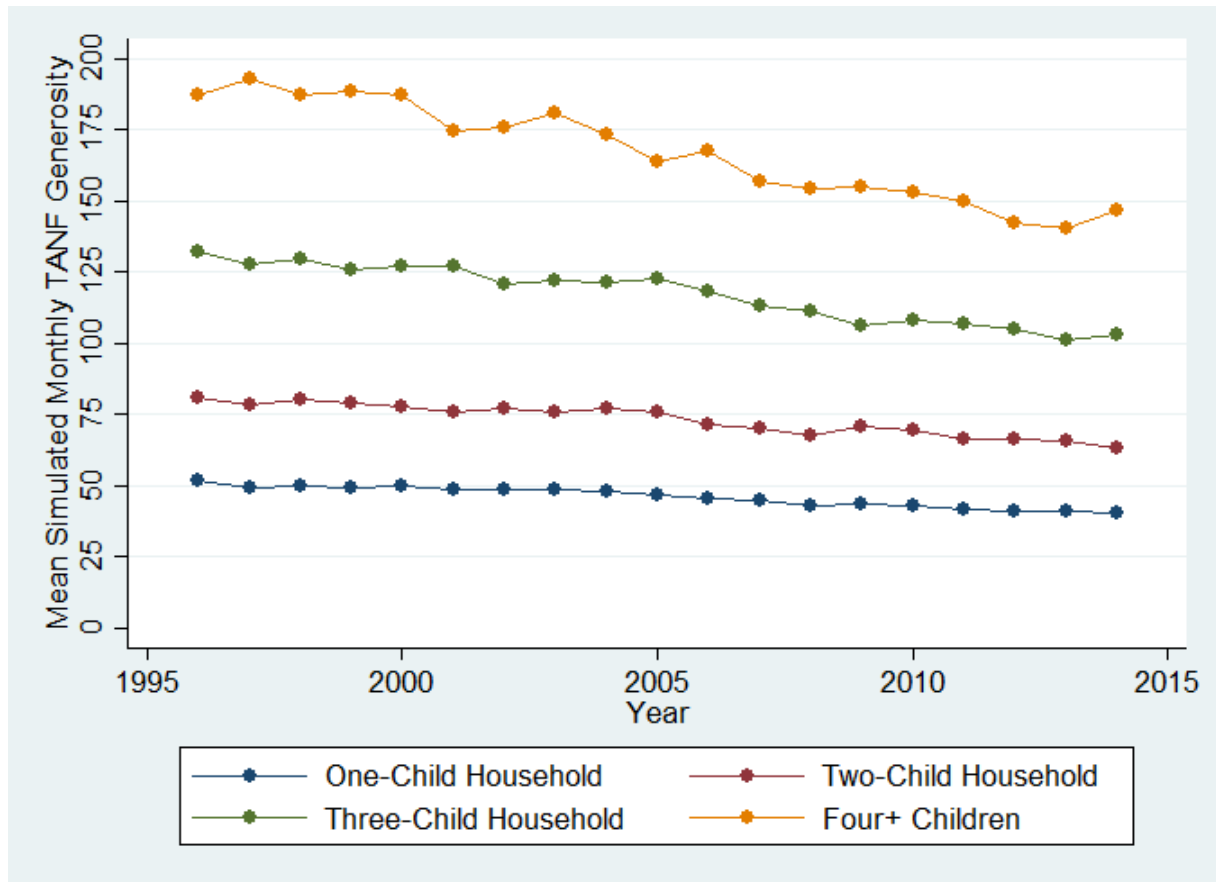
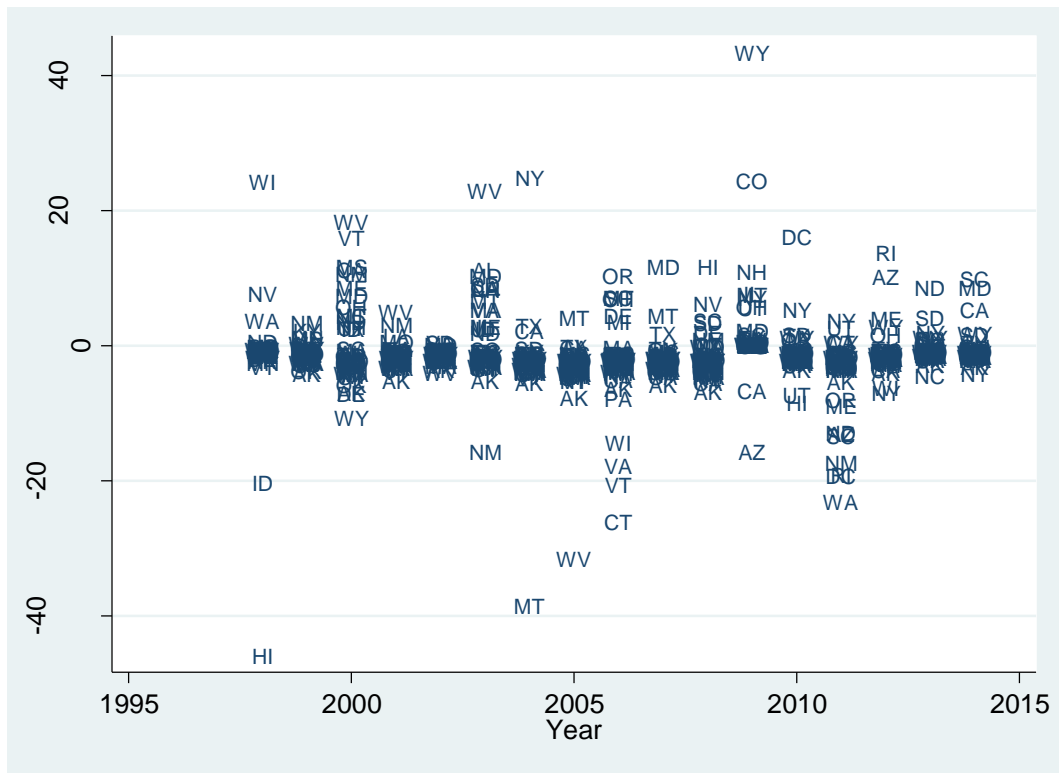


Figure A1.2: Change From Previous Year in Mean Simulated Monthly TANF Generosity Values for Average Lone-Parent Household in State (1998 to 2014)



Appendix II: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
State GDP per cap. (log)	124,999	10.75	0.23	10.25	12.06
State union density	124,999	0.12	0.06	0.02	0.27
State unemployment rate	124,999	6.04	2.06	2.30	13.70
State minimum wage (real)	124,999	6.71	0.73	5.44	8.70
TANF, immediate full-family sanction	124,999	0.36	0.48	0.00	1.00
Strict TANF time limits	124,999	0.16	0.36	0.00	1.00
TANF family cap	124,999	0.43	0.49	0.00	1.00
State SSI supplement	124,999	41.58	71.32	0.00	362.00
Max SNAP benefits (real)	124,999	403.74	119.66	277.33	1222.79
Female head	124,999	0.81	0.39	0.00	1.00
Jobless household	124,999	0.21	0.41	0.00	1.00
Less than high school	124,999	0.50	0.50	0.00	1.00
College degree	124,999	0.17	0.37	0.00	1.00
Under 25 years old	124,999	0.11	0.32	0.00	1.00
25 to 34 years old	124,999	0.26	0.44	0.00	1.00
55 to 65 years old	124,999	0.07	0.26	0.00	1.00
Black	124,999	0.25	0.43	0.00	1.00
Hispanic, non-white	124,999	0.20	0.40	0.00	1.00
Other race	124,999	0.04	0.20	0.00	1.00
Asian	124,999	0.03	0.16	0.00	1.00
Rural	124,999	0.20	0.40	0.00	1.00
SSI participation	124,999	0.11	0.31	0.00	1.00
SNAP participation	124,999	0.43	0.50	0.00	1.00
TANF participation	124,999	0.15	0.36	0.00	1.00
Monthly HH SSI benefits (real)	124,999	64.44	213.64	0.00	6064.37
Monthly HH SNAP benefits (real)	124,999	122.32	189.07	0.00	2033.92
Monthly HH TANF benefits (real)	124,999	47.56	145.01	0.00	1984.21