# The Relationship between State Welfare Rules and Economic Disconnection among Low-Income Single Mothers

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**ABSTRACT** The proportion of low-income single mothers who are disconnected, or not receiving public cash assistance or employment earnings, has increased since the 1996 US welfare reform legislation. Using data from the Survey of Income and Program Participation and the Welfare Rules Database, we use multilevel and multinomial logit models to examine the relationship between state welfare rules and the risk of disconnection. We find that women in states with lifetime limits of less than 60 months are more likely to be disconnected. More generous welfare benefits are associated with a lesser risk of disconnection, while diversion programs are associated with a greater risk of disconnection compared to welfare receipt but are not significant in comparison to employment. Our findings indicate that state rules matter and should be considered as a potential mechanism to change the dynamics of economic disconnection.

## INTRODUCTION

In the late 1980s, welfare caseloads in the United States were suddenly rapidly increasing. Experts attributed the shift to a combination of economic, program, and demographic changes at the time (Congressional Budget Office 1991). The growing caseload became a catalyst for welfare reform and an important context for the resulting legislation, the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA). The accompanying rules include time limits and mandatory work participation

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requirements, with partial and full family sanctions for noncompliance, all intended to move people off of welfare and into work. In the early years of reform, the introduction of the new requirements, supported by a relatively strong economy, resulted in dramatic caseload reductions and increases in employment among single mothers, even more so than most had expected (Blank 2002).

Despite PRWORA's perceived successes, changes to the entitlement nature of cash assistance, the institution of time limits and sanctions, and the establishment of work requirements troubled some advocates and researchers. Some thought that sanctions and time limits might cause recipients to leave the welfare rolls before finding employment and that other rules might deter eligible women from applying, leaving them without a source of income (Moffitt et al. 2003; Zedlewski et al. 2003). There were also concerns that single parents who would not be able to easily transition off of welfare into work because of multiple or immovable employment barriers would become even more vulnerable if they were to lose benefits (Wood and Rangarajan 2003; Blank 2007).

The possibility that vulnerable families may be falling through the cracks and may be facing grave financial and material hardships has motivated a growing body of research examining the prevalence, demographics, and personal circumstances of disconnected families, or those who have no earned employment income or public cash assistance from welfare or other public programs such as Unemployment Insurance and Social Security and thus are potentially Temporary Assistance for Needy Families (TANF)–eligible. Many, if not all, of these families appear to qualify financially for public benefits that could reduce the hardship but are not receiving any cash assistance. The reasons why they do not receive cash assistance could be related to their own decision not to apply for benefits or related to program rules that result in them being ineligible to receive benefits despite clear financial need. Little is known about the effect of state welfare rules on an individual's risk of economic disconnection, either by having an effect on an individual's decision to apply for benefits or one's non–financial eligibility. This is particularly important as we approach the twentieth anniversary of welfare reform and are wrestling with what changes should be made across the country in order to support today's vulnerable families.

This article adds to our understanding of economically disconnected single mothers by focusing on how state welfare rules relate to the likelihood of being disconnected. Multilevel and multinomial logit models examine the

relationship between different state rules, such as diversion policies and time limits, and the likelihood of disconnection, while also controlling for individual risk factors. Using data from April 1996 to January 2007, the study examines trends in disconnection during welfare reform enactment and implementation and focuses on a decade of great change and variation in state welfare rules.

## BACKGROUND

### DEFINITION AND CHARACTERISTICS OF DISCONNECTED FAMILIES

The definition of economic disconnection varies across studies but typically hinges on whether a single mother is without both employment income and public cash assistance via the TANF block grant (Loprest 2011). Variations include differences in the definition of income (i.e., earned vs. unearned; no income vs. under a particular threshold) and in the duration of disconnection, but the general approach is to identify those who are potentially eligible for TANF benefits but do not take up the benefits and to explore how they are coping.[1] This is particularly important as TANF take-up rates among eligible families had fallen to about 30 percent as of 2009 (US Department of Health and Human Services 2013). Regardless of data source, definition, and time periods, studies show an increase in disconnection from, conservatively, 10 percent of all potentially eligible low-income women in 1990 to over 20 percent in 2010 (Blank and Kovak 2008; Loprest and Nichols 2011).

If mothers and children living in low-income households have no documented cash income of their own (earned or unearned), there is a good chance they are eligible to receive TANF. The fact that some do not is concerning from a program perspective, because perhaps there are ways to make the program more accessible, and from a human perspective, because we think people are worse off for not receiving TANF when they need it. This is especially true if those who do not receive TANF are different or

1. Seefeldt and Horowski (2012) state that while it is true that the most vulnerable families have zero income and no assistance, we should also be concerned about those who perhaps have employment or outside assistance but it is unsteady or insufficient. Their study proposes a continuum of disconnection and suggests ways in which the current network of benefit programs could be improved in order to better support families who are struggling to make ends meet and perhaps prevent spells of disconnection.

worse off in other ways. In fact, low-income mothers who are disconnected from TANF are among the most economically vulnerable; by definition, they have very little or no income. They are also more likely than other low-income single mothers to live in public housing as opposed to receiving tenant-based vouchers (Hetling and Botein 2013) and to report material hardship including food insecurity (Loprest and Zedlewski 2006; Farrell 2009; West Coast Poverty Center 2012).

The majority of disconnected single parents live alone or with other disconnected adults (Blank and Kovak 2008). Some live in households that include other adults with income; however, resource sharing and household structure have not been fully examined, and prior studies of disconnected families do not limit their analyses to mothers who live without adult household members (Loprest 2011). Rebecca Blank (2007) explains that other adult household members may not be contributing financially because they are not sharing resources, are not employed, or may be disabled and in need of care. We include women who have other unrelated adults in the household, but we do not count income from other unrelated adults in our definition of disconnection because the income of unrelated adults is not considered in the eligibility formulae for TANF. That is, based on the assumption that only married couples share income, women living with unrelated adults are eligible for TANF.

In some circumstances, this seems reasonable. In times of crisis, marginally housed families often turn to family and friends for free or cheap housing, but these are considered temporary and oftentimes not desirable situations. In one Texas study, 40 percent of former TANF recipients doubled up with family or friends for housing (Lein and Schexnayder 2007). Although income sharing seems more likely in romantic cohabitating relationships compared to other shared households, research indicates a high level of diversity among cohabitating couples and differences in resource sharing between married and cohabitating couples (Nock 1995; Cross-Barnett, Cherlin, and Burton 2008). In their examination of disconnected women, Pamela Loprest and Austin Nichols (2011) present some data on household arrangements and resource sharing, but they only briefly discuss whether the relationship determines how much is shared.

Prior studies have also identified a number of structural and personal barriers that seem to be risk factors for disconnection from work and public cash assistance. Many disconnected women experience barriers to employment such as a lack of childcare or transportation or caring for an ill family

member (Wood and Rangarajan 2003; Acs and Loprest 2004; Loprest and Nichols 2011). Disconnected women also have personal challenges that serve as barriers to employment, including health and mental health problems, limited work experience, learning disabilities, and low educational attainment (Loprest 2003; Wood and Rangarajan 2003; Acs and Loprest 2004; Turner, Danziger, and Seefeldt 2006). A local study of chronically disconnected women also finds that chronically disconnected mothers were more like to struggle with alcohol dependence or substance use (Turner et al. 2006). Findings from one national study indicate that only a quarter of all disconnected women have no barriers to employment and that, among women who experience multiple months of disconnection, that proportion falls to 17 percent (Blank and Kovak 2008). A Maryland State study finds that disconnected women were more likely to live outside of Baltimore and were more likely to be white than connected women (Ovwigho et al. 2011), but most other studies find no differences in race or other demographic characteristics. In addition to posing challenges to finding and maintaining employment, many of these barriers to employment may also make navigating the application process for public benefits more difficult (Brodkin 2006).

## VARIATION IN STATE WELFARE RULES

The personal and financial circumstances of low-income families are important determinants of disconnection from or ineligibility for public cash assistance, but they have to be considered in the context of the broader policy environment and the programmatic rules governing the distribution of cash benefits. The passage of the PRWORA brought major changes to the delivery of welfare benefits across all states (for a summary, see Moffitt [2003]). Although all states are limited to a fixed block grant and are required to create time limits and sanctioning policies, they are given some flexibility in how they define these rules and how they allocate the funds. In particular, states are required to supplement the federal TANF funds with their own funds (referred to as Maintenance of Effort [MOE] funds) and are given broad guidance on how the combined federal and state dollars may be used to support the stated purposes of TANF. As such, TANF benefits are managed differently across the states, with some states choosing harsher sanctioning or shorter time limits than others. Several states, for example, have lifetime TANF limits of 24, 36, or 48 months instead of the allowable

60 months, and about a dozen states have periodic time limits that restrict how many consecutive months of assistance are allowed. Other states use MOE funds to afford lifetime limits greater than the federally allowable 60 months. (For a much more detailed summary of time limit policies across states, see Farrell et al. [2008].) States may also choose to give or devolve some responsibility for administration of programs to local-level government. After the passage of PRWORA, 14 states devolved significant authority in TANF implementation to either county governments or workforce development boards (Gainsborough 2003).

Time limit policies are particularly important, as they may affect economic disconnection in two ways. First, such rules directly affect eligibility for cash assistance by limiting the number of months a family can receive benefits. Second, these rules might also have an indirect effect on the take-up of or disconnection from benefits. Specifically, some research suggests that there may be behavioral effects of welfare time limits if forward-thinking families with younger children intentionally bank months of assistance by staying off of welfare now so that they will have benefits to access later if their situation worsens (Grogger 2002; Grogger and Michalopoulos 2003; Currie 2004).

In addition to the variation of rules from place to place, there is also variation over time. Many states have made changes to their policies and to the implementation of those policies in response to changes in funding streams, state performance measures, and the overall economy. For example, as welfare caseloads have declined over time, states have allocated less to basic cash assistance and more toward other types of assistance like child care, transportation, diversion programs, and subsidized employment (Schott, Pavetti, and Finch 2012). In fiscal year 2013, 27.6 percent of TANF and MOE funds nationwide were spent on basic assistance (US Department of Health and Human Services 2014).

Because of the varying rules and numerous combinations of them, a number of researchers have attempted to categorize and explain state strategies. A rich body of literature offers a number of approaches, including the creation of indices, examinations of overall state philosophies, and factor analyses (e.g., Soss et al. 2001; Fellowes and Rowe 2004; DeJong et al. 2006). Despite providing interesting descriptions of state rules, the few studies examining the associations between these measures and changes indicate that their application in understanding outcomes may be limited (Cadena, Danziger, and Seefeldt 2006; Ziliak 2015). Recent studies using

indices designed by Matthew Fellowes and Gretchen Rowe (2004), however, offer more promising results (Yu 2005; Kim and Fording 2010; Reingold and Smith 2012). The Flexibility Index (Fellowes and Rowe 2004) is a measure of how flexible a state is in regards to providing benefits after an applicant is deemed eligible. Flexibility, as operationalized by the index, refers to the extent to which states have adopted rules that make access to benefits easier. The index is made up of 12 variables measuring state rules regarding sanction leniency and exemptions from work activity participation (Fellowes and Rowe 2004).[2]

## REASONS FOR DISCONNECTION AND STATE TANF RULES

Prior research shows that individuals' decisions to apply for, use, or refuse TANF benefits are related to TANF rules and regulations. State welfare rules are likely to have important, although perhaps small, effects on a woman's risk of being disconnected. First, disconnected women may be discouraged from applying for welfare based on low benefit rates or diversion programs and strategies. Both formal diversion programs, such as lump-sum grants designed to address emergency needs and to prevent enrollment in TANF, and informal diversionary tactics, such as administrative hassle and work-first messages, may deter initial or completed applications. Lynne Fender, Signe-Mary McKernan, and Jenny Bernstein identify a summary variable to measure "obstacles faced to get onto TANF" composed of two individual measures: whether or not the state has a diversion program and whether or not a job search is a mandatory part of the application (2002, II–41). State-level studies indicate that formally diverted applicants are either equally or less likely to return to TANF than other applicants (US Department of Health and Human Services 2003). Rebecca London (2003) uses the National Survey of American Families to find that diverted clients are also less likely to be employed. Studies on disconnection also show that the most common path to disconnection is when low-income women who have never received TANF benefits become unemployed and do not take up benefits even though they might otherwise be eligible for them (Turner et al. 2006; Blank and Kovak 2008; Loprest and Nichols 2011).

2. The specific components of the index are discussed in the "Method" section of this article.

Second, disconnected women may separate from TANF prematurely (without obtaining employment) based on how strict or lenient their state may be in terms of time limit and sanction rules and granting extensions or exemptions from certain requirements. Many TANF requirements and rules, including the time limit, were intended to motivate recipients to focus on preparing for and finding work, and the hope was that few would actually reach the time limit (Bloom and Butler 1995). Studies of the effect of policies like time limits and sanctions on caseload decline provide mixed results and seem to be dependent on modeling choices (Danielson and Klerman 2008). Although time limit closures account for only a small percentage of monthly case closures nationwide, many people whose cases are closed report experiencing worse financial hardships after losing TANF than they faced while on TANF and report relying on other public noncash assistance to meet their needs (Farrell et al. 2008). Sanctioned clients similarly report material hardships and no increase in employment (Lee, Slack, and Lewis 2004). Among former TANF recipients, disconnection usually occurs after a loss of benefits rather than after the loss of a job, and these spells of disconnection tend to be longer than for those who become disconnected after losing a job (Loprest and Nichols 2011). Longer spells of disconnection are particularly likely if the loss of benefits was involuntary, such as from a sanction or due to exceeding the state's time limit (Moore, Wood, and Rangarajan 2012).

Some research on disconnection includes measures of macro-level conditions, in addition to individual experiences with TANF rules, as possible influences on movements into and out of disconnection. Loprest and Nichols (2011) include measures of state-level conditions, such as unemployment rates, but they have only one TANF-related variable, maximum TANF benefit, which is not statistically significant in their models (Loprest and Nichols 2011). Quinn Moore and colleagues (2012) use New Jersey data and include county-level measures in their study, but they are unable to examine TANF rules. While both studies find unemployment rates to be a significant factor, neither study uses multilevel models, and the studies are thus unable to account for variations at the different levels of measurement. Through multilevel models, Andrea Hetling (2011) identifies the unemployment rate and the Flexibility Index as significant influences on the risk of economic disconnection, but the study only uses data from 2001 to 2003, a relatively small time period, to examine welfare rules, and it does not include all 50 states. This article builds on the growing body of literature on economic disconnection and macro-level factors by expanding the focus

on state welfare rules to a longer time period and with data on all US states and the District of Columbia.

The article examines the probability of being disconnected from welfare (including TANF and other forms of unearned cash benefits) and work (including earnings and Unemployment Insurance benefits) based on a number of individual characteristics and state welfare policies. We hypothesize that state TANF rules, in addition to individual-level characteristics, are significantly associated with the likelihood of experiencing economic disconnection. We used restricted-use, confidential, micro-level Census Survey of Income and Program Participation (SIPP) data for the project. Data analysis was conducted at the New York Census Research Data Center at Baruch College, a secure laboratory operated in partnership with the US Census Bureau's Center for Economic Studies. The use of confidential-level data is advantageous to the research because the SIPP public-use data combine certain states, thus prohibiting a full investigation of policies across the entire United States. For example, the 2001 SIPP panel state variable collapses Wyoming, North Dakota, and South Dakota into one response category and Vermont and Maine into another due to small sample sizes and confidentiality concerns. Because state welfare policies differ among North Dakota, South Dakota, and Wyoming and between Vermont and Maine, sample members residing in these states would need to be dropped from analyses using the public-use data.

## METHOD

### DATA AND SAMPLE

The project data come from all waves of the 1996, 2001, and 2004 panels of the SIPP and span the years of 1996 to 2007. By investigating low-income mothers' disconnection status between April 1996 and January 2007, this study examines trends in economic disconnection over the history of welfare reform and its implementation. The study period of over 10 years was chosen because it spans the period of most variation in state welfare rules, which is arguably the most appropriate time period to consider when investigating the influence of different rules, as it includes the early implementation of PRWORA, the following period of fluctuation and change, and finally a period of relative stability in TANF rules.

Collected by the US Census Bureau, the SIPP is a continuous series of nationally representative panels based on a stratified sampling of the US

civilian noninstitutionalized population and an oversampling of low-income households. The SIPP series has 14 overlapping panels, formed yearly between 1984 and 1993 and about once every 4 years from 1996 onward. Sample members are interviewed every 4 months; this 4-month time period is called a wave. The 1996 and 2004 panels span 48 months with 12 waves of data collection, and the 2001 panel spans 36 months with nine waves. The 1996 panel contains 36,730 households at wave 1 (reference month 4), the 2001 panel contains 35,100 households at wave 1, and the 2004 panel contains 43,500 households at wave 1. The SIPP is a longitudinal survey and thus is appropriate for analyzing the relationship between government programs and the lives of individuals. The purpose of the SIPP is to provide a comprehensive picture of income and program participation among US residents, and it was designed to allow evaluations of public programs. The central focus of the data is economic and demographic, with substantial detail on income sources and amounts, employment, public assistance participation, family composition, and residential location. Furthermore, during each wave interview, sample members are asked about monthly income over the past 4 months. The survey also explicitly asks about individuals' program participation status. Although the SIPP faces an issue of misreporting, research has shown that TANF data in the SIPP are more complete than data in other surveys, including the Current Population Survey, the Consumer Expenditure Interview Survey, and the Panel Study of Income Dynamics (Meyer, Mok, and Sullivan 2009).

State welfare rules were coded, under the supervision of the lead author, from the Welfare Rules Database (WRD) and then merged by state and year with the analytical SIPP data file. The WRD is a longitudinal database of state-specific TANF rules maintained by the Urban Institute and funded by the US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. The database contains information on implemented TANF rules for all 50 states and the District of Columbia, as coded from state caseworker manuals and updates.

Our study sample includes low-income single mothers. We selected female respondents who were between 18 and 54 years old at the start of each panel and whose household incomes were not more than 300 percent of the poverty line in any wave and were less than 200 percent of the poverty line in at least one wave. While our definition of economic disconnection considers only family, not household, income, we restrict household income for sample specification to ensure that we are not capturing women

who, while not receiving earnings or assistance in their own names, were residing in households with ample resources. We decided to include women who resided in households whose total income may have temporarily fluctuated above 200 percent of the poverty line in order to ensure that we were not too strict in excluding sample members. Again, the definition of disconnection itself is limited to family income, as we explain below. We further limited the sample to women who had children under age 18, who did not move out of the country during the length of the panel, and who were not married and living with their spouses. Our decision to include cohabitating women in the sample was based on previous studies of this population, as well as research on the diversity of cohabitation (see, e.g., Nock 1995; Cross-Barnet et al. 2008) and doubled-up households (see, e.g., Skobba and Goetz 2015), as explained above in the literature review. Students are included in the sample because single mothers who attend school full-time or part-time can be eligible for public cash assistance even when receiving federal student loans. The sample is weighted by households to correct for the oversampling in high-poverty areas, based on the SIPP household-based weight.

## VARIABLES

The dependent variable is a restricted definition of disconnection and captures women whose families' earned income and cash assistance receipt during the fourth reference month is zero. The restricted definition refers to no family income from earned income, Social Security Disability Insurance (SSDI), Aid to Families with Dependent Children/TANF (including cash diversion grants), Social Security, Unemployment Insurance, other cash transfer income, and veterans' assistance. While we are primarily interested in the effect of state welfare policies on disconnection from TANF, we include other forms of public cash benefits and unearned income (SSDI, Social Security, Unemployment Insurance, veterans' assistance, and other cash transfer income) because these are directly related to TANF eligibility. Other forms of income, such as shared resources from friends or partners and federal student loans and tuition grants, do not affect eligibility for TANF. Disconnection is coded using the fourth reference month in each wave, as opposed to using an annual measure, in order to capture shorter spells of disconnection and cyclical, in addition to chronic, disconnection, particularly since our definition of disconnection is based on zero cash

income. We limit the spells to 1 month because of the seam bias identified in the SIPP by other researchers (Grogger 2004).

Individual-level variables come from the SIPP and include the demographic characteristics of race (measured as a group of dichotomous variables), age of the mother, marital status (never married vs. other), educational attainment (measured as a group of dichotomous variables), work-limiting disability, number of own children under 18 residing in the household, and student status. Two variables measuring household structure are also included in the analyses. The first variable measures whether or not the sample member lived with other related adults, like an aunt or sister, while the second measures whether or not the sample member lived with unrelated adults. The second variable includes both cohabitating partners and other nonromantic friends. Finally, two dichotomous variables measure whether or not the family was receiving other public noncash benefits and whether or not the woman resided in a metro area.

Independent state-level variables focus on state welfare rules and were coded from the WRD. We find great variation, both among states and over time. Table 1 displays the rules coded with the percent of states that changed each rule from the previous year. The first measure of state TANF policies is the maximum monthly benefit for a family of three, measured in unadjusted dollars, since our main goal is to compare the effects of state rules and changes in those rules within the same time period across persons and

**TABLE 1.** Percent of States with a Change in TANF Rule from Previous Year

| Year | Monthly Benefit Amount (%) | Cash Diversion Program (%) | Upfront Job Search (%) | Lifetime Limit (< 60 Months, = 60 Months, or > 60 Months) (%) | Flexibility Index (%) | At Least One of Rules (%) |
|---|---|---|---|---|---|---|
| 1997 | 9.8 | 15.7 | 19.6 | 58.8 | 66.7 | 88.2 |
| 1998 | 21.6 | 11.8 | 3.9 | 17.7 | 49.0 | 70.6 |
| 1999 | 19.6 | 9.8 | 7.8 | 2.0 | 52.9 | 70.6 |
| 2000 | 27.5 | 11.8 | 0 | 2.0 | 41.2 | 56.9 |
| 2001 | 19.6 | 2.0 | 0 | 3.9 | 13.7 | 29.4 |
| 2002 | 23.5 | 3.9 | 0 | 3.9 | 17.7 | 45.1 |
| 2003 | 15.7 | 2.0 | 2.0 | 3.9 | 5.9 | 27.5 |
| 2004 | 15.7 | 3.9 | 7.8 | 0 | 17.7 | 37.3 |
| 2005 | 17.7 | 2.0 | 2.0 | 0 | 5.9 | 23.5 |
| 2006 | 33.3 | 3.9 | 3.9 | 0 | 5.9 | 37.3 |
| 2007 | 13.7 | 3.9 | 3.9 | 0 | 33.3 | 49.0 |

Note.—The last column is the percent of states that changed at least one of the TANF rules listed in the previous five columns of the table: monthly benefit amount, cash diversion program, upfront job search, lifetime limit, or the Flexibility Index.

states. In any given year, about a fifth of states made a change to the benefit amount. We also ran the models using adjusted dollars to account for inflation. The next two variables are measures of diversion policies: whether or not a diversion program exists and whether or not the state requires an upfront job search. Changes to diversion rules were fewer over the course of the study period. For analytical purposes, the lifetime limit for welfare benefit receipt was coded as two dichotomous variables. The first variable equals one for states with a less than 60-month time limit, and the second equals one for states with time limits greater than 60 months. The comparison group includes states that follow the federal guideline of 60 months. Table 1 illustrates the large change in rules that occurred early in 1997 and 1998, followed by relatively little change in subsequent years.

The final state welfare variable is a composite measure of flexibility based on the Flexibility Index created by Fellowes and Rowe (2004). The Flexibility Index is a scale variable with values ranging from 1 to 12, where higher values indicate higher levels of flexibility and leniency in a state's TANF requirements and, thus, easier access to benefits. A number of state rules are highly correlated with each other and thus do not merit simultaneous inclusion in the model. The use of the index overcomes this difficulty and also leads to a more parsimonious model. The index comprises 12 individual welfare rules relating to exemptions from work activity requirements and to the severity of sanctions. Specifically, components reflecting work activity exemptions include those for illness, pregnancy, advanced age, caring for a young child, caring for an ill family member, working in an unsubsidized job, pursuit of educational and training programs, and pursuit of a postsecondary education. For each of these eight components, one point is given if the state allows the exemption. Another point is given if the state allows fewer hours of work than the federal requirement. The final three components are related to sanctions, with a score of one when a state's initial sanction is not the elimination of the entire benefit, when a state's worst-case sanction does not eliminate the entire benefit, and when the worst-case sanction does not continue permanently. The last column in table 1 demonstrates a high level of variation over the study period on this variable.

## ANALYSES

A multilevel mixed-effects logit model is used to estimate the differing effects of individual-level and state-level variables on a sample member's

likelihood of economic disconnection. We use multilevel modeling as our main analytical approach due to the hierarchical structure of the data. In multilevel modeling, observations are examined based on clustering or on their hierarchical structure. We arranged the data at three levels: the first level consists of person-month observations; person-month observations are nested within persons, the second level; and persons are nested within states, the third level. The first or lowest-level observations are based on person-month cases, in which each individual contributes observations based on the number of interviews she completed and her adherence to the sample criteria. Although the state welfare rules data are measured annually, limiting the analysis to yearly changes would force us to define disconnection as an experience that takes place over an entire year and as one that coincides with the calendar year in order to match the spell with specific policies. Multilevel models allow for this difference in time periods and are able to handle longitudinal data with missing or uneven time points, preventing the need to drop individuals or impute data. The second level in our data set consists of our sample of low-income mothers. Our first and second levels are related by time instead of the more typical geographic or physical relationship, like people residing in states or students attending schools. The wave variable designates the temporal relationship of the person-month observations. The third and final level consists of states, in which observations at the second level, low-income mothers, are nested mutually exclusively and exhaustively.

It is critical to consider the nested nature of these observations and to control for possible variation at the each level instead of examining the observations as independent. Previous methods of combining variables at different levels produced standard errors that are biased downward because the errors across micro units with the same macro group are often not random (Moulton 1990). In multilevel modeling, the standard errors for the coefficient of each independent variable are based on the number of observations at that level instead of on the total person-month sample size. Thus, the standard errors of individual static variables that vary only among individuals, and not by month observation, as well as state-level variables that cannot vary at the individual or month level, are not incorrectly small because they are tied to the number of groups at that level and not to the sample size from a lower level.

In addition to estimating the intercept and coefficients for the sample as a whole, called fixed effect in multilevel analysis, models produce random

effects, an estimation of how slopes and coefficients may vary among subgroups. The random effect for the intercept is the standard deviation of the intercept at each of the higher levels. For example, the random effects intercept for the state level provides an estimate of variation among the states that is not explained by the estimated coefficients of the state TANF rules variables. Thus, random effects offer an estimate of how much variation exists at the group level after controlling for the independent variables. Our analyses use maximum likelihood estimations to produce efficient estimates (Hox 2002; Luke 2004). The xtmelogit command in Stata was used to run and analyze the models (Rabe-Hesketh and Skrondal 2008).

The multilevel, logistic regression models were based on the following framework:

$$\text{Disconnected } (D)_{ij} \text{ [Logistic regression]} = \beta + \beta S_{ij} + \beta I_{ij} + \beta T + \varepsilon_{ij},$$

where $D$ = dichotomous variable indicating whether a women is disconnected in a particular wave, $S$ = a vector of variables that specify the state TANF rules, $I$ = a vector of individual characteristics, and $T$ = control for the SIPP panel and wave.

After estimating the multilevel model, we employed multinomial logit models to understand the relative risks of employment and public cash assistance receipt in comparison to disconnection. The definition of economic disconnection is the same, but the dependent variable is coded as disconnected, employed (with no public cash assistance receipt), and public cash assistance recipient, including TANF, SSDI, Social Security, Unemployment Insurance, and veterans' assistance benefits (with and without some earned income). The independent variables included in this model are the same as those included in the multilevel model. Because the multinomial logit models are unable to address the nested nature of the data, and thus are subject to deflated standard errors for the state-level variables as explained above, we set the cutoff for statistical significance at $\alpha = .001$. The multinomial logit model was run first with the full sample of observations and then with the subsample of observations coded as living alone to examine whether or not the identified relationships between state TANF rules and disconnection remained similar in size and were statistically significant for low-income mothers who did not reside with other adult household members. We ran additional sensitivity analyses with the public-use SIPP files using household as opposed to family income as the criteria for disconnection, as well as models excluding students. Despite differences between the

restricted-use micro-level data set and the public-use one and the loss of sample members from the five states described earlier, results were similar but not exactly the same.

## SAMPLE DESCRIPTION

Table 2 presents demographic characteristics and state-level TANF rules by person-month observation. Specifically, each observation is the fourth reference month data from each wave for each sample member. Based partially on the resulting large sample size ($N = 56{,}679$), differences between disconnected and connected observations on every variable are statistically significant at the $p < .05$ level. The average age of sample members, across all observations, is approximately 31 years, with disconnected women slightly younger (30.55 years) than their connected counterparts (31.47 years). In about half of observations, sample members had never been married. Approximately 80 percent had completed a high school degree or at least some college. A similar proportion lived in metro areas and received public assistance. The sample members had two children on average, and 16 percent of the members were students. Thirty-three percent of them lived in states with an upfront job search program. These trends are similar regardless of disconnected status.

Several characteristics show differences between the disconnected and connected groups. The disconnected group consists of more white (63.3 percent), fewer black (31.4 percent), and fewer Latina women (16.7 percent) than the connected group (57.9 percent, 36.8 percent, and 22.0 percent, respectively). More disconnected women lived with unrelated household members (24.5 percent compared to 9.6 percent) and fewer lived with related family (5.1 percent compared to 20.7 percent). Compared with women who were connected to work or welfare, disconnected women were more likely to live in states with either a 60-month time limit (63.7 percent compared to 59.7 percent) or a time limit less than 60 months (13.8 percent compared to 10.6 percent), and they were less likely to live in states with a time limit longer than 60 months (22.5 percent vs. 29.7 percent). More disconnected women lived in states where a diversion program existed (56.3 percent compared to 50.7 percent) and the Flexibility Index is lower for disconnected women (7.08 compared to 7.37). The average maximum TANF benefit amount for a family of three in states where more disconnected

**TABLE 2.** Sample Description: Person-Month Observations

| | Disconnected | Connected | Full Sample |
|---|---|---|---|
| Individual characteristics: | | | |
| Average age at beginning of panel | 30.55 | 31.47 | 31.35 |
| | (8.28) | (8.97) | (8.89) |
| Race: | | | |
| White (%) | 63.3 | 57.9 | 58.6 |
| Black (%) | 31.4 | 36.8 | 36.1 |
| Latina (%) | 16.7 | 22.0 | 21.3 |
| Other (%) | 5.3 | 5.4 | 5.4 |
| Marital status: | | | |
| Never married (%) | 47.9 | 50.9 | 50.5 |
| Education level: | | | |
| Less than high school (%) | 20.4 | 21.4 | 21.3 |
| High school graduate or GED (%) | 39.5 | 38.9 | 39.0 |
| At least some college (%) | 40.1 | 39.7 | 39.7 |
| Work limiting disability (%) | 15 | 13.5 | 13.7 |
| Number of children under age 18 | 1.94 | 2.11 | 2.09 |
| | (1.04) | (1.19) | (1.18) |
| Metro residence (%) | 81.5 | 83.3 | 83.1 |
| Full-time or part-time student (%) | 15.4 | 16.0 | 16.0 |
| Living arrangement: | | | |
| Lives alone (%) | 71.1 | 71.2 | 71.2 |
| Resides with related family (%) | 5.1 | 20.7 | 18.6 |
| Resides with unrelated household members (%) | 24.5 | 9.6 | 11.5 |
| Any public noncash assistance (%) | 80.8 | 83.6 | 83.2 |
| State welfare rules: | | | |
| Maximum TANF benefit amount for a family of three | 390.28 | 405.95 | 403.91 |
| | (163.61) | (167.26) | (166.87) |
| Diversion program exists (%) | 56.3 | 50.7 | 51.4 |
| Upfront job search program exists (%) | 33.3 | 33.2 | 33.2 |
| Average Flexibility Index (0–12) | 7.08 | 7.37 | 7.33 |
| | (2.24) | (2.33) | (2.32) |
| Time limit: | | | |
| Less than 60 months (%) | 13.8 | 10.6 | 11.0 |
| 60 months (%) | 63.7 | 59.7 | 60.2 |
| More than 60 months (%) | 22.5 | 29.7 | 28.8 |
| *N* (unweighted) | 7,075 | 49,604 | 56,679 |
| Proportion estimate (weighted by wpfinwgt; %) | 12.97 | 87.03 | 100 |
| Proportion estimate, by panel: | | | |
| 1996 panel (%) | 9.49 | 90.51 | |
| 2001 panel (%) | 14.33 | 74.67 | |
| 2004 panel (%) | 15.65 | 84.34 | |

Note.—Differences between the connected and disconnected groups were assessed with *t*-tests and chi-square tests and were statistically significant at the $p < .05$ level. Standard deviations are in parentheses.

women resided is $390, approximately $16 less than that of states where more connected women resided.

In our sample, the proportion of observations coded as disconnected varied among the three SIPP panels. In the 1996 panel, about 1 in 10 (9.5 percent) observations are defined as economically disconnected. In the 2001

and 2004 panels, this proportion rises to 14.3 percent and 15.7 percent, respectively. These proportions are similar to other researchers' findings. Using various data sets, including the SIPP, the National Survey of American Families, and the Current Population Survey, prior studies show an increase in the proportion of low-income women who are disconnected from about one-tenth in the late 1990s to approximately one-fifth in the mid-2000s to late 2000s (Acs and Loprest 2004; Blank and Kovak 2008; Loprest 2011; Moore et al. 2012).

## MULTILEVEL FINDINGS: ESTIMATED EFFECTS OF STATE WELFARE POLICY

Table 3 contains the results of three multilevel logit regression models. Model 1 includes only sample time-related variables. This model includes variables for the 2001 and the 2004 panels, with the 1996 panel as a reference category, and for waves. The likelihood of disconnection increases over time. Observations in the 2001 panel have close to twice the risk of disconnection of those in the 1996 panel, while 2004 sample members have

**TABLE 3.** Multilevel Logistic Regression Models of Disconnectedness, Odds Ratios

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Fixed effects: | | | |
| Panel (reference category = 1996): | | | |
| 2001 | 1.95*** | 1.84*** | 1.97*** |
| | (.18) | (.18) | (.19) |
| 2004 | 2.47*** | 2.36*** | 2.32*** |
| | (.21) | (.22) | (.21) |
| Wave | 1.04*** | 1.04*** | 1.03*** |
| | (.01) | (.01) | (.01) |
| State-level variables: | | | |
| Maximum TANF benefit amount for a family of three | | .999* | .999** |
| | | (.01) | (.01) |
| Diversion program exists | | 1.05 | 1.12 |
| | | (.08) | (.08) |
| Upfront job search program exists | | .95 | .96 |
| | | (.06) | (.06) |
| Time limit (reference category = 60 months): | | | |
| Less than 60 months | | 1.45** | 1.45** |
| | | (.17) | (.17) |
| More than 60 months or no limit | | .84* | .89 |
| | | (.07) | (.08) |
| Flexibilty Index (0–12) | | 1.01 | 1.01 |
| | | (.02) | (.01) |

**TABLE 3** (*continued*)

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Individual-level variables: | | | |
| Race (reference category = white): | | | |
| Black | | | .67*** |
| | | | (.56) |
| Latina | | | .82* |
| | | | (.08) |
| Other | | | 1.08 |
| | | | (.16) |
| Age | | | .96*** |
| | | | .01 |
| Never married | | | .76*** |
| | | | (.06) |
| Education (reference category = high school graduate or GED): | | | |
| Less than high school | | | 1.05 |
| | | | (.09) |
| Some college | | | 1.07 |
| | | | (.08) |
| Disabled | | | 1.41*** |
| | | | (.10) |
| Number of children under 18 | | | .83*** |
| | | | (.03) |
| Full-time or part-time student | | | 1.30*** |
| | | | (.09) |
| Household structure (reference category = lives alone): | | | |
| Resides with related family | | | .10*** |
| | | | (.01 |
| Resides with unrelated household members | | | 3.98*** |
| | | | (.29) |
| Receives any public noncash assistance | | | .71*** |
| | | | (.05) |
| Metro residence | | | 1.33** |
| | | | (.12) |
| Intercept | .01*** | .02*** | .12*** |
| | (.001) | (.002) | (.03) |
| Random effects: | | | |
| Intercept for state effects ($n$ of groups = 51) | .08 | .07 | .08 |
| | (.01) | (.01) | (.02) |
| Intercept for person effects ($n$ of groups = 12,889) | 2.70 | 2.70 | 2.47 |
| | (.05) | (.05) | (.05) |
| Log likelihood | −16,723.005 | −16,716.466 | −15,996.037 |
| Wald $\chi^2$ | 156.45 | 185.75 | 1,332.07 |
| $\chi^2$ for likelihood-ratio test versus logistic regression | 8,761.32 | 8,682.99 | 7,008.44 |
| $p$-value of $\chi^2$ | < .001 | < .001 | < .001 |

Note.—$N$ = 56,679 person-months. The dependent variable is a dichotomous measure of economic disconnection, coded as disconnected or connected. Model 1 includes only panel and wave as independent variables. Model 2 adds state-level variables. Model 3 is the full model and includes panel, wave, state-level, and individual-level variables as independent variables.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

2.47 times the risk of disconnection of those in the 1996 panel. When accounting for only panel and wave as independent variables, an examination of the influences on the person and state level shows that each level of grouping is an important explanation of disconnection. In other words, variation exists among the groups at each level, and observations within the groups, whether persons or states, are not unrelated. A larger proportion of the variation lies at the individual level, indicating that the differences among persons are more varied than the differences among states.

Model 2 adds state-level variables. Three of the six variables have a statistically significant relationship with the likelihood of economic disconnection. State TANF benefit is negatively associated with the likelihood of disconnection; for each additional dollar of a monthly benefit, economic disconnection is less than 1 percent less likely. Although the effect size is seemingly small, the standard deviation of average benefit levels in table 1 is over $160. Changes in benefit amounts are likely much greater than $1. The results indicate that a change of $100 would likely lead to a decrease of approximately 10 percent in the likelihood of disconnection. The other two variables with a statistically significant coefficient are measures of the time limit rule. First, those residing in a state with a lifetime limit less than the federally recommended 60 months are 1.45 times more likely to be economically disconnected as those who are not. Second, those residing in states with a lifetime limit greater than 60 months or with no lifetime limit have an odds of disconnection that is less (0.84 odds ratio) than those in the comparison group, who reside in states with a 60-month limit. Neither measure of diversion, either a cash diversion program or an upfront job search, is statistically significant. The Flexibility Index is also not related to economic disconnection.

Finally, model 3 is the full model and includes individual-level variables as controls. The results, found in column 3 of table 2, indicate that African American and Latina women are less likely to be disconnected than white women. Maternal age and number of children are negatively related to the likelihood of disconnection, although the coefficient for each additional year of age is arguably small. Other characteristics that reduce the likelihood of disconnection include never having been married and receiving other noncash public assistance. Having a work-limiting disability and being either a part-time or full-time student increases the likelihood of disconnection, as measured in this study. The two variables capturing household structure have the strongest relationship with the odds of disconnection, but in

opposite directions. Women living with related family members in the household are much less likely to be disconnected, while those residing with unrelated household members are much more likely to be disconnected. The inclusion of individual-level variables in model 3 reduces the among-person variance from models 1 and 2, but only by a small amount, indicating that a large portion of why particular women experience a spell of disconnection remains unexplained.

The addition of individual-level variables in model 3 has very little effect, as expected, on the covariates at the state level and on parameter estimates for panel year. At the state level, two of the six welfare rule variables are statistically significantly related to the likelihood of disconnection. Average benefit amount and shorter time limits continue to be significantly related to the likelihood of disconnection, as in model 2. The longer time limit variable is no longer statistically significant because of a larger standard error, but descriptively the estimated effect is similar. Time continues to have a large and statistically significant relationship with the likelihood of disconnection. The likelihood of disconnection for observations in the 2001 and 2004 panels remains similar to that in model 1. Specifically, those in the 2001 panel are almost twice as likely to be economically disconnected as those in the 1996 panel, and those in the 2004 panel are 2.32 times as likely to be disconnected. The random effects for the intercept at the state level is also statistically significant, indicating that the intercept of the estimated model varies by state and that some variation at the state level is unexplained by the full model.

## MULTINOMIAL LOGIT FINDINGS: TANF RECEIPT VERSUS EMPLOYMENT

Table 4 presents results of a multinomial logit model where the dependent variable of disconnection is coded with three values, disconnection, public cash assistance receipt (with or without some earned income), and employment. Outcomes using the full sample as well as the subsample of women who live alone are included.[3] Due to the difficulty of using a model that does

3. Models with both the full sample and the subsample were completed with additional macro-level controls using the restricted-use files. The additional variables include the unemployment rate, percent of nonwhite individuals, percent of female-headed households, percent of households on public assistance, percent of housing that is vacant, and median

**TABLE 4.** Multinomial Logit Regression Models of Disconnection, Relative Risk Ratios

| | Base Outcome = Disconnection | | | |
|---|---|---|---|---|
| | Full Sample | | Lives Alone Subsample | |
| | Public Cash Assistance Receipt | Employed | Public Cash Assistance Receipt | Employed |
| Individual-level controls | Yes | Yes | Yes | Yes |
| Panel (reference category = 1996): | | | | |
| 2001 | .47*** | .72*** | .47*** | .75*** |
| | (.02) | (.03) | (.02) | (.04) |
| 2004 | .39*** | .74*** | .41*** | .81*** |
| | (.02) | (.03) | (.02) | (.04) |
| Wave | .97*** | .98*** | .97*** | .99 |
| | (.005) | (.005) | (.01) | (.005) |
| State-level variables: | | | | |
| Maximum TANF benefit amount for a family of three | 1.002*** | 1.00 | 1.002*** | 1.00 |
| | (.0001) | (.0001) | (.0001) | (.0001) |
| Flexibilty Index (0–12) | 1.01 | 1.00 | 1.01 | 1.00 |
| | (.007) | (.0007) | (.008) | (.008) |
| Diversion program exists | .89*** | .99 | .80*** | .95 |
| | (.03) | (.03) | (.03) | (.04) |
| Upfront job search program exists | .99 | 1.00 | 1.01 | 1.07 |
| | (.03) | (.03) | (.04) | (.04) |
| Time limit (Reference category = 60 months): | | | | |
| Less than 60 months | .69*** | .81*** | .71*** | .82*** |
| | (.03) | (.04) | (.04) | (.04) |
| More than 60 months or no limit | 1.10 | .92 | 1.14 | .96 |
| | (.05) | (.04) | (.06) | (.05) |
| Intercept | .17*** | 3.57*** | .17*** | 4.28*** |
| | (.02) | (.40) | (.02) | (.57) |

Note.—Full sample $N = 56{,}679$; lives alone sample $N = 39{,}496$. Robust standard errors are in parentheses.

*** $p < .001$.

not account for the hierarchical nature of the data, statistical significance is defined as $\alpha < .001$. The first column contains the relative risk ratio of receiving public cash assistance as opposed to being disconnected. Three of the six state-level rules variables are found to have a statistically significant relationship with the likelihood of receipt compared to economic disconnection.

household income on the county level; and the state earned income tax credit (EITC) rate, minimum wage, average SNAP benefit for a three-person family, gross state project, and total average SSI benefit on the state level. Results are very similar to those presented. For sake of brevity and parsimony, we do not include the full results. Also, we were unable to run a four-level model in STATA, and thus we are unable to present complementary results for our multilevel model.

Echoing the results of the multilevel model, the TANF benefit amount is positively related to the odds of public cash assistance receipt, whereas time limits of less than 60 months are associated with a decrease in the odds of receipt. The third variable with a significant estimated effect is the existence of a diversion program. Women who reside in a state with a formal cash diversion program have a reduced likelihood (0.89 relative risk ratio) of public assistance receipt. Examining the results for employment versus disconnection, presented in column 2, only the time limit variable of less than 60 months has a statistically significantly relationship. Specifically, residing in a state with a short time limit decreases the likelihood (0.81 relative risk ratio) of being employed in comparison to disconnection.

Results for the subsample of women who live only with their children and no other adults are presented in the last two columns and are similar to the results for the full sample. Because the majority of the full sample comprises women who live only with their children, we would expect the results to be similar. The same three state-level variables are statistically significant, and the relative risk ratios are very similar in size and direction. The estimated effect of a diversion program is the one exception; the association of this variable with the likelihood of disconnection is greater for the only-adult subsample. Specifically, the relative risk ratio is 0.80 for the subsample of women living only with their children and 0.89 in the full sample, suggesting that a diversion program may increase the likelihood of disconnection, especially among women living alone with their children.

## SENSITIVITY ANALYSES USING PUBLIC-USE DATA

Using the public-use SIPP files, we completed additional analyses to conduct sensitivity tests of some of our key results.[4] Results must be interpreted with caution since the data sets differ in two aspects. First, our analytical data set created from the public-use SIPP files does not include individuals from Wyoming, North Dakota, South Dakota, Vermont, and Maine, and thus those states' rules are not considered. Second, the restricted-use data used in the original models contain confidential-level variables and may differ slightly from the cleaned, public-use versions of the same variables. Replicating the full model included in table 4 with the public-use data set resulted in slightly different estimates. Notably, the Flexibility Index has a small

4. We were unable to access the protected data for these sensitivity analyses.

statistically significant positive relationship with the likelihood of both public cash assistance receipt and employment when compared to being disconnected.

The results of sensitivity tests of the model with household income instead of family income as the disconnection measure were also similar in terms of the magnitude, direction, and statistical significance of all of the state TANF rule variables with one exception. The Flexibility Index is again significantly associated with an increase in the likelihood of both public cash assistance receipt and employment when compared to disconnection. However, given that this result held true only in the public-use data set but for both the household and the original family income measures of disconnection, it appears that the significance of the Flexibility Index may be due more to differences in the public-use versus restricted-use data sets rather than to differences in how disconnection is defined.

Using the public-use SIPP files, we also completed a sensitivity analysis using a sample that excluded students, and again the results are similar with two exceptions. First, the short time limit variable is more strongly associated with the relative risk ratio than it is in the full sample, dropping to 0.60. Second, the Flexibility Index is again statistically significant, increasing the risk of public cash assistance receipt in comparison to disconnection, but, as in the prior analyses, the index is not significantly related to employment. Finally, we estimated our models adjusting state TANF benefits for inflation using the Consumer Price Index, and estimates remained similar.

## DISCUSSION AND POLICY IMPLICATIONS

As the TANF program reaches its twentieth anniversary, research on its ability to provide a safety net for low-income families is needed to inform policy discussions on the future of the program. It is possible that, while the new program rules have benefited some groups, they have left others without consistent sources of stable cash support. These findings add to our understanding of the circumstances of one at-risk group: potentially TANF-eligible disconnected single mothers and their children. By investigating low-income mothers' disconnection status between April 1996 and January 2007, our study takes advantage of variation in rules over time and place to examine the possible influence of residing in a state with different welfare rules.

Results on individual-level risk factors add to the body of literature on demographic and family characteristics of disconnected mothers. Our multilevel model results indicate that younger women, whites, students, and those with work-limiting disabilities are more likely to be economically disconnected, controlling for other risk factors. Our findings related to race differ from previous studies and may be related to our sample specifications, including the exclusion of married women and the inclusion of students. The relatively strong association between having a disability and the odds of disconnection merits particular attention and suggests that, for those with disabilities that are not temporary, access to SSDI might be a viable source of support. Similarly, student status may be a unique situation and merits further research. State rules regarding TANF eligibility and higher education are complex, and the question of student loans and future debt makes education assistance qualitatively different from other sources of earned and unearned income. Whether students, even if poor, should be considered disconnected is an important conceptual question as well. Receiving other types of public noncash assistance, having never been married, and having more children all decrease the risk of disconnection. These factors are arguably related to the likelihood of interactions with other public social service entities because having additional children is often related to eligibility and increased access to public benefits through schools and health care providers. Our analysis does not consider material hardships, but the strict income restriction limits our sample of disconnected women to those with zero cash income except for possible help from student loans or grants and unrelated household members.

Findings on household structure indicate complex relationships and the need for future research. Most low-income single mothers, both connected and disconnected, live alone. Among the minority who do live with other individuals, disconnected women are more likely to live with unrelated individuals. This is partially a reflection of our definition of disconnection, which is based on family income and not household income. According to the SIPP, family income excludes income of unrelated individuals and includes income of related individuals. Our focus on potentially TANF-eligible families led to the decision to include cohabitating families while also excluding partners' income. Further investigation into interaction effects between household structure and state rules is an important next step, since it seems logical that TANF rules may facilitate some families' access

while inhibiting the access of others, depending on the number of adults in the household and their relationship to one another. Although our findings do not provide definitive answers to the dynamics of household structure, including controls for variables measuring the presence of other adults in the household strengthens the robustness of other estimates. Other variables, including state TANF rule variables, are statistically significantly associated with the risk of disconnection even while holding household structure constant.

The results regarding the state-level variables are central to our research question. Three TANF rules are significantly related to the likelihood of disconnection. We estimated that women in states with lifetime limits of less than 60 months would be more likely to be disconnected compared to those who were receiving TANF or were employed, and the estimated effect is stronger when we take students out of the sample. The strong association we find between residing in a state with lower time limits and disconnection is our most notable finding. As state time limits are perhaps the most easily communicated and understood rules, this finding is not surprising. Although it is likely that some women become disconnected in states with stricter time limits because they time out and are no longer eligible for TANF receipt, the message of strict time limits may simultaneously function as a diversion message. Although the obvious result of changing time limit rules would be that current recipients could remain on TANF longer, the change may simultaneously benefit currently disconnected women by allowing them to feel comfortable applying for TANF benefits without worrying that they would not be able to take advantage of them again in a future time of need. Strict time limits may be indicative of the administration of TANF in states that adopted short time limits and thus also of caseworkers' approach to working with recipients as well as recipients' views and reactions. Finally, although we did not directly examine it, this finding implies that shorter time limits are not associated with positive employment outcomes among low-income mothers and suggests the need for additional research on this question since one goal of TANF is to move recipients into work.

The other two state TANF variables with statistically significant relationships to the likelihood of disconnection are TANF benefit amounts and formal cash diversion programs. More generous welfare benefits are associated with a lesser risk of disconnection in comparison to TANF receipt, but they are not significant in comparison to employment. The generosity of TANF benefits may be related to decisions to apply for assistance. In contrast

to benefit amounts, residing in a state with a formal cash diversion program is associated with a greater risk of disconnection compared to welfare receipt, indicating that diversion programs may be increasing economic disconnection. The finding is even stronger for disconnected women living with only their children. The diversion program variable is not significantly related to the likelihood of employment in comparison to disconnection, suggesting that the program is discouraging TANF receipt without effectively supporting work. This finding supports both previous studies and the great need for additional research on effects of diversion programs.

The consistent and strong estimated effect of panel year and wave and the mixed results for the estimated effect of the Flexibility Index also merit attention. The increasingly greater likelihood of disconnection in the 2001 and then 2004 panels, over and above the effect of policy variables, is troubling because it indicates that our understanding of the influences on the growth of this vulnerable group remains incomplete. Based on trend analyses and past studies, our panel finding is not surprising. The mixed effect of the Flexibility Index was surprising based on our investigations with the public-use files and was also contrary to our hypothesis. Using the restricted-use files and data from all states, the estimated effect of Flexibility Index is not significantly above zero. In our sensitivity analysis with the public-use files, however, the Flexibility Index functions similarly to more generous benefit levels and lifetime limits, decreasing the likelihood of economic disconnection. These results suggest that flexibility in state TANF rules may decrease the odds of disconnection, specifically when taking into account financial support from other household members and narrowing to mothers who are not in school and thus may choose to secure neither employment nor public cash assistance.

The time-related panel and wave findings and the mixed estimates of the effect of the Flexibility Index lead us to conclude that a more in-depth analysis of the question of policy implementation and timing is needed. The effect of time, independent of measured policy changes, suggests an incomplete understanding of policy effects. Additionally, descriptive statistics on the changes in the Flexibility Index over time show that, in comparison to diversion and time limit policies, variation was greater in later years. Perhaps frequent changes in rules compromise their effects on caseload changes. Year-fixed effects or lagged variables could add information on how long it takes for policy changes to be communicated and understood on the frontlines. It is also possible that our identified policy effects are

functioning as proxies for other TANF agency characteristics. Our additional county- and state-level controls completed for the multilevel analyses add to our confidence that the TANF rules variables are capturing TANF agency effects, but more precise measurement of state and county TANF rules may aid in pinpointing other TANF policy influences on disconnection, such as rules, amount of devolution, or agency culture.

Data-related limitations also provide directions for future research. Although the SIPP and the WRD present many advantages and are in some aspects ideal for examining these research questions, the data present two main difficulties. First, the use of monthly data from the SIPP for analytical purposes is limited due to the seam bias of the survey. Thus, the present analyses were limited to data reported in the fourth reference month and could overcount the extent of disconnection by including some very temporary spells. Second, the WRD contains state welfare rules only with limited information on county variation. Our models are thus limited to the effect of state welfare rules even though county variation may be present.

Future research on disconnection and macro-level influences should build on our findings, addressing study limitations and expanding the scope of knowledge. It would be useful to replicate analyses with different definitions of disconnection and different measures of state welfare rules and related state characteristics. We define disconnection as having zero employment and public assistance income, but individuals who earn a very small amount of cash are arguably also vulnerable. Conversely, we did not restrict noncash benefits in our definition of disconnection. The Supplemental Nutrition Assistance Program (SNAP) is a relatively generous benefit, and receipt of it would signal connection to the public assistance system. Our inclusion of women connected to non-TANF cash benefits such as SSDI and veterans' assistance means that our results may underestimate the effect of state TANF rules; we would not expect that state TANF rules would affect access to these other assistance programs. Research on different experiences of disconnection may add to our understanding of policy effects. Further sensitivity analyses using different sample restrictions, such as mothers with limited education, may serve to refine the state of knowledge. Investigations into subgroups such as students and cohabitating adults, as discussed earlier, might identify unique effects for these groups. Restricting the analytical sample by excluding such households would also be helpful. Finally, the current models may serve as a foundation for more local-level analyses. Because many states allow county departments to

determine certain aspects of welfare implementation and economic indicators can vary greatly within state borders, analyses on a more local level are important. Information on frontline practices and level of discretion could also be measured and included.

The policy questions posed in this article are complex, and future research should consider both existing programs and rules, including time limits, benefit levels, and diversion policies, as well as missing ones. The recent growth in economic disconnection among low-income single mothers may be due to an absence of programs rather than to the characteristics of existing ones. Regardless of the direction future policy makers choose, it seems most likely that decisions of how to address the needs of low-income families will remain largely in the hands of the states and other localities. Based on our research, a policy discussion on TANF time limits may be a good starting point.

## NOTE

**Andrea Hetling** received her PhD from the University of Maryland, College Park, and is an associate professor at the Bloustein School of Planning and Public Policy at Rutgers University–New Brunswick. Andrea's research focuses on the effect of US social welfare policies on the economic well-being of vulnerable populations, including survivors of intimate partner violence. She is a research academy member of the National Association of Welfare and Research Statistics and a research affiliate of the National Poverty Center.

**Jinwoo Kwon** received her masters degree in regional planning at Cornell University and is currently a PhD candidate at the Bloustein School of Planning and Public Policy at Rutgers University–New Brunswick. Jinwoo is interested in urban and regional economics, growth theories, and US employment policies. Her dissertation examines the resilience of US metropolitan areas under economic fluctuations and the effect of regional attributes on the level of resilience.

**Correne Saunders** holds a PhD from the University of Maryland, Baltimore County, and is an associate researcher with Abt Associates, Inc. Correne's work focuses on program monitoring and evaluation of state welfare, child support, and unemployment programs using administrative and survey data.

This research used restricted-use microdata from the US Census Bureau, analyzed at the New York Census Research Data Center at Baruch College, a secure laboratory operated in partnership with the US Census Bureau's Center for Economic Studies. Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the US Census Bureau. All results have been reviewed to ensure that no confidential information is disclosed. The project was supported in part by grants from the Fahs-Beck Fund for Research and Experimentation in the New York Community Trust and the Rutgers University Faculty Council.

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