Marriage among Welfare Recipients:
Relationship Commitment Interacts with Welfare Policy*

Deborah Roempke Graefe
Population Research Institute
Pennsylvania State University

Shelley K. Irving
Department of Sociology and
Population Research Institute
Pennsylvania State University

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Despite early concerns that post-1996 time- and work-behavior-limited eligibility for welfare assistance would "push" poor women into marriages with ill-suited partners, past research provides little support that such unions resulted. This study expands that work using data for over 4,000 unmarried welfare-recipient women from the 1996-1999 and 2001-2003 Panels of the Survey of Income and Program Participation (SIPP), merged with state level welfare policy and economic data, by examining the roles of specific state welfare policies in transitions to marriage and by comparing their effects for cohabiting and other welfare-recipient women. Our carefully focused study shows that the economic exigency of lost public assistance alone does not "push" welfare-recipient women into marriage, but that stringent time limits do encourage them to marry if they have a cohabiting partner.

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Past theoretical and empirical evidence that higher welfare benefits permitted

disadvantaged single mothers to forego marriage seems to imply a corresponding reverse logic –

that limiting access to welfare could encourage poor mothers to marry. Yet no research to date

supports the notion that the new time- and work-behavior-limited eligibility for welfare

assistance has influenced marital behavior (Grogger and Karoly 2005; Blank 2002, 2007).

Past studies generally have attempted to account for the potential for reform to motivate

marriage both as an alternative to welfare entrance and in connection with exits from welfare

(i.e., focusing on all potentially welfare-eligible plus welfare-recipient women) and mostly have

looked for an effect of welfare reform overall. Failure to find effects fuels an argument that

demographic behaviors such as marriage cannot be coerced in the absence of a committed

relationship, which first requires a partner worthy of commitment. Indeed, ethnographic

research indicates that only when partners are considered trustworthy, financially responsible,

and reliable do disadvantaged single mothers believe them to be good marriage material (Edin

2000; Edin and Kefalas 2005; Gibson-Davis, Edin, and McLanahan 2005).   This point suggests

that welfare policies will influence marriage only among those closest to the margins of marriage

(e.g., those in a cohabiting union). Similarly, punitive welfare policies may be most likely to

influence the behaviors of women closest to the margins of losing benefits – women who already

receive welfare assistance.   In short, past studies may have looked for effects in too broad a

population.

An additional critique of the welfare reform and marriage literature notes that reform's

new welfare rules are diverse (Maynard et al. 1999), ranging from economic incentives to

eliminate past penalties for becoming married while receiving welfare, such as increased

leniency regarding two-parent family eligibility; to sanctions and time limits that may motivate marriage among women who lose their benefits; to work-related policies than may increase the economic independence of women and thus work against the other marriage-motivating rules. For example, relatively high benefits in a state may discourage marriage for some women while the state's lenient policies toward two-parent family participation may encourage marriage for others, particularly for women already in a committed romantic relationship. A diversity of policies with potentially competing influences on marriage may cancel out any effects on marital behavior, yielding a null effect of welfare reform as a whole.

Using the 1996-1999 and 2001-2003 Panels of the Survey of Income and Program Participation (SIPP) and discrete-time event history models, we extend the previous research on welfare and the transition to marriage by examining the role of specific state welfare policies that have potential to encourage marriage and by comparing their effects for cohabiting and other unmarried welfare-recipient women. These models control for annual state-level female unemployment rates, state earned income tax credits (EITC), and state fixed effects, which provide alternate contextual explanations for economically motivated behavior. Personal demographic, employment, and human capital characteristics and a potential partner's expected income (based on two-stage regression imputation) are included as individual-level correlates of marital behavior. Data for 4,018 unmarried SIPP women aged 18 to 64 who reported welfare participation are merged with state-level data from the Bureau of Labor Statistics, the State EITC Online Resource Center, and the Urban Institute's Welfare Rules Database to answer two research questions:

1.   Do specific aspects of welfare reform, such as stringent time limits or lenient two-parent family eligibility criteria, influence the marital behaviors of unmarried welfare-recipient women?

2.   Are the marriage behavior influences of welfare reform confined to women who are engaged in relationships that indicate some degree of relationship commitment (identified in our data as non-marital cohabitations)?

BACKGROUND

The promotion of two-parent married families became an explicit public policy goal with the passage of the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA). Early critics of welfare reform feared that, rather than promoting healthy unions, stringent welfare rules could "push" poor women into unhealthy marriages (Coltrane 2001; Lichter and Jayakody 2002). This concern arose despite the ambiguous findings, and substantively small effects, across pre-PRWORA studies of welfare's potential to impede marital transitions (see Moffitt 1998 for a review of pre-PRWORA research).

Welfare benefits have a long been studied as an alternative to marriage among poor women, where welfare income is thought to increase the utility of the unmarried state while also reducing the costs of single parenting (Bitler et al. 2004). Moffitt (1998) explains this perspective straightforwardly: Welfare benefits provide insurance against a lack or loss of financial resources that result when women form families without the male economic support expected from marriage or when they leave a marriage.   Just as having insurance often increases willingness to take risks that may ultimately result in the event that is insured against, availability of public assistance may increase risky behaviors leading to single motherhood, such as unwed childbearing and divorce. From this perspective, higher dollar benefits are expected to promote single motherhood. Lower dollar benefits or, in the case of post-reform welfare rules, stringent eligibility criteria should do the opposite.

The other side of this perspective is that marriage presumably reduces welfare dependency among single mothers. For one thing, marriage may increase family income above welfare eligibility thresholds. But also, welfare recipients who marry traditionally have forfeited eligibility because they cannot easily demonstrate the stringent employment histories required for married couple participation. Thus, for policy makers aiming to reduce welfare caseloads, increasing marriages among poor single mothers offers a solution to welfare dependency that might be achieved through welfare policy "carrots" that make it easier to marry while receiving welfare assistance or "sticks" that eliminate the insurance provided by welfare benefits.

Post-reform extended eligibility for two-parent families has potential to encourage marriage by sending the message that both work and marriage are valued by society (Maynard et al. 1998). Even though caseload reductions would not be expected in the short term, marriage behavior would be rewarded by extending welfare benefits to needy couple-headed families. In particular, eliminating the "100-hour rule" has permitted income-eligible families with at least one employed head to work more hours and still qualify for benefits. Other aspects of two-parent eligibility policy which have been relaxed by some states are the requirement that at least one family head be able to demonstrate a connection to the labor force, thus permitting discouraged-worker parents to qualify, and the required waiting period between the last date of employment and the beginning of benefit receipt in cases where one of the parents has lost employment. Waivers to extend benefits to couple-headed families began when Alabama eliminated the 100-hour and work history rules in 1990. By August 1996, just prior to PRWORA's enactment, 25 states had implemented at least one of these changes statewide (Maynard et al. 1998). Although the majority of states had become more lenient toward two-parent family eligibility by 2003, variability in these policies is evident across states and time. Nevertheless, previous research has not evaluated whether this set of policies increased marriage

among poor women, particularly poor single mothers already living with a potential marital partner.

In addition, policy rewards for appropriate work-related behaviors also may encourage marriage, although indirectly. Women who successfully transition from welfare to work gain some degree of financial independence, possibly a strengthened sense of self, and exposure to more potential partners – employed men in the workplace (Gassman-Pines and Yoshikawa 2006; Harknett and Gennetian, 2003). If greater financial stability increases a woman's interest in marriage, as suggested by ethnographic studies of poor and cohabiting women (Edin and Kefalas 2005; Smock, Manning, and Porter 2005), then policies that require more hours of employment or that permit working TANF recipients to disregard larger portions of their earnings from income eligibility tests – and thus increase family income somewhat (Grogger and Karoly 2005) – may indirectly influence a woman's willingness to marry. However, such work-behavior policies also may restrict marriage behavior by providing mothers with an alternative to both welfare and marriage. Increased earnings may have an "independence effect" (Oppenheimer and Lew 1995) that permits single mothers to focus their efforts on child rearing, described by Edin and Kefalas (2005) as putting "motherhood before marriage." In addition, working mothers experience time and energy constraints that are likely to impede the marital search process. Research findings of reduced rates of marriage in the years after PRWORA support such interpretations (Kaestner, Korenman, and O'Neill 2003).

Of course, other state characteristics with similar expected effects on marriage may coincide with such policies, necessitating a strategy to differentiate these competing effects. In particular, state Earned Income Tax Credits also increase income for poor families, potentially providing the added economic security they seek before cementing a relationship through marriage. While this incentive is available only to working welfare mothers and to their partners

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if they are employed, it does help low-wage work "pay" and has been called the most successful policy for raising families with children out of poverty (Greenstein 2005). Nevertheless, past studies find no evidence that this program influences marital behaviors, presumably because some couples would experience an EITC marriage penalty and others, a marriage bonus (Ellwood 2000; Dickert-Conlin and Houser 2002).

Declines in the labor market prospects and earnings of low-skill men appear to have contributed to declining marriage rates, increasing divorce, and rising nonmarital fertility (Lichter, McLaughlin, and Ribar 2002; Burstein 2007). However, better economies with more job opportunities also may increase the propensity for disadvantaged single mothers to marry through increases in both her income and that of her potential partner, particularly in states with stringent welfare requirements. Yet states with better economies may have more generous welfare policies – offsetting any positive influence of economic opportunities. While the expected directions of such effects are thus unclear, it is imperative that the influences of welfare policies be estimated net the contributions of such factors.

Policy "sticks" that may influence marital behaviors among TANF recipients are rules designed to limit their welfare eligibility. Based upon an economic or utility-maximizing model of marriage, losing the "insurance" of welfare benefits is expected to improve the appeal of a marital union when the net benefits of marriage are greater than those of remaining single (Becker 1991), especially presupposing an existing relationship with a potential marital partner,. Time limits in particular may serve a "sticks" function by completely eliminating welfare as a source of family income once recipients exceed their state's legislated maximum duration of welfare participation. While some states permit time limit exemptions under extenuating circumstances, other states simply cut-off TANF receipt after five years.

Another policy "stick" is strict sanctioning for failure to fulfill work-related activities requirements. Loss of benefits for failure to maintain a TANF-required level of work-related effort suggests the woman may be unable to care for her family through her own employment or through the insurance of welfare. If such women already live with a romantic partner, the benefits of marrying him may then outweigh the returns to remaining a single mother.

As we have noted, prior studies tend to focus on welfare reform generally rather than on the specific aspects of policy that may have the most impact on marriage behavior, and most have been based on state waiver data or program evaluations from the early to mid-1990s (Acs and Nelson 2004; Bitler et al. 2004; Fitzgerald and Ribar 2004; Gennetian and Knox 2004; Harknett and Gennetian 2003). These studies also tend to focus on all poor women or welfare recipients and thus fail to consider indicators of prior commitment to a relationship which might condition the influences of welfare rules on marriage behavior.

Cohabitation is an indicator of relationship commitment used in the current study to examine specific state welfare policy effects on marriage. Although clearly not all cohabitors wish to, expect to, or will marry their partners (e.g., Bumpass et al. 1991; Manning and Smock 1995; Brown and Booth 1996; Smock and Manning 1997; Booth 2002; Lichter, Batson, and Brown 2004; Edin and Kefalas 2005), marriage may be preferred over cohabitation in cases where women face the loss of welfare support because marriage legally ensures access to a partner's economic resources (Guzzo 2006). Thus cohabiting women – women who already having a partner with whom they have been willing to share a residence and child rearing responsibilities – may respond to welfare reform's policy carrots and sticks more than other women.

METHODS

Data

      This study uses data from the 1996-99 and 2001-03 Panels of the Survey of Income and Program Participation (SIPP) in a research design that takes advantage in the natural variation in welfare rules stringency across the states in which respondents reside. These national, longitudinal data provide monthly information on labor force participation, government program participation, marital status, living arrangements, and personal and family characteristics that are needed to study the predictors of transitions to marriage. This nationally representative survey was based on a multistage, clustered sampling design that over-sampled high-poverty areas. All individuals 15 years of age or older in the household were interviewed every four months and asked to report their activities for each month within that four-month period for a total of forty-eight months in the 1996-99 Panel and thirty-six months in the 2001-03 Panel. The Census Bureau provides weights for producing nationally representative estimates.

      While the SIPP is ideal for studying union status transitions on a monthly basis, a potential limitation is that the SIPP panels provide small windows of observation compared with other datasets such as the Panel Study of Income Dynamics. Nonetheless, the three to four years of longitudinal data from these panels capture many transitions to marriage, and a shorter time frame is preferred for determining these program effects. Furthermore, since new samples are drawn for each SIPP panel, these data are representative of the U.S. population at the start of each panel.

      State-level data comes from three sources. First, the Urban Institute's Welfare Rules Database (WRD) provides longitudinal data on a variety of TANF policies for all states and the District of Columbia. Second, data from the Bureau of Labor Statistics are used to control for the effects of state economic indicators on transitions from TANF. The Local Area Unemployment Statistics (LAUS) provides annual female unemployment rates in each state.

Finally, the study includes an indicator of whether the state had its own Earned Income Tax Credit (EITC) using information on state EITC enactment dates available from the State EITC Online Resource Center.

Study Sample

Female survey respondents between the ages of 18 and 64 from the 1996-1999 and 2001-2003 SIPP Panels are pooled for our analysis if they concurrently receive TANF and are unmarried in any month of observation. Of course, poor women who are not receiving TANF may also weigh welfare and marriage as alternatives, and thus may choose marriage rather than TANF in a context of stringent welfare policies. If so, just as post-welfare reform recipients have been characterized as "hard to serve" – meaning they have the greatest barriers to work and self-sufficiency (Moffitt 2002) – our study sample may represent women with the greatest barriers to marriage (Kaestner, Korenman, and O'Neill 2003; Graefe and Lichter 2008). On the one hand, women who already have made the choice to rely on TANF may be those most difficult to sway toward marriage for this reason. In this case, our results would underestimate the effects of welfare rules on marriage among all poor women. On the other, they may be the most easily swayed toward marriage because they face the loss of welfare as a safety net or because they are more familiar with welfare rules than non-recipients. In this case, recipient women are the appropriate group to study.

We observe these respondents in our study sample, based on person-month data, until they marry, leave the sample through attrition, or reach the end of the survey panel. Months in which a study sample member resides in Maine, Vermont, North Dakota, South Dakota, or Wyoming are excluded from the analysis since SIPP aggregates respondents living in these states to avoid confidentially concerns resulting from their small numbers. State-level data cannot be merged to respondent records in this case.

The study sample includes 4,018 women, 68 percent (2,747) of whom come from the 1996-1999 SIPP Panel and 7.57 percent (304) of whom became married during the study observation period. All other respondents contribute person-months to the analysis until they exit the sample through attrition (37.58 percent) or until the end of the survey panel (54.85 percent). Collectively, sample respondents contribute 99,390 person-months to the analysis.

Variables

The dependent variable is respondents' marital/attrition status in the following month. Respondents may (1) remain unmarried, (2) become married, or (3) leave the sample through attrition. Due to a high level of attrition from the sample, attrition is modeled as a separate category in the multinomial logistic regression analysis to reduce bias in the estimates of marriage compared with remaining unmarried, as we discuss in more detail below. For respondents who left the SIPP sample but later returned, values are imputed for the missing months based on her responses in the months both immediately before her exit and after her return to the sample. This strategy centers any change in status or characteristics within the missing months, and a dummy variable is included in the analysis to control for respondents with this type of imputed data.

A primary independent variable is the woman's non-marital cohabitation status, which is measured as a time-varying dummy indicator that the respondent lives with a male romantic partner. Although cohabitation is not always a precursor to marriage (e.g., Graefe and Lichter 1999; Brown 2002; Sassler and McNally 2003), and in the absence of information regarding the woman's preferences and expectations for marriage, we assume that cohabiting women have a higher level of relationship commitment than women who are not living with their romantic partner. If cohabitation indicates greater relationship commitment, any welfare policy "push"

toward marriage should be more effectively felt by cohabiting couples than women without a co-resident partner.

Five current-year, time-varying state TANF rules are included in the analysis to determine whether they influence the decision to marry among current and recent welfare recipients. Each of these policy variables was created based upon textual items from the Urban Institute's Welfare Rules Database. The state "lenient two-parent eligibility" policy indicator is a factor-based score derived using factor analytic techniques to summarize stringency on three rules pertaining to married-couple participants in TANF: 1) the maximum hours of prior employment required ("Hundred-Hour Rule"), 2) whether proof of employment is required, and 3) the unemployment duration required before participation. Only one factor is represented by these three items, with an eigenvalue of 2.5 and $\alpha = 0.91$. These standardized values are coded so that high values reflect more lenient two-parent family eligibility rules; in other words, two-parent families are more likely to be eligible to receive TANF in lenient states. Women who receive TANF may be reluctant to marry in states that preclude their TANF participation as a married couple; conversely, where two-parent families more easily qualify for welfare benefits, TANF-recipient women may be encouraged to marry their partners, particularly those already sharing a home.

"Stringent sanctions" is included as a dummy variable equal to 1 in states that impose ineligibility for a specific period of time, until compliance, or for life due to noncompliance with work requirements; it equals 0 in states that impose only a partial loss of benefits. Women who lose benefits due to sanctions may be more likely to view marriage as survival strategy for their families, especially if they are already in a somewhat committed relationship.

"Stringent work activities requirements" is a summary score of each state's activities requirements rules. Each rule is coded as 2 if only work or only school activities are allowed, 1

if work and school activities are allowed, and 0 if a wide variety of activities is allowed or if the state has no activities requirement. Higher values indicate higher stringency in that fewer activities can count towards fulfilling work requirements. "Stringent time limits" is a dummy variable equal to 1 in states that do not allow time limit extensions and 0 in states that do not employ time limits or implement extensions based on specific rules or on a case-by-case basis. Women who are in somewhat committed relationships may view marriage as a means to ensure economic resources if they face stringent work-related requirements to maintain TANF eligibility or if their time-limited TANF eligibility runs out.

"Stringent earned income disregards" measures the maximum amount of income that a family of four can disregard over a 2-year period of time. Values were standardized and converted to a dummy variable equal to 1 in states with scores less than zero (more stringent policy where recipients lose upwards of $1 in welfare for every $1 of earnings); 0 in states with scores greater than zero (more lenient policy where recipients lose only a fraction of $1 for every $1 of earnings). On the one hand, where TANF recipient women are able to keep a larger portion of their welfare benefit, we do not necessarily expect them to seek marriage as an alternative to work and welfare. On the other hand, where TANF recipient women lose a larger share of their welfare benefit per income earned, economic strains from the benefit loss plus the costs of working (e.g., child care, transportation, and wardrobe expenses) may increase the attractiveness of marriage as an alternative to work and welfare, particularly for a woman already living with a partner.

Similarly, the value of the welfare benefit has long been argued as influential in the marital decisions of poor women. The "maximum benefit level" is calculated as the maximum dollar benefit that a family of four with no reported income is eligible to receive each month, and

values are standardized. Higher values reflect more generous benefit levels, which historically have been theorized to reduce transitions to marriage.

Additional current-year, time-varying state characteristics included in the analysis as control variables measure the presence of a state Earned Income Tax Credit (EITC) and employment opportunities for women. The state EITC measure, coded as a 1 if the state has implemented its own EITC program and as a 0 if no such program is in place, represents additional state policy that may encourage marriage by permitting a couple to keep more of their earned income, or may impede marriage by permitting the poor woman to support themselves more effectively. Importantly, this variable refers to the implementation of a state-level EITC, not the federal program. It is based on information from the State EITC Online Resource Center (available at www.stateeitc.com). The state's annual female unemployment rate in the state, expressed as a percentage, provides a measure of job opportunities available as an alternative to marriage. These data are from the Bureau of Labor Statistics, Local Area Unemployment Statistics (LAUS).

Several personal characteristics of respondents that may be related to the decision to marry or remain single are included in the analysis. Race is measured by a set of dummy variables (black, Hispanic, and other race), with "whites" serving as the reference category. The remaining personal characteristics are time-varying. The education variables specify whether the respondent has less than a high school degree or has some college experience. Those with a high school degree but no college experience serve as the reference category. The variables "low income" and "high income" indicate whether the respondent's family income (excluding income of a cohabiting partner) is less than or equal to one-half of the official poverty threshold or greater than two times the official poverty threshold, respectively. Those whose family income is between one-half and two times the poverty threshold (medium income) are the reference

group. "Number of children" refers to the number of a respondent's own children living with her. The analysis also controls for respondent's "age," both as a continuous main effect and as a squared term. Whereas inclusion in the sample is based on family TANF receipt, an indicator of respondents' "personal TANF receipt" is included as a control variable. The variable "disability status" indicates whether the respondent self-reported having a work-limiting disability in that month. We include measures of recent "work experience" and "welfare experience" as a count of the number of months the respondent has worked and a count of the number of months the respondent's family has received TANF, respectively, since the beginning of the survey panel, or since the start of a work or welfare episode in progress at the start of the survey panel. Longer work histories have a positive influence and shorter welfare histories, a minimal negative influence on transitions to marriage among TANF-recipient women (Graefe, Irving, and De Jong 2007).

The variable "expected partner's income" is included as a proxy for the appeal of a male partner. Those with higher incomes may be considered by TANF-recipient women as more marriageable because they bring greater economic resources to the relationship. This variable was created by, first, estimating the partner's monthly income as a function of respondents' race, educational attainment, monthly family income, age, number of children, and disability status, using data for women who had a cohabiting partner. This equation was then used to predict partner's expected income for all women in the study sample, based on her characteristics. For women whose partners' expected monthly incomes were negative values, the expected income was recoded as $0.

Several additional control variables are included in the analysis. To control for omitted variable bias in the effects of state policy characteristics, the analysis includes fixed effects for

states with large welfare populations and high levels of welfare caseload decline since 1997[1] (Zeigler 2004). Fixed effects for other states could not be accommodated because of small state-specific sample sizes, but controlling for states experiencing large caseload declines ensures that the unmeasured conditions in these states do not drive our results. A dummy variable indicating that the respondent participated in the 1996-1999 Panel controls for period effects. As noted above, a dummy variable indicating that the respondent has imputed data due to leaving and subsequently returning to the sample controls for differences that may exist between these respondents and those without imputed data. Lastly, the analysis includes a duration indicator, measured as a set of dummy variables indicating the number of months the respondent has been observed. Again, we begin following respondents from the month they are both unmarried and receiving TANF and continue to observe them as long as they remain unmarried, even if they no longer receive TANF[2].

Modeling Strategy

Since SIPP's cluster sampling design has serious implications for the estimation of standard errors, SUDAAN is used to estimate an appropriately weighted multinomial logistic model of the transition to marriage with robust standard errors. Our multinomial logistic regression model in a discrete-time event history modeling framework estimates monthly marital transitions using current-month (time t) life course events, individual characteristics, partner's expected income, state policy, and state economic context as predictors, where the dependent variable is the respondents' marital status at time $t+1$, assuming that the respondent was unmarried at time t. Respondents contribute person-months to the analysis from the first month

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[1] These states include Arizona, California, Florida, Georgia, Illinois, Indiana, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Texas, and Wisconsin.
[2] Separate analysis (not shown) used only months in which respondents were receiving TANF. Results were not noticeably different from those presented in this study.

that they were both unmarried and receiving TANF until they become married, leave the sample through attrition, or are right censored by the end of the survey.

Although binomial logistic analysis (i.e., respondent becomes married versus remains unmarried) is a potential analytic model, it would miss potentially important differences between recipients who remain unmarried, those who become married, and those who leave the study through attrition (Allison 1999). We assume that these transitions are distinct events that may be significantly influenced by different sets of independent variables. In other words, the variables that influence transitions to marriage may differ – in direction, magnitude, and significance – from those related with sample attrition. Of course, there are numerous potential reasons for respondents to leave the SIPP panel without returning, including the possibility that they did so because they married and moved from the SIPP primary sampling area. Because we cannot know the reason for the attrition, our solution is to model it as one of two possible states to which the unmarried woman can transition. Comparison of the results for this outcome with the marriage transition results imply that attrition bias is of little concern to our analysis (results are shown as odds ratios in Appendix Table A1).

We focus on three analytic models. The first model assesses the relationship of cohabitation with the transition to marriage, with controls for the effects of personal characteristics that are expected to be correlated with the likelihood of becoming married and the effect of a partner's expected income. The second model adds state-level characteristics to determine if state policy and state economic context affect transitions to marriage and whether these effects mediate the influence of our relationship commitment variable. The third model includes interaction terms between cohabitation status and each state policy that was found through preliminary modeling to be statistically significant. These preliminary models test interaction terms between cohabitation status and each state-level policy separately.

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Multinomial logistic regression is used to model each outcome category against the reference category, under the condition that respondents falling into one of these categories do not fall into either of the other two categories. We present the odds of becoming married versus remaining unmarried. Values greater than 1 are positive effects (increasing the likelihood of becoming married versus remaining unmarried), while values less than 1 are negative effects (decreasing the likelihood of becoming married versus remaining unmarried).

RESULTS

Descriptive Statistics

Table 1 shows percentage distributions or means and standard deviations for the key variables used in the analysis for person-months (column 1), as they are used in analysis; for persons in the study sample (column 2); and for persons who cohabited with a partner (last column). For person-based descriptive statistics, most measurements are for the last month during which the respondent was observed, although measurements for the outcome variable, cohabitation status, individual TANF receipt, and disability status indicate having ever experienced the state or event during the study.

[Table 1 about here]

Some important differences between the sample as a whole and cohabitors are worth noting. Cohabitors are more likely to become married, providing some assurance that cohabitation is an indicator of greater relationship commitment. These women are more likely to be white, have low family income, and have a work-limiting disability compared with the entire sample; they are less likely to be black and to have a high family income. Expected partner's income and months of recent TANF experience are lower among cohabitors than the sample as a whole. Cohabitors tend to live in states with more stringent two-parent eligibility rules, less

stringent sanction policy, and higher maximum benefit levels compared with the sample as a whole – all policies we expect to inhibit the transition to marriage.

Multivariate Model Results

Results from the analytical models (Table 2) reveal several key findings. First, the results confirm our hypothesis that greater relationship commitment – living with a romantic partner – increases the odds of marrying, net the effects of other life course events, partner's characteristics, personal characteristics, state policy, and state economic context. Across all models, cohabitors are more than twice as likely as non-cohabitors to marry (their odds are 2.4 times higher than for other women), net the effects of personal characteristics, work and welfare histories, and expected partner's economic contributions to the union.

Race/ethnicity clearly plays a role in the marital behaviors of this highly disadvantaged group of women. Controlling for human capital and economic resources, TANF-recipient women who are black or Hispanic have 71 percent and 58 percent lower odds, respectively, of becoming married compared with white recipients. Net the effect of race and ethnicity, however, better education is an important factor promoting marriage. Women with some college experience are almost 1.5 times more likely to marry than women with only a high school degree. In addition, women with longer work histories are more likely to transition to marriage. Each additional month of work increases the odds of marrying by about 2 percent. Furthermore, income brought to the union by a male partner appears to quite important.   Each $100 increase in expected partner's income increases the odds of marrying by almost two thirds (63 percent). Together these findings demonstrate the importance of establishing financial stability prior to marriage which has been voiced in qualitative studies of poor and cohabiting women (e.g., Edin and Kefalas 2005; Smock, Manning, and Porter 2005).

[Table 2 about here]

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A second important finding is that only one state welfare policy has a clear relationship with the transition to marriage. TANF recipients living in states with stringent time limits have 10 percent higher odds of marrying compared with women in a state that has no time limits or that permits time limit extensions. This finding is new evidence regarding the potential for loss of welfare assistance to encourage women to marry. While prior studies have not shown this relationship, most were conducted well before time limits would have become effective or do not differentiate between lenient-to-stringent time-limit states.

Table 3 shows the odds ratios and significance of the interactions between cohabitation and each state policy from our preliminary policy by relationship commitment modeling. These odds ratios reflect the effects for cohabiting women calculated by exponentiating the interaction term. That is, the odds ratios shown indicate the difference in the policy effect for cohabiting women relative to non-cohabiting women. Here we see that only for stringent time limits welfare policy and for state EITC tax policy are the effects different for cohabiting and non-cohabiting women.   No other welfare policy has a statistically significant association with marriage or influences cohabiting women differently, although many operate in theoretically supported directions. Exceptions are stringent sanctions for noncompliance with work-related eligibility requirements and lenient two-parent family TANF eligibility rules. Possibly the effects of these policies differ by race and ethnicity since marital behavior varies by these factors (in our models and in past research) and since recent research indicates that welfare receipt after marriage varies for white and minority women (Graefe and De Jong 2008).

Although there is no evidence that welfare policies other than stringent time limits influence marital behavior among TANF recipients, state EITC policy reduces the likelihood of a transition to marriage 30 percent for these women. The ability to keep more of their earnings may help disadvantaged women to avoid marriage to men they do not consider "marriageable."

Interestingly, however, the female unemployment rate has no statistical main or interaction effect in our models.

[Table 3 about here]

Model 3 of Table 2 adds the two significant policy-by-cohabitation interaction terms from Table 3 to the full model (model 2). Neither effect changes substantially by controlling for the other. On the one hand, cohabitors living in states with stringent time limits have 70 percent higher odds of marrying than non-cohabiting women living in the same states and 61 percent (0.95 x 1.69 = 1.606) higher odds of marrying than cohabiting women living in states with more lenient time limit policies. On the other hand, cohabitors living in states that have implemented an Earned Income Tax Credit have 30 percent lower odds of marrying than non-cohabitors living in the same states and 34 percent lower odds of marrying than cohabitors living in states without an EITC (i.e., the odds of marrying for cohabitors is multiplies by 0.96 x 0.69 = 0.66). This finding supports a female economic independence thesis, but without identifying the potentially competing influences of an EITC marriage bonus and marriage penalty, the full ramifications of the tax policy cannot be understood.

DISCUSSION

Our aim has been to determine 1) whether specific aspects of welfare reform influence the marital behaviors of welfare-recipient women and 2) whether these influences differ for cohabiting versus non-cohabiting welfare-recipient women. Welfare reform policies vary in how they potentially influence marriage – from making it possible for recipient women to marry without benefits loss, to improving their financial stability which in turn may increase their interest in becoming married, to reducing the availability of assistance and thus increasing the benefits of marriage relative to remaining single. Our results indicate that only the latter,

specifically, stringent time limit rules, is related to increases in marriage, and only for women who were already in somewhat committed relationships. Cohabiting welfare recipients are more likely than other poor welfare mothers to marry generally, and cohabitation moderates the influence of stringent time limits.

This finding, combined with null findings for policies that were expected to facilitate, rather than coerce, marriage implies that early critics were correct to expect the new welfare rules to create economic needs that would lead poor welfare mothers to marry, but not necessarily with "just any man." Many poor single mothers are uninterested in marrying, mostly because their potential partners are unreliable sources of support, both economic and emotional (Edin and Kefalas 2005). Our data cannot tell us whether the men whom these women married fulfilled their expectations with regard to reliability, trust and emotional support, but it is clear from our study, given the influence of expected partner's income, that a partner's financial contribution to the family is critical for transitions to marriage, with a role above and beyond that of any emotional commitment indicated by cohabitation. Nevertheless, the influence of being in a cohabiting relationship goes beyond the effects of the amount of money he brings to the relationship. Both appear to be necessary.

Policies that make it possible to receive welfare while married were expected to facilitate marriage, particularly for women in cohabiting unions, but the lack of evidence for this effect implies that the missing element here is the threat of increased economic need. Likewise, null effects for policies that increase work behaviors and take-home income reiterate this interpretation. The negative influence of state EITC policy on marriage for cohabiting couples support this reading also. Where poor unmarried women are able to keep a larger share of their earnings, poor cohabiting women are less likely to marry. These findings correspond well with ethnographic studies showing women's desire for economic independence as prerequisite to

marriage (Edin 2000; Edin and Kefalas 2005; Smock, Manning, and Porter 2005), and add to our understanding of why past studies of welfare reform as a whole showed little to no effect on marital behavior.

We acknowledge the possibility that policy effects in our study could be confounded (even suppressed) 1) by unmeasured marriage-associated stable characteristics (such as long-standing cultural or social norms) of the states for whom state-fixed effects could not be included due to small state-specific sample sizes or 2) by omitted time-varying characteristics simultaneously associated with welfare rules and marital behavior of poor women (such as specific marriage promotion programs). However, the slow pace at which most state welfare offices introduced specific marriage promotion initiatives that directly targeted female-headed families during our study observation period (Dion 2005), increases our confidence that such initiatives do not confound our results.

Marriage came to the public policy agenda with the initial passage of welfare reform and remains there today (Burstein 2007). Since 1996, public policy debates about marriage promotion have led to 2002's establishment of the "Healthy Marriage Initiative" in the Administration for Children and Families (Dion 2005) and 2006's PRWORA reauthorization funding for healthy marriage and responsible fatherhood demonstration and evaluation projects. The 1996 welfare reform bill and subsequent healthy marriage initiatives were aimed at changing the marital aspirations and behavior of unmarried mothers (Elwood and Jencks 2004) as a route to their economic self-sufficiency and improved family well being (Amato 2005; Thomas and Sawhill, 2005). Certainly to the extent that these positive outcomes can be achieved through marriage, the promotion and support of healthy marriage are desirable social goals. But the lessons for marriage promotion from this study – that marriage can be encouraged by the threat of lost public financial support, but only among couples exhibiting relationship commitment –

point out that the effects of welfare reform on marital behavior resulted from punitive aspects of the policy and there is a need to understand whether such marriages actually improve family well being. They also show that marriage promotion for poor TANF recipient women applies most effectively to those who have a marriageable partner, however she defines it.

Importantly, our study does not evaluate differences in policy effects by race. Clear racial/ethnic differences in marital behavior have emerged over the past half century (e.g., Bennet, Bloom, and Craig 1989; Manning and Smock 1995; Goldstein and Kenney 2001; Graefe and Lichter 2002; Harknett and McLanahan 2005), and some previous studies indicate that the marital behaviors of white women have been influence by welfare benefit dollars more than those of black women (Neal 2000; see Moffitt 1998 for a list of earlier studies).   Future study is needed to determine whether black and non-black women are similarly influenced by time limit restrictions and other aspects of welfare policy. Ultimately, however, the more important question is whether the marriages formed under these circumstances are likely to be good or lasting unions.

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Table 1. Percentage distributions and means (standard deviations) for person-months (weighted), and for sample persons and cohabitors at final month of observation.

	Person-months	Persons	Cohabitors
Outcome variable			
Became married (ever)	0.31	7.57	12.90
Sample attrition (ever)	1.54	37.58	23.72
Remain unmarried	98.15	54.85	63.38
Relationship Commitment			
Cohabiting (ever)	8.36	9.53	100.00
Personal characteristics			
White	33.83	35.59	56.17
Black	41.09	39.35	17.65
Hispanic	20.67	19.99	19.35
Other	4.41	5.08	6.83
Less than high school	37.15	35.54	39.09
High school	51.97	52.74	49.15
Some college	10.88	11.72	11.76
Low income	35.86	32.08	40.23
Medium income	50.08	50.20	49.15
High income	14.06	17.72	10.63
Number of children	1.40	1.28	1.35
	(1.42)	(1.41)	(1.37)
Age	33.45	33.19	31.20
	(11.45)	(11.87)	(9.47)
Individual TANF receipt (ever)	44.11	75.16	71.35
Work-limiting disability (ever)	21.68	20.73	27.70
Work experience (months)	10.40	15.47	15.16
TANF experience (months)	12.21	14.71	12.50
Partner's characteristics			
Expected partner's income (dollars)	513.34	626.77	479.54
State-level policy			
Lenient two-parent family eligibility	-0.15	0.06	-0.01
	(1.01)	(0.90)	(0.92)
Stringent sanctions	3.70	43.38	36.43
Stringent work activity requirements	3.20	2.48	2.83
	(2.50)	(2.55)	(2.53)
Stringent time limits	14.61	13.89	14.61
Stringent earned income disregards	64.01	58.49	58.25
High maximum benefit levels	0.14	0.13	0.31
	(1.02)	(1.02)	(1.02)
State EITC	20.11	22.03	19.35
State economic indicator			
Female unemployment rate	5.26	5.11	5.11
	(1.16)	(1.10)	(1.21)
Unweighted N	99,390	4,018	527

Note: The statistics for "person-months" are reported as they are observed in the data and used in analysis. Variables followed by "(ever)" indicate whether the respondent (persons) ever experienced this event/state and whether cohabiting respondents (cohabitors) ever experienced this event/state while cohabiting with a male partner. Elsewhere, descriptive statistics are for the last month of observation.

Table 2. Odds Ratios from Multinomial Logistic Regression Models of Transition to Marriage versus Remaining Unmarried (N=99,390 person-months).

	Model 1	Model 2	Model 3
Intercept	0.001***	0.001***	0.001***
Relationship Commitment			
Cohabiting	2.467***	2.516**	2.404**
Personal characteristics			
White (reference)	-	-	-
Black	0.313**	0.285**	0.290**
Hispanic	0.598**	0.626**	0.624**
Other	0.654	0.758	0.761
Less than high school	1.122	1.079	1.073
High school (reference)	-	-	-
Some college	1.459**	1.500**	1.478**
Low income	1.074	1.037	1.035
Medium income (reference)	-	-	-
High income	1.092	1.100	1.085
Number of children	1.098	1.095	1.093
Age	1.077	1.073	1.073
Age squared	0.999	0.999	0.999
Individual TANF	0.740	0.751	0.749
Disabled	0.944	0.965	0.968
Work experience (months)	1.017	1.019*	1.019*
TANF experience (months)	0.991	0.992	0.992
Partner's characteristics			
Expected partner's income ($100s)	1.625*	1.644***	1.630***
State-level policy			
Lenient two-parent family eligibility		0.948	0.952
Stringent sanctions		0.840	0.831
Stringent work activity requirements		1.005	1.003
Stringent time limits		1.102*	0.958
Stringent earned income disregards		1.205	1.198
High maximum benefit levels		0.814	0.811
State EITC		0.874	0.955
State economic indicator			
Female unemployment rate		0.977	0.982
Interaction terms			
Cohab*Stringent time limits			1.692**
Cohab*State EITC			0.693*
Chi-square (overall model; df=2)	1,416,096	770,280	1,470,171
Chi-square (model minus intercept; df=2)	1,600,541	7,409,932	1,040,932

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

Note: All models control for episode duration, panel, respondents with imputed data, and state fixed effects (AZ, CA, FL, IL, IN, MI, NJ, NY, OH, PA, TX, WI). All chi-square model fit statistics are significant at the p<0.001 level.

Table 3. Interaction-Effect Odds Ratios for Cohabitation by State-level Policy and Economic Indicators from Separate Models for Each Interaction Term (N=99,390 person-months)

Interaction of Cohabiting by:	Interaction Effect
State-level policy	
Lenient two-parent family eligibility	0.996
Stringent sanctions	1.333
Stringent work activity requirements	1.051
Stringent time limits	1.712**
Stringent earned income disregards	0.798
High benefit levels	1.013
State EITC	0.680*
State economic indicator	
Female unemployment rate	1.063

**p<0.01, *p<0.05
Note: All models include the variables included in
Model 2 of Table 2 in addition to the interaction term.

Appendix Table A1. Odds Ratios from Multinomial Logistic Regression Models of Transition to Marriage Versus Remaining Unmarried and Exiting the Sample Through Attrition Versus Remaining Unmarried (N=99,390 person-months).

	Marriage	Attrition
Intercept	0.001***	0.022***
Life course events		
Cohabiting	2.404**	1.168
Work experience	1.019*	0.986
TANF experience	0.992	0.995
Partner's characteristics		
Expected partner's income ($100s)	1.630***	0.996
Personal characteristics		
White (reference)	-	
Black	0.290**	1.064
Hispanic	0.624**	0.911*
Other	0.761	0.998
Less than high school	1.073	1.001
High school (reference)	-	
Some college	1.478**	1.027
Low income	1.035	0.952
Medium income (reference)	-	
High income	1.085	1.161*
Number of children	1.093	0.958
Age	1.073	0.996
Age squared	0.999	1.000
Individual TANF	0.749	0.766***
Disabled	0.968	0.868*
State-level policy		
Lenient two-parent family eligibility	0.952	1.145*
Stringent sanctions	0.831	1.151
Stringent work activity requirements	1.003	0.975
Stringent time limits	0.958	0.932
Stringent earned income disregards	1.198	0.995
High maximum benefit levels	0.811	0.967*
State EITC	0.955	1.034
State economic indicator		
Female unemployment rate	0.982	0.951
Interaction terms		
Cohab*Stringent time limits	1.692**	0.801
Cohab*State EITC	0.693*	0.794

***p<0.001, **p<0.01, *p<0.05
Note: All models control for episode duration, panel, respondents with imputed data, and state fixed effects (AZ, CA, FL, IL, IN, MI, NJ, NY, OH, PA, TX, WI).