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Family Structure Transitions and Changes in Maternal Resources and Well-Being

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Abstract

This paper uses data from the Fragile Families and Child Wellbeing Study to examine whether family instability is associated with changes in perceived social support, material hardship, maternal depression, and parenting stress among mothers of young children. In addition to accounting for the number of transitions a mother experiences over the first five years of her child's life, we pay close attention to the type and timing of these transitions. We find that mothers who transition to cohabitation or marriage with their child's biological father experience declines in material hardship and that those who transition to cohabitation or marriage with another man exhibit modest declines in both material hardship and depression. Mothers who exit cohabiting or marital relationships encounter decreases in perceived social support and increases in material hardship, depression, and parenting stress. Overall, our results suggest that both the type and, to a much lesser degree, the timing of family structure transitions may influence maternal well-being.

Increasingly, scholars recognize the need to study families as dynamic systems rather than static institutions. This shift has been spurred by recent demographic trends—high rates of nonmarital fertility, cohabitation, divorce, and multi-partnered fertility—which are associated with decreased stability and increased complexity of family arrangements, particularly among disadvantaged populations (Ellwood and Jencks 2004; Ventura and Bachrach 2000). Recent studies have suggested that family instability and complexity are associated with adverse child outcomes, and this in turn has fueled concern that the higher prevalence of these experiences among disadvantaged populations may contribute to the intergenerational transmission of inequality in the United States (Amato 2005; McLanahan and Percheski 2008). Relatively few studies, however, have assessed whether family instability and complexity influence parental well-being.

Understanding whether and how family instability affects parents is important for two reasons. First, the well-being of adults is important given that society needs healthy, productive citizens. Partnership dissolution and new partnership formation likely spur concomitant changes in individual and family circumstances, as well as changes in interpersonal relations and processes. Such changes may affect an adult's access to economic and social resources, as well as his or her psychological functioning. As such, family transitions are likely to influence adults' health, productivity, quality of life, and ability to participate in society.

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Second, parents bear primary responsibility for transmitting social norms to children and fostering children's healthy development. To the extent that family instability and complexity influence parents' access to resources and psychological well-being, these processes may also affect the quality of care parents provide and, thereby, impact their children's subsequent well-being.

In the current demographic context, it may be particularly important to understand how family instability and complexity affect mothers. Despite considerable increases in both single-father families (Brown 2000; Kreider 2008) and joint child custody arrangements in recent decades (Bauserman 2002; Berger et al. 2008a), women are still disproportionately children's primary caregivers. As a result, women are more likely than men to be faced with the dual role of being a family's sole caregiver and primary breadwinner. These factors may be consequential for women's economic and social resources, as well as their psychological well-being. To date, however, little scholarly attention has been paid to these influences (Beck et al. 2010; Cooper et al. 2009; Meadows, McLanahan, and Brooks-Gunn 2008). Furthermore, given that women are increasingly likely to experience multiple marriages and cohabitations, as well as to bear children with multiple partners, a more comprehensive understanding of how family stability and complexity affect their access to resources and psychological well-being is needed. Such research may lead to insights about how recent demographic trends will affect the well-being of women and about the quality of parental care that children are likely to experience.

We use data from the Fragile Families and Child Wellbeing Study (FFCW), a longitudinal birth cohort study of urban families, and employ hierarchical linear models (HLM) to examine associations of family structure experiences with mothers' access to social and economic resources and psychological well-being. These data are well-suited for our analyses because in this sample family instability and complexity are common, and unusually well measured. Our empirical strategy adjusts for whether mothers who experienced particular family structure states or transitions had fewer economic and social resources or poorer psychological well-being *prior to these experiences*. This innovative approach yields estimates that are less likely to be biased than those of prior studies.

Our analyses have three specific aims. First, we estimate the extent to which both stable family structure states and family structure transitions are associated with changes in mothers' perceived levels of social support, material hardship, depression, and parenting stress. Second, we examine whether the influence of family instability on these outcomes differs based on the specific types of family transitions a mother experiences. We focus on three types of transitions: whether mothers transition to living with their child's biological father (either in marriage or cohabitation), whether they transition to living with a new partner (social father), or whether they stop living with their child's biological father or another partner over this time period (i.e., transition to single motherhood). Finally, we account for the timing of the family structure transitions relative to the outcome measures to assess whether particular family transitions have concurrent effects on maternal outcomes, as well as whether any such effects persist or fade over time.

THEORETICAL PERSPECTIVES

Social stress theory provides the foundation for this analysis. This theory posits that partnership changes are stressful events that disrupt family functioning and bring about changes in economic resources and social support (George 1993; Holmes and Rahe 1967). In turn, these changes in resources may adversely affect a mother's psychological well-being and her ability to optimally care for her children (Waters and Cummings 2000). Both

entering (via marriage or cohabitation) and exiting (via divorce or separation) a particular family structure may cause upheaval in family roles and routines, thereby creating stress.

If the effects of each type of transition are similar and additive, then a simple count of the number of transitions a mother experienced should predict changes in maternal outcomes. This strategy of counting family structure transitions has been used frequently in prior research (Beck et al. 2010; Cavanaugh and Huston 2006; Fomby and Cherlin 2007; Osborne and McLanahan 2007; Wu 1996). One concern with this approach, however, is that it does not account for the possibility that different types of transitions may have differential effects. Whereas all types of transitions likely create some upheaval in roles and routines, particular types of transitions may differ along three key dimensions: the degree to which the transition is planned, the resulting changes in economic and social resources, and the level of interpersonal conflict the transition creates. Thus, examining different types of transitions is important because the direction and magnitude of influence on maternal well-being may differ.

Planned events are typically less stressful than events that are unexpected (Maier and Seligman 1976; Mineka and Kihlstrom 1978). Thus, an unforeseen separation, such as having a partner leave, may be associated with larger adverse effects than an anticipated transition, such as moving in with a partner. Moreover, transitioning into a relationship may occur gradually, allowing romantic partners and their family members to negotiate new roles and routines over longer periods of time, which should ease the stress of the transition.

In addition, some transitions may lead to increases in household resources whereas others may lead to declines. This, too, may influence the magnitude and direction of the transition's effect (George 1989; Levine 1980). Often, moving in with a partner brings another potential earner into the household and thus greater economic resources. To the extent that this is the case, transitioning into a marital or cohabiting union should reduce economic hardship which, in turn, could lessen psychological distress. It may also create a wider social network from which the mother can seek support.

While, on average, the transition into a co-residential relationship should bring economic resources into a household, there is likely to be considerable variation in such effects and, for some women, a new relationship may not result in greater economic resources. For example, some new partners may be unemployed or have high expenditures due to a health or substance abuse problem. Moreover, some kin may be unwilling to provide help to a cohabiting couple, particularly if one or both partners are engaged in activities of which they do not approve. If so, the transition into the relationship may lead to a decline in social support.

If the transition into a co-residential relationship is, on average, likely to increase economic resources, then the dissolution of such a relationship is expected to reduce economic resources. The effects of relationship dissolution on psychological well-being, however, are more ambiguous. Losing a partner's economic contributions to the family could reduce a mother's level of well-being and increase her stress; it may also result in the loss of a support network. Yet, if the relationship involved high levels of conflict, the mother's psychological distress may improve upon separation. Her kin network may also offer increased levels of support if she is on her own.

Although specific circumstances will differ, it is likely that relationship dissolution will result in decreased social and economic resources and increased interpersonal conflict relative to remaining in a stable family situation or (re)partnering. Thus, we expect relationship dissolution to have consistent negative influences on maternal well-being. We expect union formation to be associated with increased economic resources and decreased

maternal depression, but the direction of its expected influence on social resources and parenting stress is ambiguous.

The extent to which multiple partnership changes may influence mothers' well-being is also unclear and may differ across economic, social, and psychological domains. First, the effects of different types of transitions may be additive. Given that instability is the result of repeated break-ups and re-partnering, these transitions may offset one another. If there are negative effects of relationship dissolution but positive effects of union formation then the net effect for women who experience both transitions will depend upon the relative size of each effect. Therefore, it is important to estimate the influences of specific types of transitions on particular outcomes.

Alternatively, repeated family transitions that require reconfiguring roles and routines may result in an accumulation of harmful effects, rather than offsetting effects (Osborne and McLanahan 2007). If transitions bring about upheaval, stress, and role changes, then the accumulation of multiple transitions, particularly over a short period of time, may preclude a mother's ability to adequately adjust and, thereby, engender greater declines in well-being than would occur with any single transition (Brody, Neubaum, and Forehand 1988). Mothers and children may be particularly troubled if the home environment remains chaotic (Waters and Cummings 2000).

This perspective has most often been applied to children, for whom regularity in relationships and routines is especially important (Fomby and Cherlin 2007). Although repeated disruption of family roles and routines is also likely to have an adverse effect on mothers, the extent to which effects may vary across economic, social, and psychological domains is unclear. The potential harmful effects of instability are (theoretically) likely to be most pronounced for mothers' emotional well-being; any links to economic and social resources are likely to be indirect. If, for example, instability increases maternal depression or involves residential relocations, then it might also reduce a mother's ability to maintain a good job or to build social networks.

The timing of transitions may also be important. Research from the divorce literature suggests that the effect of a family transition is generally immediate and short-lived, lasting between 18 months and two years, while the family adjusts to changes in household resources and routines (Acock and Demo 1994; Williams and Umberson 2004). These findings suggest that the initial, possibly large effects on maternal well-being would fade over time. Household resources and routines may also begin to change prior to the transition (Cherlin et al. 1991); if so, effects of the transition itself may appear minimal if they are set in motion well before the actual "event" is observed. Therefore, empirical models should pay attention to the timing of changes in well-being relative to partnership transitions to determine if effects precede the transition, are immediate or delayed, and whether they fade or persist over time, especially in the context of subsequent transitions.

PRIOR RESEARCH

Studies of both marriage and cohabitation provide some indication that the dissolution of a relationship has negative effects for women, whereas re-partnering may have some positive effects. In both cases, however, effects tend to be domain specific. A large body of research suggests that divorce has adverse economic and emotional consequences for women (Amato 2000; Smock, Manning, and Gupta 1999). The smaller group of studies on cohabitation suggest that the dissolution of a cohabiting relationship has similarly negative economic consequences, for example increasing food insecurity (Avellar and Smock 2005), but few (and mixed) effects on women's psychological well-being (Brown 2000; Willitts, Benzeval, and Stansfeld 2004; Wu and Hart 2002; Wu et al. 2003). Because single-mother families are

now as likely to be the result of a nonmarital birth or the dissolution of a cohabitation as a divorce, additional research on how the dissolution of all types of relationships affect maternal well-being is warranted.

Just as the dissolution of romantic co-resident relationships is associated with some adverse outcomes, (re-)partnering is likely to engender some positive outcomes. Although there is considerable evidence linking marriage to increased economic well-being for single mothers (Thomas and Sawhill 2005), marrying a child's biological father appears to have larger benefits than marrying a social father (Manning and Brown 2006). Forming a cohabiting relationship also appears to confer economic benefits for single mothers, but these appear to be more modest than the benefits that accrue from marriage (Manning and Brown 2006; Morrison and Ritualo 2000).

Few studies have investigated the effects of family instability on trajectories in maternal access to social and economic resources or psychological well-being (depression or parenting stress) over time. However, results from two existing studies using FFCW data are particularly relevant to our analyses (Cooper et al. 2009; Meadows et al. 2008). Meadows and colleagues (2008) used growth curve modeling to examine maternal mental and physical health trajectories as a function of the type of family structure transition a mother experienced during the first five years of her child's life. They found both exiting a marital or cohabiting union and entering a union with a new partner to be associated with increased mental health problems (measured by a composite measure of binge drinking, illicit drug use, and experiencing a major depressive episode). Mothers with multiple transitions, regardless of the types of transitions they experienced, were found to have higher levels of mental health problems at their child's birth than mothers who were married all five years, but there was no change in their mental health problems over time. This pattern suggests that, although instability may be linked with higher levels of mental health problems, the link is likely to reflect pre-existing differences in mothers who experience family instability.

Cooper and colleagues (2009) used HLM methods to predict trajectories of maternal parenting stress as a function of only a mother's *first* partnership change in the five years following her child's birth. Mothers observed co-residing with a biological father in one wave and co-residing with a social father in the subsequent wave were coded as experiencing "two transitions." Their primary results suggest that exiting a cohabiting or marital relationship with a child's biological father, entering a relationship with a social father, and experiencing more than one transition are associated with increased maternal stress.[1] But, the magnitude of effects is reduced when pre-transition economic, social, and health-related factors are included as controls. Although maternal stress is found to be elevated for mothers who experience two transitions, the effect appears to be roughly the same as the additive effects of (separately) experiencing relationship dissolution and re-partnership.

These studies are limited in several ways. First, by focusing only on particular types of first transitions and considering family structure instability separately, they provide little insight into how the sequencing of family transitions over time may influence mothers' well-being. Second, they account for social selection only by adjusting for a modest number of observable maternal and family characteristics. This may be an inadequate strategy as important factors are likely to be unmeasured or vary over time. Third, Meadows et al. (2008) use an overall measure of maternal self-rated physical health and a composite measure of mental health problems (described above) but do not examine depression as an

[1]Mothers who experienced transitions across more than one interview wave were categorized into an "other" category and results were not reported for this group.

independent indicator of well-being. Moreover, neither Meadows et al. (2008) nor Cooper et al. (2009) examine other important measures of maternal well-being such as access to social and economic resources.

We build on these studies by estimating associations for the full range and sequence of possible maternal family structure states and transitions across the first five years of the focal child's life. We use outcome measures of social support, material hardship, maternal depression, and parenting stress. Furthermore, we control for a considerably wider range of observable characteristics than previous studies, and also employ a more rigorous empirical approach to adjust for social selection.

METHODS

Data

Our data are drawn from the Fragile Families and Child Wellbeing Study (FFCW), a longitudinal birth cohort study of 4,898 children born between 1998 and 2000 in 20 U.S. cities with populations of over 200,000 (for more details, see Reichman et al. 2001). Nonmarital births were oversampled and approximately three-quarters of the recruited mothers were unmarried. As a result, FFCW families are less advantaged and more likely to include a single or social parent, as well as to experience family structure transitions, than those in a nationally representative sample. FFCW interviewed the birth parents in the hospital following the focal child's birth and by telephone when the child was approximately one, three, and five years old. At each interview, parents were asked to provide extensive information about their household's resources and functioning, their health and mental health, and their relationship with the focal child's other parent.

We used multiple imputation techniques to impute values for all variables with missing data for the full FFCW sample of 4,898 children. Using Stata's ICE program, we imputed 10 datasets. Following Von Hippel's (2007) advice, we then estimated our empirical models using only cases that had non-missing (original) data on the outcome variables. As such, the size of our analytic sample varies across outcomes with 3,399 observations for lack of social support, 3,618 for material hardship, 3,659 for depression, and 3,163 for parenting stress. Our analyses include imputed values for one or more covariates for 8% to 18% of observations (depending on the outcome of interest). Including the cases with missing covariates was important, as these cases are systematically different from those with complete data; they are more likely to be disadvantaged (Sinkewicz 2006).

Outcome Measures

Our outcomes assessed mothers' perceived social support, material hardship, depression, and parenting stress when the FFCW focal child was approximately one, three, and five years old. Outcome measures were standardized based on three-month child age intervals to have a mean of 0 and a standard deviation of 1. Measures were coded so that a higher score represents a poorer outcome. Means and standard deviations for the outcomes are presented by family structure state and transition in Table 1.

Perceived lack of social support was measured using a three-item index consisting of whether the mother believed that her family or friends could lend her $200, provide emergency child care, or offer a place to live if necessary (α at age 1= .74).

Material hardship is a composite of nine items including whether, in the past 12 months, the family: received free food/meals; could not pay full rent/mortgage; was evicted; could not pay full utilities; had phone disconnected; had to borrow to pay bills; had to move in

with others due to financial problems; spent the night in a shelter, abandoned building, or car; and skipped medical care due to cost (α at age 1 = .65).

Maternal depression was measured using an eight-point index of depressive symptoms drawn from the Composite International Diagnostic Interview-Short Form (CIDI-SF) (Kessler et al. 1998). Mothers were assigned one point for each affirmative response to whether they were sad, blue, or depressed for two or more weeks during the last 12 months and whether, during that time period, they lost interest in things, felt more tired than usual, experienced a weight change of 10 or more pounds without trying, had more trouble sleeping than usual, had more trouble concentrating than usual, felt worthless, and thought a lot about death (α at age 1 = .94).

Maternal parenting stress was measured by mothers' strength of agreement with four statements: "Being a parent is harder than I thought it would be," "I feel trapped by my responsibilities as a parent," "I find that taking care of my child(ren) is much more work than pleasure," and "I often feel tired, worn out, or exhausted from raising a family" (α at age 1 = .62).

Family structure

We determined whether the focal child's biological father or a social father (married stepfather or cohabiting romantic partner of their biological mother) lived in the household with the focal child's mother at each interview in order to create a series of family structure stability and change measures from birth through the age five interview. These measures did not reflect non-cohabiting dating relationships and did not take marital status into account.

To predict initial levels of the maternal outcomes at the one-year survey, we constructed measures of stability and change in family structure between the child's birth and the one-year interview. Specifically, we created indicators of whether the child resided with a stable two-biological parent family (49% of our analytic sample) or a stable single-mother family (27%), as well as whether the mother transitioned into a two-biological-parent family (8%), into a single-mother family (11%), or into a social-father family (5%).

Another set of family structure state and transition variables was used to predict changes in maternal outcomes between the age one and age five interviews. Indicator variables captured whether the mother lived in a stable two-biological-parent (38%), single-mother (20%), or social-father (2%) family throughout this time period. A dichotomous measure of whether the mother experienced *any* family structure transitions and a measure of the *number* of transitions the mother experienced between approximately the first and fifth years of the focal child's life were also created.[2] Forty percent of mothers experienced one or more family structure transitions. Among those who experienced at least one transition, approximately 70% experienced only one transition, 28% experienced two transitions, and just over 2% experienced three or more transitions. Finally, we created a set of dichotomous indicators of specific *types* of family structure transitions: transition into a two-biological-parent (9%), single-mother (27%), or social-father family (17%) between the one- and five-year interviews.

Covariates

Because families that experience family structure transitions and instability may differ from those that do not, it is important to adjust for potential factors related to social selection. We

[2]Mothers who were observed transitioning directly from one type of two-parent family to another across waves were coded as also having experienced a transition into a single-mother family.

use an exhaustive set of controls, which are listed in Appendix Table A1, to predict initial levels of maternal resources and psychological well-being, but a parsimonious set for predicting changes in these outcomes. There may be many mechanisms through which family structure experiences affect maternal well-being. For example, the dissolution of a relationship may spur changes in a mother's employment or reduce a family's income. Yet, controlling for such changes would likely bias our estimate of the full effect of a family dissolution as we would be controlling for one of the very causal mechanisms by which family transitions affect mothers. As a result, we used only child gender and maternal race/ethnicity, education, and age at the time of the focal child's birth to predict changes in the outcomes between the age one and age five interviews. These time invariant covariates cannot have been influenced by family structure states and transitions during the period of observation.

Analytic Strategy

We estimated associations of family structure states and transitions with trajectories of maternal resources (lack of perceived social support and material hardship), and mental health (maternal depression and parenting stress). We used HLM models (Bryk and Raudenbush 1992) to estimate initial *year-one levels* (intercepts) of the maternal outcomes, as a function of early family structure experiences (between the focal child's birth and the age 1 interview), as well as *changes* (slopes) in these outcomes as a function of family structure states and transitions between the age one and age five interviews.

We estimated two types of HLM models and used Stata's MIM program to produce estimates across the 10 imputed datasets. First, we estimated conventional HLM models, in which the maternal resources or mental health slope between the age one and age five interviews is modeled as a continuous linear parameter. Our conventional HLM estimation level-one models took the form:

$$Y_{ti}=P_{0i}+P_{1i}AGE_{ti}+E_{ti} \quad (1a)$$

where the outcome (Y) experienced by mother *i* at interview *t* was estimated as a function of the initial level of the outcome at the age one interview (P_{0i}), a slope that varies as a function of time, as measured by the focal child's age (P_{1i}), and an individual error term (E_{ti}). The scaling of the AGE variable was designed so that the resulting coefficient represents the per-year change in the slope. The level two equations were:

$$P_{0i}=B_{00}+B_{01}FS_{0i}+B_{02}FAM_{0i}+B_{03}FS_{ti}+E_{0i} \quad (1b)$$

$$P_{1i}=B_{t0}+B_{t1}FS_{ti}+B_{t3}FAM_{0i}+E_{1i} \quad (1c)$$

Both the initial level (P_{0i}) and subsequent linear slope (P_{1i}) of maternal outcomes are predicted by family structure experiences between the focal child's birth and age one (FS_{0i}) and between age one and age five (FS_{ti}), time invariant family characteristics (FAM_{0i}), as well as random error terms (E_{0i} and E_{1i}). The random error E_{1i} was omitted when predicting the slopes for maternal depression because of problems with model convergence.

We estimated several models for each of the four maternal outcomes, focusing on differing measures of family structure states and transitions. The key parameter of interest in all models is B_{t1} which measures the difference in the rate of change in the outcome between the age one and age five interview that is associated with a given family structure state or transition, compared with the rate of change for mothers who reside in a two-biological-parent family throughout the entire observation period.

Two separate versions of equation (1b) with varying levels of controls were estimated. We first estimated a model that predicted the initial level (intercept) of the outcome using only those family structure experiences that occurred at or prior to the age one interview (FS_{0i}) and a rich set of covariates. In the second model we added the subsequent family structure states and transitions indicators (FS_{ti}) that occurred between the age one and age five interviews to predict the intercept. Although these family experiences occur after the age one interview, this strategy allowed us to determine whether mothers who experienced particular family structure states or transitions had fewer initial resources or poorer functioning. Sometimes called a falsification test, this approach reduces selection bias and is arguably better able to account for social selection than methods used in prior studies in this area (Magnuson and Berger 2009). Because mothers who experience family structure transitions (or particular family structures) are likely to experience lower initial levels of resources and functioning than those who remain in stable relationships with their children's biological father, we expect that this approach will reduce the magnitude of the associations of these transitions and trajectories with maternal well-being.

By estimating a continuous slope parameter in the conventional HLM model, we assumed a uniform and additive effect of each family structure state or transition. This model fits our data if maternal resources and mental health worsened (or improved) before a transition, during the transition, and thereafter. However, if changes in maternal resources and mental health were not consistent over time, results from the model may obscure the extent to which family structure experiences affect mothers' outcomes.

For this reason, we also modeled piecewise HLM models that are more sensitive to the timing and sequencing of particular family structure experiences than conventional HLM models. The piecewise models estimate the slope parameters in separate two-year, age-related segments rather than as a single linear parameter. These models provide some insight as to whether the effects of instability persist by estimating the influence of family structure experiences between ages one and three on age three outcomes, as well as on later outcome trajectories (between ages three and five). In addition, these models provide some indication of whether any associations between family structure transitions and maternal well-being are apparent before the actual transition is observed in the data. Finding larger effects at age one for more proximal (relative to distal) transitions might suggest that we are underestimating the effects of family structure transitions by controlling for changes in maternal well-being that begin prior to the observed transition. At the same time, we cannot rule out the possibility that there are initial differences in well-being for mothers who experience family structure transitions when their children are younger compared to that of mothers who experience transitions when their children are older.

The Level-1 piecewise model took the form:

$$Y_{ti}=P_{0i}+P_{1i}AGE3_{ti}+P_{2i}AGE5_{ti}+E_{ti} \quad (2a)$$

where the outcomes (Y) experienced by mother *i* at interview *t* was estimated as a function of the initial level of the outcome at the age one interview (P_{0i}) and a series of age-related dummy variables. P_{1i} represents the change in maternal resources or mental health between the age one and three interviews and P_{2i} represents the change in the outcome between the age three and five interviews.

In the level-2 models, we estimated initial levels of each outcome at the age one interview, as well as the (separate) subsequent trajectories in these variables over the two age-related intervals:

$$P_{0i}=B_{00}+B_{01}FS_{0i}+B_{02}FAM_{0i}+B_{03}FS_{1i}+B_{04}FS_{2i} \quad (2b)$$

$$P_{1i}=B_{10}+B_{11}FS_{1i}+B_{12}FAM_{0i} \quad (2c)$$

$$P_{2i}=B_{20}+B_{21}FS_{1i}+B_{22}FS_{2i}+B_{23}FAM_{0i} \quad (2d)$$

As with the conventional HLM models, we estimated two versions of equation 2b, one that predicted initial levels of the outcomes as a function of early experiences (FS_{0i}) and one that also included family experiences subsequent to the age one interview as controls (FS_{1i} and FS_{2i}). Changes in maternal well-being between the age one and three interviews (P_{1i}) as well as the age three and five interviews (P_{2i}) are modeled as a function of family structure state and transition indicators (FS_{ti}) and time-invariant family characteristics (FAM_{0i}). We are most interested in the estimates of associations of family structure states and transitions with changes in maternal resources and mental health at each child age (B_{11}, B_{21}, B_{22}).

In both the conventional and piecewise HLM methods, initial levels of the outcomes are differenced out of the equations and both within- and between-mother variation is used to identify associations. Nonetheless, the coefficients estimated in the level-2 models may still be biased by the omission of unobserved time-varying characteristics or by persistent characteristics that have time-varying effects. Estimates of associations of the family structure variables with initial levels of maternal outcomes (i.e., the intercepts), however, are more susceptible to omitted variable bias because only variation across mothers is used to identify associations. For this reason, we place more emphasis on the interpretation of the associations of family structure states and transitions with *changes* in maternal well-being than with their levels (at age one).

RESULTS

Descriptive Statistics

We begin by considering mean levels of mothers' well-being. Descriptive statistics shown in Table 1 suggest that mothers who remained in a stable relationship with the focal child's biological father between the age one and age five interviews perceived more social support, experienced less material hardship, and exhibited less depression and parenting stress at both the age one and age five interviews compared with mothers who were either consistently single or experienced one or more family transitions. For the most part, mothers in stable social-father families did not differ from those in stable biological-father families. Turning to background characteristics (see Appendix Table A1), our data reveal that stable two-biological-parent families are more advantaged than other family types which may fully or partially account for these differences in maternal well-being.

Number of Transitions Between the One- and Five-Year Interviews

Our first question is whether the number of changes in co-resident romantic partnerships a mother experiences between the age one and age five interviews is associated with a *change* in maternal well-being over this period. In Table 2, we present results from two models for each outcome, which differ in the extent to which they adjust for subsequent family structure experiences when predicting initial levels of maternal outcomes. The outcome variables have been standardized so the coefficients can be interpreted as the standard deviation difference in intercept or slope associated with a particular family structure experience compared with having resided in a two-biological-parent family.

Our estimates for the intercepts suggest that subsequent family structure experiences are associated with material hardship and maternal depression (at age one), indicating that the observed characteristics may not fully account for social selection processes. Mothers who experienced at least one family structure transition and those who remained single between the one- and five-year interviews exhibited more material hardship and symptoms of depression at the age one interview than mothers who remained in a stable co-residential relationship with the focal child's biological father.

Turning to changes in maternal outcomes over the four year time frame, we find that there are few associations between any of the stable family structures and changes in the outcomes. The exceptions are that stable single mothers have less perceived social support and mothers in stable relationships with a social father have lower levels of maternal stress compared to mothers in stable relationships with their child's biological father. Family instability, however, is associated with a decline in perceived social support and an increase in material hardship and maternal depression.

These results, however, are sensitive to including subsequent family structure transitions as predictors of the intercept terms. Results from Model 1, which does not adjust for subsequent transitions, suggest that by the year five interview, each transition is associated with 0.052 *SD*s (.013 *SD*s per year × four years) more material hardship, .080 *SD*s more maternal depression, and .072 *SD*s less perceived social support than those remaining in stable relationships with their child's biological father. However, results from Model 2 indicate that once initial differences in the intercept are taken into account, the association is no longer statistically significant for material hardship, and remains only marginally significant for perceived social support and maternal depression

In supplemental analyses (not shown), we also estimated models in which instability was measured by whether mothers experienced *any* transition between the age one and age five interviews. The pattern of results was similar to that presented in Table 2, suggesting that the effects of instability are being driven by differences between no instability and any instability, rather than by higher levels of instability. This is not surprising given that 70% of mothers who experienced any instability experienced only one observed family structure transition.

Types of Family Structure Transitions

We next examine whether maternal well-being is associated with particular types of family structure transitions (Table 3). Our discussion of these results centers on the slope estimates from Model 2, which we view as our most rigorous model because it accounts for initial differences in mothers' well-being that may be associated with subsequent family structure transitions.

Results from Model 2 reveal that there are only selective associations between family structure transitions and changes in mothers' well-being, and the direction and magnitude of associations differ by the type of transition. Moving in with a partner generally has neutral or positive effects whereas exiting a co-residential relationship appears to have adverse effects. Specifically, transitioning into a biological-father family is associated with significant declines in material hardship (−.188 *SD*s over four years), but it is not associated with changes in other dimensions of well-being once subsequent transitions are controlled (Model 2). Transitioning to a social-father family is marginally associated with declines in material hardship and maternal depression (−.108 *SD*s over four years for each outcome). In contrast to the positive changes associated with (re)-partnering, transitioning to a single-mother family is associated with adverse outcomes with regard to perceived social support (.

092 *SD*s), material hardship (.104 *SD*s), maternal depression (.188 *SD*s), and parenting stress (.116 *SD*s).[3]

Timing of Family Structure Transitions

To understand whether the effects of family structure transitions precede, co-occur, or proceed the observed transition period, we use piecewise HLM models to account for the timing of particular transitions relative to maternal outcomes. Because this set of models is focused on family structure transitions, we limited our analytic samples to those mothers who resided in a stable two-parent family (reference group) and those who experienced one or more transitions between the one- and five-year interviews. We consider two questions. First, we examine whether the effects of transitions that occur between ages one and three have larger associations with the intercept than transitions that occur between ages three and five. This sheds light on whether we might be inadvertently controlling out some of the early effects of family transitions, although it cannot clearly confirm that this is the case. Second, we examine whether the observed effects of early transitions between years one and three persist or fade between years three and five.

Table 4 presents a summary of (Model 2) results for five selected family structure trajectories (see Table A2 for coefficients and standard errors from these models). The table presents differences in the outcomes between mothers who experienced a particular family structure trajectory and those who remained in a stable biological-father relationship.

With regard to our first question on timing, the results shown in the top two panels of Table 4 provide some indication that transitions that occur between child ages three and five have larger concurrent effects than transitions that occur between child ages one and three. These findings provide some evidence that, at least for transitions to single-parent families, our second estimation model that predicts the intercept as a function of subsequent transitions might be underestimating the effects of becoming single on maternal material hardship and depression because a portion of these effects may be set in motion prior to our observation of the transition. However, it is also possible that mothers who transition earlier may differ from mothers who transition later in terms of initial levels of well-being, even if the dissolution of their relationships has not yet begun to occur by age one.

The final three panels address our second question and focus on transitions between single-mother and social-father family structures with different timing and patterns of transitions. Despite a few exceptions, the general pattern of results suggests relatively few effects of these transitions. This is expected given our finding that transitioning to a social father family is associated with only a marginal reduction in material hardship and depression. Moreover, there is no indication that we are underestimating these effects; the intercept estimates of transitioning to a social father family do not appear to differ by the timing of the transition. Finally, mothers who transition into a social-father family which then dissolves (final panel) do not experience the gains in well-being that accrue to mothers who transition into social-father families which then remain stable.

DISCUSSION

American families have become increasingly complex and dynamic. To better understand how various family forms and transitions may influence maternal well-being, we employed HLM models to examine associations of family structure states and transitions with trajectories in maternal social support, material hardship, depression, and parenting stress

[3]Each of the effect sizes represents the cumulative effect over 4 years.

over the first five years of a child's life. Our models accounted for subsequent family structure experiences when predicting initial levels of the maternal outcomes. This strategy should reduce the influence of selection bias in our estimates. In addition, we paid close attention to the types and timing of family transitions relative to maternal outcomes.

Overall, we found that family instability, as measured by the number of co-residential transitions a mother experiences between her child's first and fifth birthday, is not a strong predictor of changes in maternal well-being, once initial differences in these outcomes are taken into account. At first glance, some of our findings appear to contrast with findings from prior studies. For example, Beck et al. (2010) found the number of co-residential transitions a mother experienced between her child's birth and age five to be associated with higher levels of parenting stress at child age five. The discrepancy in findings is likely attributable to our focus on *changes* in, rather than *levels of*, maternal parenting stress and our strategy for reducing selection bias. As such, results from the two studies are not necessarily inconsistent. It is possible that mothers who experienced greater numbers of transitions between the child's birth and the age five interview had higher levels of parenting stress at the age five interview (indeed, we see this pattern in our raw data) and also that, after accounting for differences in initial levels of parenting stress and early family transitions, experiencing family structure transitions is not associated with increases in maternal stress over time.

We also estimated models that explicitly considered the types of relationship transitions mothers experienced. On the whole, our results suggest that relationship dissolution is consistently associated with adverse effects on maternal well-being. In contrast, union formation—with either a biological or social father—appears to have a neutral to positive influence on maternal well-being. This pattern highlights the importance of modeling specific types, rather than simple counts, of family structure transitions.

Our findings that transitioning into a social-father family is associated with decreased maternal depression and is unrelated to maternal parenting stress are inconsistent with results from earlier FFCW analyses. Meadows et al. (2008) found transitioning into a social-father family to be associated with higher levels of maternal mental health problems, whereas Cooper et al. (2009) found it to be associated with increased maternal parenting stress. Results from these studies may differ from ours for at least four reasons. First, both studies include in their explanatory models family structure transitions that occur over the first year of the child's life, whereas we limit our focus to those transitions that occur between the first and fifth years of a child's life to better account for selection processes. Second, because our models account for differences in initial levels of the outcomes that are associated with subsequent transitions, we may be more thoroughly accounting for selection bias than these prior studies. Third, our results may differ from those of Meadows and colleagues because of differing measures of mental health problems; they include binge drinking, illicit drug use, and/or a major depressive episode in their measure. Finally, we impute data for cases with missing covariates, whereas these other studies do not. If effects differ for the more disadvantaged families, which are more likely to have missing covariate data, then this might lead to divergent findings.

Our results suggest that associations between family transitions and maternal well-being vary little according to the timing at which the transitions occurred relative to the timing at which the outcome was measured. However, the effects of transitioning to a single mother family seem to be more concurrent for transitions that occur between years three and five, and may predate the transitions that occur between years one and three. Moreover, the effects of re-partnering are more concurrent if the new partnership occurs between years three and five rather than years one and three.

As noted above, our overall results reveal that relationship dissolution is associated with some adverse effects on maternal well-being, whereas union formation is associated with neutral to positive effects. Why might this be the case? Although both types of family transition are likely to be accompanied by some degree of family upheaval, reorganization, and role change, relationship dissolution is likely to be less planned or expected, result in a net loss of economic resources, and to be accompanied by larger increases in interpersonal conflict. Certainly, these factors may also be relevant to re-partnering, yet they are more likely to occur during a break-up. Nevertheless, the adverse effects associated with relationship dissolution are relatively modest over four years, and it is possible that, for the mother, the personal benefits of ending the relationship outweighed the concomitant losses in resources.

A large body of literature has documented adverse associations of family complexity and instability with child outcomes (Amato 2005; Cavanaugh and Huston 2006; Fomby and Cherlin 2007; Osborne and McLanahan 2007; Wu 1996). Whereas our results regarding the effects of relationship dissolution on maternal well-being are consistent with this pattern, our finding that maternal re-partnering has a neutral or positive association with maternal well-being is not; nor is our finding that the number of transitions a mother experiences is a comparatively weak predictor of her outcomes. This pattern is a reminder that family experiences may differentially affect mothers and children.

Our analyses have several limitations. First, although our analytic strategy reduces selection bias, it is likely that such bias still exists due to unobserved variables. Second, our strategy of using subsequent family transitions to predict initial levels of the outcomes may have underestimated the effects of transitioning into a single-parent family on mothers' material hardship and depression. Third, we are not able to fully determine whether changes in maternal outcomes are causes or consequences of family structure transitions. In cases where family instability is associated with a change in maternal outcomes, we cannot determine if the maternal outcome changed immediately prior to the family transition or following it. We are aware of no existing data that permit this level of specificity.

Fourth, it is likely that we have underestimated the full range of transitions mothers experienced during the five year period of this study.[4] Mothers were not asked about transitions that occurred between interviews, except at the age five interview. Given that the interview waves were approximately two years apart, and that some romantic relationships began and ended during these intervals, we may be underestimating instability. A quick look at the five year retrospective relationship data suggests that, indeed, our measures likely miss some partnership transitions in mothers' lives. For example, of those we code as being continuously single between ages three and five, about 22% report having lived with a partner one or more months in the past two years. However, we caution that these retrospective data are also likely to contain significant measurement error, most obviously from recall bias: About 22% of mothers who report living with a social father at the age three interview report at the age five interview that they have not lived with a partner in the past two years. Given that these retrospective data are only available at one time point, we do not make use of them in our models, but developing a way to accurately measure short-term transitions and model their effects is important for future research.

[4]Conversely, we may overstate the number of mothers who become "single" given that we rely on measures of household composition to determine family type. Some mothers may report that they do not reside with a biological or social father even if their romantic relationship has not ended. For example, fathers serving a jail sentence may not be reported as members of the mothers' household. This may be important in that actual relationship dissolution may affect mothers differently than their partner exiting their home for some other reason.

Fifth, the effects of family transitions may function differently for different groups of mothers, for example by race, ethnicity, or economic disadvantage, and we do not explore such potential heterogeneity. A particularly salient source of such heterogeneity is marital status. Thus, we estimated models that allowed the family structure states and transition measures to vary by the mother's marital status with regard to both biological and social fathers. Unfortunately, further dividing families by marital status at each wave resulted in extremely small cell sizes in many instances, thereby limiting the precision of the estimates and our confidence in them. Future work should examine whether maternal transitions into and out of marriages have differential effects from those into and out of cohabitation.

Finally, our results are drawn from a relatively disadvantaged, urban group of mothers who were disproportionately likely to have had a nonmarital birth. Although our results may overstate the effect of instability on the U.S. population as a whole, they are relevant to this sub-population, which is most likely to experience a nonmarital birth and subsequent family instability. Whether the effects of family structure transitions would be smaller or larger among more or less disadvantaged populations is unclear. On the one hand, disadvantaged samples may already experience considerable hardship and instability in their lives, such that one more source of stress may not exert as strong an independent effect. Alternatively, if economically disadvantaged families have fewer social and economic resources with which to cope with the additional stress, family transitions may have larger effects on the disadvantaged.

Despite these limitations, this study moves beyond prior work by more rigorously adjusting for selection bias while examining the influence of family instability on multiple domains of maternal well-being and demonstrating that particular types of family structure transitions differentially influence maternal well-being. These findings inform our understanding of the extent to which family instability and complexity may have adverse, beneficial, or neutral consequences for mothers. Such consequences may affect maternal functioning in both their individual and family roles, and may have an indirect influence on child well-being.

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Appendix

Table A1

Descriptive Statistics for Covariates

	Full Sample	Always Two-Biological-Parent Family	Always Social-Father Family	Always Singe-Mother Family	One or More Transitions	Transition to Two-Biological-Parent Family	Transition to Social-Father Family	Transition to Singe-Mother Family
Bio father at 1 year	0.57	1.00	0.00	0.00	0.47	0.17	0.29	0.71
Soc father at 1 year	0.05	0.00	1.00	0.00	0.07	0.03	0.04	0.11
Single mother at 1 year	0.38	0.00	0.00	1.00	0.45	0.80	0.67	0.18
Bio father birth and 1 year	0.49	0.91	0.00	0.00	0.34	0.11	0.22	0.51
Single mother birth and 1 year	0.27	0.00	0.00	0.76	0.30	0.47	0.48	0.12
To bio father birth to 1 year	0.08	0.09	0.00	0.00	0.13	0.06	0.07	0.19

	Full Sample	Always Two-Biological-Parent Family	Always Social-Father Family	Always Singe-Mother Family	One or More Transitions	Transition to Two-Biological-Parent Family	Transition to Social-Father Family	Transition to Singe-Mother Family
To soc father birth to 1 year	0.05	0.00	1.00	0.00	0.07	0.03	0.04	0.11
To single mother birth to 1 year	0.11	0.00	0.00	0.24	0.15	0.34	0.19	0.06
Female	0.48	0.47	0.45	0.47	0.48	0.50	0.46	0.47
Low birth weight	0.10	0.07	0.10	0.12	0.11	0.11	0.11	0.11
White	0.22	0.35	0.22	0.10	0.15	0.13	0.16	0.17
Black	0.49	0.28	0.53	0.69	0.59	0.60	0.58	0.59
Hispanic	0.26	0.32	0.23	0.19	0.24	0.23	0.23	0.22
Other race	0.03	0.05	0.02	0.02	0.03	0.04	0.03	0.02
Mother less than high school	0.32	0.24	0.47	0.37	0.38	0.42	0.40	0.36
Mother high school	0.31	0.26	0.31	0.34	0.34	0.31	0.36	0.35
Mother more than high school	0.37	0.50	0.22	0.29	0.28	0.28	0.24	0.29
Mother US born	0.86	0.75	0.97	0.94	0.92	0.91	0.93	0.93
Mother lived with both bio parents	0.43	0.57	0.27	0.30	0.36	0.37	0.33	0.36
Mother’s age at child’s birth	25.17 (6.04)	27.37 (6.14)	22.06 (4.61)	24.49 (5.90)	23.53 (5.37)	23.76 (5.54)	22.58 (4.66)	23.71 (5.53)
Mother’s first birth	0.38	0.37	0.32	0.43	0.38	0.36	0.41	0.36
Prenatal alcohol use	0.10	0.10	0.07	0.13	0.09	0.08	0.09	0.10
Prenatal drug use	0.05	0.02	0.13	0.06	0.07	0.09	0.07	0.06
Prenatal smoking	0.19	0.13	0.22	0.21	0.23	0.25	0.24	0.24
Religious service attendance	2.92 (1.37)	2.75 (1.36)	3.41 (1.31)	2.96 (1.39)	3.05 (1.34)	3.07 (1.29)	3.05 (1.35)	3.06 (1.34)
Mother worked year before birth	0.77	0.75	0.74	0.77	0.78	0.77	0.77	0.79
Mother on TANF year before birth	0.37	0.21	0.57	0.48	0.44	0.48	0.45	0.45
LN income year before birth	10.02 (1.34)	10.48 (1.19)	9.48 (1.57)	9.69 (1.39)	9.77 (1.33)	9.66 (1.51)	9.72 (1.33)	9.84 (1.16)
Own home	0.36	0.44	0.33	0.33	0.30	0.29	0.30	0.30
Number of children year before birth	1.26 (1.30)	1.09 (1.17)	1.50 (1.41)	1.32 (1.34)	1.38 (1.36)	1.46 (1.36)	1.38 (1.32)	1.36 (1.37)
Number of adults year before birth	2.32 (1.01)	2.37 (0.98)	2.38 (1.07)	2.21 (1.08)	2.31 (1.00)	2.31 (0.96)	2.35 (1.04)	2.30 (0.96)
Father less than high school	0.30	0.24	0.48	0.31	0.35	0.38	0.37	0.33
Father high school	0.37	0.28	0.29	0.46	0.42	0.41	0.43	0.43
Father more than high school	0.32	0.48	0.23	0.22	0.23	0.21	0.20	0.23
Father’s age at child’s birth	27.80 (7.25)	29.87 (6.89)	25.46 (7.03)	27.22 (7.52)	26.19 (6.97)	26.09 (6.89)	25.33 (6.41)	26.49 (7.14)
Father worked year before birth	0.81	0.88	0.72	0.75	0.76	0.74	0.75	0.78
Length of mother and father relationship at birth (months)	58.14 (55.64)	74.43 (58.80)	37.92 (37.32)	48.30 (52.67)	48.25 (50.61)	48.31 (48.16)	42.15 (44.81)	50.20 (52.48)

	Full Sample	Always Two-Biological-Parent Family	Always Social-Father Family	Always Singe-Mother Family	One or More Transitions	Transition to Two-Biological-Parent Family	Transition to Social-Father Family	Transition to Singe-Mother Family
Considered abortion	0.32	0.17	0.53	0.47	0.39	0.41	0.40	0.37
Father ever in jail (1 year`)	0.30	0.13	0.53	0.44	0.38	0.39	0.45	0.35
Father substance problem (1 year)	0.08	0.01	0.24	0.14	0.11	0.11	0.14	0.09
Father limiting condition (1 year)	0.08	0.06	0.02	0.08	0.10	0.10	0.09	0.10
Father hurt mother in fight (1 year)	0.07	0.03	0.21	0.12	0.09	0.09	0.13	0.07
Mother worked last year (1 year)	0.75	0.69	0.74	0.79	0.80	0.79	0.80	0.80
Mother on TANF last year (1 year)	0.25	0.08	0.45	0.40	0.34	0.38	0.38	0.30
LN income year after birth	9.86 (1.48)	10.45 (1.12)	9.49 (1.15)	9.26 (1.65)	9.62 (1.51)	9.52 (1.31)	9.49 (1.64)	9.75 (1.34)
Grandparent in household (1 year)	0.21	0.10	0.13	0.34	0.25	0.32	0.30	0.18
Observations	3,674	1,409	60	734	1,471	338	610	978

Note: Means (and standard deviations) presented for continuous variables; proportions presented for dichotomous variables. Based on 3,674 observations with non-missing data on at least one of the outcome measures at all time points. Estimates are based on analyses of 10 multiply imputed datasets.

Table A2

Summary of Piecewise HLM Models for Types of Family Structure Transitions

	Lack of Social Support	Material Hardship	Maternal Depression	Maternal Parenting Stress
	(2)	(2)	(2)	(2)
Intercept at 1 year:				
Single mother birth and 1 Year	0.081	−0.012	−0.026	0.002
	(0.111)	(0.109)	(0.104)	(0.125)
To biological father between birth and 1 year	−0.122 *	0.021	−0.093 +	−0.055
	(0.050)	(0.048)	(0.047)	(0.057)
To social father between birth and 1 year	−0.134	−0.032	0.023	0.126
	(0.098)	(0.094)	(0.092)	(0.109)
To single mother between birth and 1 year	0.137	0.210 +	0.041	−0.031
	(0.116)	(0.114)	(0.109)	(0.132)
To biological father between 1 and 3 years	−0.320 *	0.047	0.022	−0.051
	(0.126)	(0.124)	(0.121)	(0.141)
To biological father between 3 and 5 years	0.327 *	0.210	−0.110	−0.232
	(0.128)	(0.126)	(0.126)	(0.143)
To single mother between 1 and 3 years	−0.311 *	0.001	0.246 +	0.189
	(0.125)	(0.124)	(0.124)	(0.139)
To single mother between 3 and 5 years	0.082	0.057	0.061	−0.006

	Lack of Social Support	Material Hardship	Maternal Depression	Maternal Parenting Stress
	(2)	(2)	(2)	(2)
	(0.051)	(0.050)	(0.050)	(0.058)
Stable single mother between 1 and 3 years	−0.406 *	−0.188	0.117	0.286
	(0.159)	(0.155)	(0.152)	(0.176)
Stable single mother between 3 and 5 years	0.388 **	0.131	−0.121	−0.223
	(0.132)	(0.131)	(0.130)	(0.147)
To social father between 1 and 3 years	0.279 *	0.260 +	0.050	0.262 +
	(0.137)	(0.133)	(0.130)	(0.154)
To social father between 3 and 5 years	0.256 *	0.213 *	−0.081	−0.017
	(0.098)	(0.096)	(0.096)	(0.109)
Stable social father between 1 and 3 years	−0.208	−0.034	−0.212	0.285
	(0.203)	(0.197)	(0.205)	(0.222)
Stable social father between 3 and 5 years	−0.256 *	−0.187	0.057	−0.129
	(0.116)	(0.113)	(0.111)	(0.133)
Slope between 1 and 5 years:				
To biological father between 1 and 3 years at year 3	0.170 *	−0.241 **	−0.107	−0.027
	(0.074)	(0.075)	(0.083)	(0.075)
To biological father between 1 and 3 years at year 5	0.127 +	−0.179 *	0.001	−0.035
	(0.075)	(0.076)	(0.084)	(0.076)
To biological father between 3 and 5 years at year 5	0.197	0.076	0.210	0.218
	(0.142)	(0.141)	(0.157)	(0.137)
To single mother between 1 and 3 years at year 3	0.039	0.070	0.094	0.071
	(0.057)	(0.058)	(0.064)	(0.057)
To single mother between 1 and 3 years at year 5	−0.190	−0.203	−0.175	−0.173
	(0.138)	(0.136)	(0.151)	(0.133)
To single mother between 3 and 5 years at year 5	0.170 **	0.181 **	0.192 **	0.100 +
	(0.056)	(0.056)	(0.062)	(0.056)
To social father between 1 and 3 years at year 3	−0.243 ***	−0.057	−0.101	−0.061
	(0.070)	(0.070)	(0.077)	(0.072)
To social father between 1 and 3 years at year 5	−0.410 ***	−0.169	−0.178	−0.220 +
	(0.111)	(0.110)	(0.121)	(0.112)
To social father between 3 and 5 years at year 5	0.210 +	−0.026	0.218 +	0.253 *
	(0.109)	(0.107)	(0.120)	(0.104)
Stable single mother between 1 and 3 years at year 3	0.099	0.046	−0.035	−0.062
	(0.070)	(0.070)	(0.078)	(0.070)
Stable single mother between 1 and 3 years at year 5	−0.123	−0.103	−0.432 **	−0.352 **
	(0.126)	(0.125)	(0.139)	(0.122)
Stable single mother between 3 and 5 years at year 5	0.240	0.292 *	0.185	0.293 *
	(0.146)	(0.144)	(0.160)	(0.142)
Stable social father between 1 and 3 years at year 3	0.207	−0.153	0.220	−0.293

	Lack of Social Support	Material Hardship	Maternal Depression	Maternal Parenting Stress
	(2)	(2)	(2)	(2)
	(0.187)	(0.186)	(0.208)	(0.182)
Stable social father between 1 and 3 years at year 5	0.688***	−0.407*	−0.222	−0.283
	(0.193)	(0.190)	(0.211)	(0.187)
Stable social father between 3 and 5 years at year 5	0.402**	0.170	0.010	0.140
	(0.126)	(0.125)	(0.138)	(0.127)
Observations	2,681	2,839	2,867	2,477

Note: Coefficients and standard errors from HLM models are presented. The analysis samples for these models include only stable two-parent families between 1 and 5 years, and families that experienced one or more transitions between 1 and 5 years; stable single-mother and social father families between 1 and 5 years are excluded. Outcome variables have been age standardized in 3-month intervals to have a mean of 0 and a standard deviation of 1. All of the control variables listed in Table A1 are used to predict mothers' initial levels of the outcomes when the focal child was approximately 1-year old. Controls for child age, race/ethnicity, child gender, maternal education, and maternal age at the focal child's birth are used to predict depression, and parenting stress slopes. The reference group for the estimates predicting the intercepts is "Always two-biological-parent family between birth and 1 year"; the reference group for the estimates predicting the slopes is "Always two-biological-parent family between 1 and 5 years."

+ p<.10;

* p<.05;

** p<.01;

*** p<.001.

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Table 1

Descriptive Statistics

	Always Two-Biological-Parent Family (*N* = 1,409)		Always Social-Father Family (*N* = 60)		Always Singe-Mother Family (*N* = 734)		One or More Transitions (*N* = 1,471)		Transition to Two-Biological-Parent Family (*N* = 338)		Transition to Social-Father Family (*N* = 610)		Transition to Singe-Mother Family (*N* = 978)	
	Age 1	**Age 5**	**Age 1**	**Age 5**	**Age 1**	**Age 5**	**Age 1**	**Age 5**	**Age 1**	**Age 5**	**Age 1**	**Age 5**	**Age 1**	**Age 5**
Lack of Social Support (*N* = 3,399)	−0.13 (0.86)	−0.20 (0.75)	−0.12 (0.69)	0.01 (1.03)	0.16* (1.13)	0.18* (1.15)	0.05* (1.04)	0.10* (1.08)	−0.05 (0.92)	0.06* (1.04)	0.12* (1.12)	0.12* (1.10)	0.04* (1.03)	0.12* (1.09)
Material Hardship (*N* = 3,618)	−0.23 (0.84)	−0.25 (0.83)	0.02 (1.11)	0.14* (1.21)	0.16* (1.08)	0.16* (1.05)	0.13* (1.05)	0.16* (1.06)	0.21* (1.14)	0.11* (1.04)	0.17* (1.07)	0.15* (1.09)	0.12* (1.06)	0.19* (1.06)
Depression (*N* = 3,659)	−0.13 (0.83)	−0.12 (0.87)	−0.14 (0.89)	0.06 (1.13)	0.13* (1.14)	0.06* (1.04)	0.06* (1.06)	0.08* (1.08)	0.10* (1.10)	0.10* (1.06)	0.09* (1.08)	0.03 (1.06)	0.03* (1.02)	0.14* (1.13)
Parenting Stress (*N* = 3,163)	−0.12 (0.95)	−0.10 (0.95)	0.17* (1.08)	−0.08 (1.03)	0.15* (1.07)	0.09* (1.07)	0.03* (0.99)	0.05* (1.00)	−0.05 (1.06)	−0.07 (1.00)	0.15* (0.98)	0.12* (1.00)	−0.01 (0.96)	0.06* (1.00)

Note: Means and standard deviations presented. Variables have been age standardized in 3-month intervals to have a mean of 0 and a standard deviation of 1. Sample sizes for the lack of social support, material hardship, depression, and parenting stress measures are for observations with non-missing data on the relevant measure at all time points; sample sizes for the family structure variables are based on 3,674 observations with non-missing data on at least one of the outcome measures at all time points. Estimates are based on analyses of 10 multiply imputed datasets.

* indicates that the mean is significantly different from that of "Always Two-Biological-Parent Family" at the relevant age.

Table 2

Summary of HLM Models for Number of Family Structure Transitions

	Lack of Social Support		Material Hardship		Maternal Depression		Maternal Parenting Stress	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Intercept at 1 year:								
Single mother birth and 1 year	−0.026	−0.072	−0.004	−0.075	−0.059	−0.122**	0.075	0.028
	(0.041)	(0.048)	(0.039)	(0.045)	(0.039)	(0.045)	(0.046)	(0.054)
To biological father between birth and 1 year	−0.106*	−0.113*	0.066	0.047	−0.076	−0.082+	−0.074	−0.078
	(0.051)	(0.051)	(0.049)	(0.049)	(0.048)	(0.048)	(0.057)	(0.057)
To social father between birth and 1 year	−0.146*	−0.141+	−0.056	−0.066	−0.060	0.017	0.126	0.158+
	(0.072)	(0.084)	(0.068)	(0.080)	(0.068)	(0.078)	(0.078)	(0.092)
To single mother between birth and 1 year	0.038	−0.005	0.165***	0.094+	0.024	−0.034	−0.016	−0.057
	(0.049)	(0.054)	(0.046)	(0.051)	(0.046)	(0.050)	(0.055)	(0.061)
Number of transitions between 1 and 5 years		0.044		0.107***		0.045+		0.015
		(0.027)		(0.026)		(0.027)		(0.030)
Stable single mother between 1 and 5 years		0.107+		0.164**		0.157**		0.103
		(0.058)		(0.055)		(0.055)		(0.063)
Stable social father between 1 and 5 years		−0.047		−0.044		−0.335*		−0.131
		(0.147)		(0.143)		(0.143)		(0.162)
Slope between 1 and 5 years:								
Number of transitions between 1 and 5 years	0.018**	0.013+	0.013*	−0.002	0.020**	0.013+	0.006	0.006
	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)	(0.008)	(0.006)	(0.007)
Stable single mother between 1 and 5 years	0.021+	0.011	0.008	−0.008	0.011	−0.007	−0.004	−0.012
	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.014)	(0.012)	(0.013)
Stable social father between 1 and 5 years	0.032	0.038	0.014	0.023	0.008	0.057	−0.073*	−0.061+
	(0.031)	(0.035)	(0.032)	(0.036)	(0.032)	(0.038)	(0.032)	(0.036)
Observations	3,399	3,399	3,618	3,618	3,659	3,659	3,163	3,163

Note: Coefficients and standard errors from HLM models are presented. Outcome variables have been age standardized in 3-month intervals to have a mean of 0 and a standard deviation of 1. All of the control variables listed in Table A1 are used to predict mothers' initial levels of the outcomes when the focal child was approximately 1-year old. Controls for child age, race/ethnicity, child gender,

maternal education, and maternal age at the focal child's birth are used to predict depression, and parenting stress slopes. The reference group for the estimates predicting the intercepts is "Always two-biological-parent family between birth and 1 year"; the reference group for the estimates predicting the slopes is "Always two-biological-parent family between 1 and 5 years." Estimates are based on analyses of 10 multiply imputed datasets

$^{+}$ p<.10;

* p<.05;

** p<.01;

*** p<.001.

Table 3

Summary of HLM Models for Types of Family Structure Transitions

	Lack of Social Support		Material Hardship		Maternal Depression		Maternal Parenting Stress	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Intercept at 1 year:								
Single mother birth and 1 year	−0.002	0.056	0.047	0.010	0.001	−0.035	0.103*	0.021
	(0.042)	(0.069)	(0.040)	(0.065)	(0.040)	(0.064)	(0.047)	(0.077)
To biological father between birth and 1 year	−0.111*	−0.120*	0.058	0.043	−0.086+	−0.089+	−0.080	−0.071
	(0.051)	(0.051)	(0.048)	(0.049)	(0.048)	(0.048)	(0.057)	(0.057)
To social father between birth and 1 year	−0.152*	−0.160+	−0.065	−0.078	−0.073	0.002	0.119	0.167+
	(0.072)	(0.084)	(0.068)	(0.080)	(0.068)	(0.078)	(0.078)	(0.092)
To single mother between birth and 1 year	0.062	0.131+	0.224***	0.185*	0.085+	0.052	0.019	−0.045
	(0.050)	(0.073)	(0.048)	(0.070)	(0.047)	(0.068)	(0.056)	(0.082)
Ever transition to biological father, 1–5 years		−0.178*		0.054		0.007		−0.059
		(0.075)		(0.073)		(0.073)		(0.083)
Ever transition to social father, 1–5 years		−0.007		0.099		0.034		0.148*
		(0.062)		(0.060)		(0.060)		(0.068)
Ever transition to single mother, 1–5 years		0.098*		0.105*		0.034		−0.044
		(0.043)		(0.041)		(0.042)		(0.047)
Stable single mother, 1–5 years		−0.010		0.091		0.081		0.106
		(0.073)		(0.070)		(0.069)		(0.080)
Stable social father, 1–5 years		−0.014		−0.018		−0.309*		−0.137
		(0.148)		(0.144)		(0.143)		(0.162)
Slope between 1 and 5 years:								
Ever transition to biological father, 1–5 years	0.005	0.026	−0.043**	−0.047**	−0.017	−0.012	−0.031*	−0.015
	(0.014)	(0.016)	(0.014)	(0.016)	(0.014)	(0.017)	(0.014)	(0.016)
Ever transition to social father, 1–5 years	−0.002	−0.007	−0.014	−0.027+	−0.026*	−0.027+	−0.003	−0.016
	(0.011)	(0.013)	(0.011)	(0.013)	(0.012)	(0.014)	(0.012)	(0.013)
Ever transition to single mother, 1–5 years	0.036***	0.023*	0.045***	0.026*	0.056***	0.047***	0.026**	0.029**

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	Lack of Social Support		Material Hardship		Maternal Depression		Maternal Parenting Stress	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
	(0.009)	(0.011)	(0.009)	(0.011)	(0.010)	(0.012)	(0.010)	(0.011)
Stable single mother, 1–5 years	0.019	0.012	0.000	−0.009	0.000	−0.008	−0.006	−0.011
	(0.012)	(0.013)	(0.012)	(0.013)	(0.012)	(0.014)	(0.012)	(0.013)
Stable social father 1–5 years	0.034	0.039	0.016	0.022	0.011	0.056	−0.071 *	−0.060 +
	(0.031)	(0.035)	(0.032)	(0.036)	(0.032)	(0.038)	(0.032)	(0.036)
Observations	3,399	3,399	3,618	3,618	3,659	3,659	3,163	3,163

Note: Coefficients and standard errors from HLM models are presented. Outcome variables have been age standardized in 3-month intervals to have a mean of 0 and a standard deviation of 1. All of the control variables listed in Table A1 are used to predict mothers' initial levels of the outcomes when the focal child was approximately 1-year old. Controls for child age, race/ethnicity, child gender, maternal education, and maternal age at the focal child's birth are used to predict depression, and parenting stress slopes. The reference group for the estimates predicting the intercepts is "Always two-biological-parent family between birth and 1 year"; the reference group for the estimates predicting the slopes is "Always two-biological-parent family between 1 and 5 years." Estimates are based on analyses of 10 multiply imputed datasets.

+ p<.10;

* p<.05;

** p<.01;

*** p<.001.

Table 4

Summary of Selected Results from Piecewise HLM Models for Types of Family Structure Transitions

	Lack of Social Support	Material Hardship	Maternal Depression	Maternal Parenting Stress
With biological father at 1 year, transitioned to single between years 1 and 3, stayed single between years 3 and 5				
Initial difference at 1 year	0.077	0.132*	0.125+	−0.034
Change between years 1 and 3	0.039	0.070	0.094	0.071
Change between years 3 and 5	0.050	0.089	0.010	0.120+
Total change between years 1 and 5	0.089	0.159	0.104	0.191+
Total difference at year 5	0.166+	0.291**	0.229*	0.157+
With biological father at 1 year and between years 1 and 3, transitioned to single between years 3 and 5				
Initial difference at 1 year	0.082	0.057	0.061	−0.006
Change between years 1 and 3	0.000	0.000	0.000	0.000
Change between years 3 and 5	0.170**	0.181**	0.192**	0.100+
Total change between years 1 and 5	0.170**	0.181**	0.192**	0.100+
Total difference at year 5	0.252***	0.238***	0.253***	0.094
Transitioned to single between birth and 1 year, transitioned to social father between years 1 and 3, stayed with social father between years 3 and 5				
Initial difference at 1 year	0.160+	0.283**	0.148	0.102
Change between years 1 and 3	−0.243**	−0.057	−0.101	−0.061
Change between years 3 and 5	−0.008	0.001	−0.168+	−0.080
Total change between years 1 and 5	−0.251*	−0.056	−0.269+	−0.141
Total difference at year 5	−0.091	0.227+	−0.121	−0.039
Transitioned to single between birth and 1 year, stayed single between years 1 and 3, transitioned to social father between years 3 and 5				
Initial difference at 1 year	−0.013	0.235**	0.077	0.238*
Change between years 1 and 3	0.099	0.046	−0.035	−0.062
Change between years 3 and 5	0.087	−0.129+	−0.214*	−0.099
Total change between years 1 and 5	0.186	−0.083	−0.249+	−0.161
Total difference at year 5	0.173	0.152	−0.172	0.077
Transitioned to single between birth and 1 year, transitioned to social father between years 1 and 3, transitioned to single between years 3 and 5				
Initial difference at 1 year	0.498***	0.527***	0.152	0.225+
Change between years 1 and 3	−0.243**	−0.057	−0.101	−0.061
Change between years 3 and 5	−0.240*	0.012	0.014	−0.120
Total change between years 1 and 5	−0.483**	−0.045	−0.087	−0.181
Total difference at year 5	0.015	0.482***	0.065	0.044
Observations	2,681	2,839	2,867	2,477

Note: Estimates based on coefficients from piecewise HLM models (results shown in Table A2). The analysis samples for these models include only stable two-parent families between 1 and 5 years, and families that experienced one or more transitions between 1 and 5 years; stable single-mother and social father families between 1 and 5 years are excluded. Outcome variables have been age standardized in 3-month intervals to have a

mean of 0 and a standard deviation of 1. The reference group for all estimates is “Always two-biological-parent family between 1 and 5 years.” Estimates are based on analyses of 10 multiply imputed datasets.

+ p<.10;

* p<.05;

** p<.01;

*** p<.001.