Children's Long-Term Family Structure Experiences and Adolescent Outcomes

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WORKING DRAFT

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Abstract

This paper documents the family living arrangements of a cohort of youth from birth through adolescence using merged mother and child data from the National Longitudinal Survey of Youth. In the sample of 1,870 children, 187 distinct family structure trajectories were identified. Latent class analysis yielded five distinguishable trajectories of children's living arrangements over the course of childhood: continuously married biological parent families, long-term single mother families, married biological parents who break up, cohabiting biological parents who marry or break up, and a trajectory distinguished by the addition of a stepfather at some point during childhood.

The trajectories characterized by parental divorce and growing up with a long-term single mother were generally associated with lower levels of well-being in adolescence. Family instability, measured by the number of family structure transitions children experienced, was also associated with higher levels of depression and delinquency in adolescence independently of type of family structure trajectories.

Introduction

In the past several decades, the family structures in which children grow up have changed dramatically in both their makeup and in the frequency of transitions between family structures. Many of today's children experience two or more family structures over the course of childhood. There is a substantial demographic and sociological literature describing the percentage of children who live in various family structures at a particular point in time and the percentage of children who experience certain family forms at some point during childhood. However, there is no study to date that examines the living arrangement trajectories of a nationally representative sample of children from birth to young adulthood. In addition, although there is much cross-sectional social science research about the family structures in which children live, we know little about the cumulative living arrangement experiences of children over the course of childhood or the effects of living in various family structure trajectories on offspring outcomes in young adulthood. The instability hypothesis suggests that children who experience multiple transitions may have lower levels of well-being than children who experience stable family living arrangements. Furthermore, the life course perspective suggests that experiences in childhood have important implications for well-being later in life and that transitions should be studied as part of trajectories. These two frameworks inform this study, in which I create and describe trajectories of children's living arrangements over the course of childhood and then analyze 1) factors which make children more likely to experience certain trajectories and 2) how growing up in particular trajectories may contribute to later outcomes.

There were two distinct research aims in this project. The first aim was to determine the trajectories of living arrangements that children experience from birth through adolescence. Latent class analysis was used to create condensed family structure trajectories, which are

described in demographic context. Existing research often focuses on snapshots of children's living arrangements at one point in time.

The second research aim was to examine whether and how experiencing particular family structure trajectories influences various indicators of well-being in adolescence, including depression, delinquency, and mother-child closeness. The vast majority of extant research examines measures of child or young adult well-being after one transition, most commonly divorce. However, the compounded effects of multiple family structure transitions experienced as trajectories may have more important implications for well-being in early adulthood.

Family Instability and Child Well-Being

As yet the theoretical underpinnings about the effects of family instability on children are generally in agreement but are known by different names. Fomby and Cherlin (2007) refer to the longstanding yet understudied hypothesis that children who experience multiple transitions may fare worse developmentally as the *instability hypothesis*. Teachman (2003) offers an excellent description of two hypotheses that contribute to a *stability and change perspective*: stress and residential mobility. According to the stress hypothesis, changes in childhood living arrangements, such as parental marriage or divorce, cause psychological stress. The residential mobility hypothesis associates changes in family structure with changes in residence, which often causes obstacles for children. Wu and Martinson (1993) and Cavanagh and Huston (2006; 2008) refer to an *instability and change hypothesis* or *perspective*. Wu and Thomson (2001) discuss a "*family turbulence hypothesis*." By any name, theories about family instability all suggest cumulative effects of family structure changes.

With each change in family structure, children experience turbulence due to a variety of stressors. Some of these include changes in family income and changes in residence. However,

research shows that even after controlling for these stressors, there seems to be a unique effect of experiencing transitions (Brown 2006), especially for White children (Fomby & Cherlin, 2007; Wu & Thomson, 2001). Each incidence of structuring and restructuring the family with the entrance or exit of a parental figure changes the atmosphere of the home in many ways. For example, new parental roles must be negotiated. A child must figure out what to call the new stepparent and the mother and stepparent must decide to what extent the stepparent is responsible for parenting and discipline. Emotional attachments may be strained or lost in the case of a union disruption. New stepparents may not bond easily with their partner's children (Amato, 1987). Resident mothers sometimes experience depression and increased stress as they try to juggle all of the changes (Amato, 2005). One paper states that "family instability describes a chronically chaotic and unpredictable family environment" (Ackerman, et al., 1999, p. 258). The instability hypothesis suggests that as instability increases, child outcomes will worsen.

The relatively small literature on family transitions focuses on marital transitions and often does not include transitions into and out of cohabitation in empirical studies (e.g. Wu & Thomson, 2001). Brown (2006) conducted one of the first studies to include transitions into and out of cohabitation using panel data from the National Longitudinal Study of Adolescent Health (Add Health). Since Brown's study, transitions into and out of cohabitation have been included in more studies (Fomby & Cherlin, 2007; Manning & Bulanda, 2007). Brown concluded that cohabitation with a stepparent appears to be a particularly problematic family form for adolescents and that specifying the type of transition is important for future research.

Interest in the processes and effects of cumulative family instability is a relatively recent development in family research. Though there is new recognition that family structure is a dynamic process rather than a static characteristic, family instability has thus far been examined

in limited ways. A common strategy is to count the number of transitions children have experienced and analyze how the number of transitions affects outcomes. The effect of the number of family transitions on many outcomes has been documented in recent literature. Albrecht and Teachman (2003) studied how the number and type of family transitions ever experienced affect the risk of first premarital intercourse and find that experiencing more transitions increases the risk of premarital sex. However, the type of transitions experienced did not result in a better-fitting model than the number of transitions, suggesting that instability itself is most important for child wellbeing. In contrast, Brown (2006) finds that the specific type of transition is very important to take into account. Other research indicates that the number of family transitions is also associated with premarital birth and premarital cohabiting unions (Albrecht & Teachman, 2003; Wu & Martinson, 1993; Wu, 1996).

Multiple family structure changes have also been found to affect adolescent school performance in two recent studies using Add Health (Cavanagh, Schiller, & Riegle-Crumb, 2007; Heard, 2007). In addition, experiencing multiple transitions is associated with problem behavior among both young children (Cavanagh & Huston, 2006; Osborne & McLanahan, 2007) and adolescents (Brown, 2006). Osborne and McLanahan (2007) find that the association between family instability and problem behavior is completely mediated by more maternal stress and poorer mothering behaviors among very young children. Fomby and Cherlin (2007) also measure family instability as number of family transitions. In their study, they account for mother's behaviors and attributes to test the hypothesis that selection is responsible for the association between family instability and outcomes in middle childhood, for which they find partial support. However, they also find that the number of family structure transitions experienced is significantly related to child well-being (for White children only).

Aquilino (1996) improves upon documenting the number of transitions by including the effects of sequence, timing, and number of transitions on young adult outcomes, but his analysis is limited to children born to unmarried mothers and so does not capture the full spectrum of family structure trajectories of American children. Aquilino's study finds that both the number and sequence of family structure transitions of children born to unmarried mothers affect young adult outcomes. Others have also made important advancements to the study of family instability by finding that instability seems to be directly related to outcomes. Wu (1996) tested whether the effects of family instability were an artifact of income changes and found that they were not. Fomby and Cherlin (2007) found that selection effects of mother's characteristics did account for part but not all of the effect of multiple transitions in family structure.

Interest in family instability reaches across disciplines: the psychological literature also recognizes the need to study instability as a dynamic phenomenon rather than only individual changes, as the overwhelming bulk of existing literature has done. Hetherington, Bridges, and Insabella (1998) note that individual family transitions like divorce are only one aspect of cumulative family instability that is likely to include parental marital transitions, moving, family income and parental occupational changes, and disruptions in routines. Ackerman et al. (1999), in turn, investigated how the number of various transitions such as residence changes, caregiver's relationship changes, and recent negative life changes affect young children's adjustment and find a significant and negative relationship between transitions and children's internalizing and externalizing problems. Capaldi and Patterson (1991) and Kurdek, Fine, and Sinclair (1995) find the number of marital transitions to be linearly associated with child and adolescent psychological problems, respectively. Forman and Davis (2003) find an association between family instability and adolescent internalizing and externalizing problems. However,

the psychological studies also tend to operationalize family instability by counting the number of transitions. My research identifying family structure trajectories will be of interest to family professionals across several disciplines.

Manning and Bulanda (2007) recently called for more studies that include complete family trajectories, especially because of the increasing incidence of cohabitation, which can often be missed in static measures. They point out that because cohabitation is often unstable (Manning et al., 2004; Raley & Wildsmith, 2004), it is likely to be underrepresented in studies looking at family structure at one point in time. Furthermore, even current research that includes cohabitation trajectories often fails to distinguish between biological and nonbiological cohabiting parents (e.g. Dunifon & Kowaleski-Jones, 2002; Hao & Xie, 2001). Using NSFG data, Manning and Bulanda find that using static variables of family structure at age 14 misses half of the experiences of living in cohabiting families, including two-thirds of experiences in cohabiting families with two biological parents and half of the experiences in cohabiting stepfamilies. Such static measures also miss two-fifths of experiences in single mother families, one-third of experiences in biological two parent married families, and one-fifth of experiences in married stepfamilies. Manning and Bulanda conclude that "full family histories are ideal and permit one to analyze timing of family change…as children increasingly experience new family forms and face greater instability, we must adjust our measurement and analytic strategies to keep pace," (Manning & Bulanda, 2007, p. 218).

The present study improves upon past work in the area of family instability because in addition to counting family structure transitions, I am creating entire trajectories of children's living arrangements. Family structure trajectories, as opposed to individual transitions, offer more of a life course perspective as described by Elder (1994; 1998) because they capture the

consequences of earlier changes for later outcomes and capture the full experience of individuals over time rather than looking at the effect of a single event or circumstance on another. Trajectories are made up of many individual transitions (Elder 1998) and yield a more comprehensive understanding of life experiences and causal relationships. Family structure trajectories are particularly important for study because they capture children's *cumulative* family structure experiences. Because children's living arrangements are so variable over time today, this cumulative experience is important to consider. Rather than only looking at timing or sequences of number of transitions children experience, constructing family structure trajectories provides an opportunity to combine these factors into one measure that is useful for descriptive and analytical purposes. Trajectories account for both current and past family structure experiences and may clarify any underlying patterns. Theory also suggests that family *instability* in addition to family *type* may be a very important connection between family structure and child outcomes. To my knowledge, no study looking at entire trajectories of family structure exists; indeed, Manning and Bulanda briefly discuss it as an option for analyses, but state that they do not use it because "the family categorizations may become unwieldy" (2007, p. 205). I use latent class analysis and other analysis tools in order to use the full trajectories in analyses.

It should also be noted that much research on instability includes transitions other than changes in family structure such as residence changes, negative life events, caregiver changes, parental job and income changes, or family deaths (e.g. Forman & Davies, 2003; Ackerman et al., 1999). This project focuses specifically on family instability as measured by family structure changes. The development of such trajectories of childhood living arrangements advances the field of sociology because it is now possible to study the effects of cumulative family structure changes and indicate whether and how early trajectories may shape outcomes in adolescence.

Data and Sample

The data sets used for the study were the National Longitudinal Survey of Youth 1979 (NLSY79) and the linked NLSY79 Children and Young Adults (CNLSY). The research questions in this study can best be answered using panel data that includes questions about family structure at several points in time over the course of children's lives and into young adulthood and for whom extensive household information is available over time. The CNLSY is a data set that surveys the biological children of women in the NLSY79. Information on the CNLSY sample has been collected every two years from 1986 to 2006. The CNLSY is representative of children born to the women of the NLSY79, which in turn is representative of Americans who were 14 to 21 years of age on December 31, 1978 when appropriate sample weights are used. Family structure history came from the mothers' NLSY79 surveys; the other data came principally from the linked Child and Young Adult surveys.

The NLSY data is sponsored by the U.S. Department of Labor and the data has been compiled through the Ohio State University Center for Human Resource Research. The original NLSY79 data included a nationally representative sample of 12,686 men and women. As of the 2006 wave, the NLSY79 women were between the ages of 41 and 49. The CNLSY sample is estimated to represent over 90 percent of all the children ever to be born to this cohort of women. By 2004, there were 8,267 children identified in the NLSY data as having been born to the original NLSY79 female respondents, including a small number who were born prior to the original 1979 survey. There were 7,816 children and young adults who were interviewed in 2006. Of the sample of 7,816 respondents, 1,972 were under age 15 and 5,844 were classified as young adults in their interviews (the CNLSY adjusts the questionnaire based on the age of the child).

NLSY data is suited to this study because it offers extensive household information over several waves of data and the NLSY administrators present the data as nationally representative of the children of a cohort of American women at the end of their childbearing years. The CNLSY also includes many important young adult outcomes, including internalizing and externalizing problems, childbearing, and mother-child relationships.

The sample selected for the study is a cohort of children who were 14-19 years old in 2006. Selecting adolescents in this narrow age range insures that all of the respondents are in the same cohort. Adolescents in the sample were born between late 1986 and 1992. However, it must be noted that because there is a range of ages in the sample, some adolescents had several additional years of risk for experiencing more family transitions, and transitions did occur in less than 4% of the sample at each additional age above age 14 (15-19). Those selected for the sample must have lived with their biological mothers continuously throughout childhood because the family structure information comes from mothers' interviews. These children represent the cohort born in their mothers' late twenties. Limiting the sample to this age group allows more complete cohabitation information to be used, as information on cohabitation was not collected in the early years of the NLSY study. The mothers in the sample must have missed no more than two surveys during their child's lifetime in order to ensure that complete family structure histories were obtained. After applying those restrictions, the sample size was 1,927 children. In 57 cases, as family structure histories were being created, there was conflicting data reported by the mother about what transitions had occurred and when they had occurred, and it was not possible to reconcile the various reports about what had really happened, so the cases were dropped. The final sample size was 1,870 adolescents. Sampling weights are not used in the analyses in this project due to their disputed usefulness (Winship & Radbill, 1994).

Measures

Family Structure Variables

Children were coded into one of six possible family structures at birth: mother married to biological father, mother cohabiting with biological father, mother was married to and is now separated from biological father, mother married to a non-biological stepfather, mother cohabiting with non-biological partner (hereafter referred to as a cohabiting stepfather), or single (mother may or may not have had previous spouses or partners, is not separated from biological father, and currently does not report any spouses or partners in the household). Then the date and type of each relationship transition after the child's birth though 2006 were coded. Both the type of transition and the type of partner (biological or non-biological father) were recorded in the transition codes. There were 16 possible transitions: marriage to biological father, separation from biological father, reunite with biological father after a married separation, divorce from biological father, marriage to biological father ended due to father's death, marriage to stepfather, separation from stepfather, reunite with stepfather after a married separation, divorce from stepfather, marriage to stepfather ended due to father's death, begin cohabiting with biological father, end cohabitation with biological father, cohabitation with biological father ended due to father's death, begin cohabiting with stepfather, end cohabitation with stepfather, and cohabitation with stepfather ended due to stepfather's death.

In some cases, a transition was reported but the exact date of the transition was not reported (most commonly the end of cohabitation). When other indicators confirmed the interval of time in which the transition must have occurred, the ending date was estimated to be six months after the last survey in which the relationship was reported. If a start date of a relationship (nearly always cohabitation) was missing, the start date was imputed to be one

month before the survey in which the relationship was first reported. By using this method, cohabiting relationships were still included even if a date was missing as long as it could be reasonably estimated.

The possible codes for family structure at birth and each subsequent transition as well as the frequency of each of these family structures at birth and the frequency of ever experiencing each subsequent transition at least once can be found in Table 1.

When looking at Table 1, it is important to keep in mind that some members of the sample experienced the same transition multiple times, and that is not reflected in this table, which only records how many children *ever* experienced each of these transitions. About three-quarters of the sample were born to two married parents, and the remaining quarter were born into other family structures. The most common alternative was being born to a single mother (about 15% of the sample), followed by cohabiting biological parents (8.3% of the sample) and separated biological parents (just over 1%). None of the children in the sample were born to a mother married to a stepfather, and just one was born to a biological mother who was cohabiting with a nonbiological father.

As expected, the transition that the largest percentage of the sample ever experienced was the divorce of previously married biological parents (about 22% of the sample). About 17% percent of the sample ever experienced the separation of their married biological parents which was explicitly reported by the mother. Obviously, all of the parents who ever divorced also separated, but a separation was only explicity counted when the mother reported that her spouse was no longer living with her. Some mothers reported a separation but no subsequent divorce or a reunification with their spouse.

TABLE 1 ABOUT HERE

About 16% of the sample ever experienced their mother's cohabitation with a stepfather, and about and 15% ever experienced their mother's marriage to a stepfather. About 6% of the sample experienced their mother breaking up with their cohabiting stepfather at least once; the other cohabiting relationships either continued or resulted in marriage, which is not included in the cohabitation breakup statistic. About 4% of the sample ever experienced their mother and stepfather's divorce. A relatively small number ever experienced a father figure's death during childhood. The greatest likelihood of experiencing a paternal death was for children to experience the death of their married biological father (just under 2% of the sample). Other less common transitions can be found in Table 1.

After the complete relationship histories were coded, several family structure variables were created. Variables representing relationship structures over time were calculated for the latent class analysis. For each age between birth and child's age in 2006, a dichotomous variable (1,0) indicating whether the child experienced each family structure was created. There were 5 statuses a child could possibly occupy for each year of age. Including the year of birth, there are 99 separate variables for each respondent (no one in the sample was born to a mother who was married to a stepfather at the time of birth, so this variable was omitted from the analysis). Five binary variables were used to represent family structure: mother married to biological father, mother cohabiting with biological father, mother cohabiting with stepfather, mother married to stepfather, and single mother (no partner reported in the household). The latent class analysis is based on who the mother is living with at each age. Therefore, the latent class analysis does not distinguish between separation and divorce; what counts is who is in the household. Each child was coded 1 or 0 for each of these five variables for every year of their

life beginning from birth (the table above only continues through age 2 in the interest of space conservation). In years in which a transition occurred, the child was coded 1 for each variable experienced that year.

Other created family history variables included a variable representing the total number of family structure transitions that the child had experienced from birth until the survey in 2006, at which time the children were 14-19 years old. The total number of transitions increased by one with each transition from one family structure to another. The 16 possible transitions are shown in Table 1. This variable is the maximum measure of family structure transitions.

A more traditional measure of family structure transitions was calculated in the same way as the maximum measure, except two transitions were not counted: cohabitations that transitioned directly into marriages, and separations that transitioned directly into divorces.

Child Outcomes

All child outcomes were calculated according to adolescents' responses to questions in the CNLSY. Outcomes in the study included closeness to mother, depression, and delinquency. These variables were selected because they are important indicators of adolescent well-being and adjustment. Missing values were not imputed on these dependent variables in the regression-based analyses.

Closeness to mother was coded according to responses to a question asked of the adolescents ages 15-19 in 2006: "*How close do you feel to your mother? Would you say…*" Responses ranged from 1 = *extremely close* to 4 = *not very close*. These responses were reverse coded so that higher values indicated higher levels of closeness on a scale of 1 to 4.

Depression was measured among adolescents ages 15-19 in 2006 using the abbreviated Center for Epidemiologic Studies Depression Scale (CES-D) developed by the Center for

Epidemiological Studies of the National Institute of Mental Health (Radloff, 1977). Respondents reported how often they had not felt like eating, had trouble keeping mind on things, felt depressed, felt everything was an effort, had restless sleep, felt sad, or could not get going during the past week (0 = *rarely or none of the time, 1 day*; 1= *some or a little of the time, 1-2 days*; 2 = *occasionally, moderate amount of the time, 3-4 days*, 3 = *most or all of the time, 5-7 days*). The measure of depression used in these analyses was the mean of the responses for the 7 items for each adolescent (seven items, reliability $\alpha = .65$). In analyses predicting mother-child closeness and depression, most of the youngest adolescents in the sample are excluded because they were not asked the questions because they were not yet 15 years old.

Delinquency was measured among adolescents who were 14-17 years old in 2006 using the Self-Reported Delinquency (SRD) interview (Elliott & Huizinga, 1983). As the standard measure in current delinquency research, the SRD is both reliable and valid (Loeber et al., 1998; Moffitt, 1990; Moffitt et al., 1996; Lahey et al., 2008). The SRD is a 7-item scale made up of the following questions: *hurt someone bad enough to need bandages or a doctor; lied to parent about something important; took something from a store without paying for it; intentionally damaged or destroyed property that didn't belong to you; had to bring your parent(s) to school because of something you did wrong; skipped a day of school without permission;* and *staying out overnight without permission*. The SRD was administered to both the children ages 10-14 and young adults ages "older 14" to 17 in the CNLSY. For the young adults aged older 14 to 17, the item *staying out overnight without permission* was replaced by *running away from home overnight*. In the present study, the child and young adult items in the SRD were coded dichotomously from the original 4-level responses ranging from *never* to *more than twice* and combined, and a delinquency scale was computed from the mean of the items (seven items,

reliability α = .63). Because of the age range to which the SRD was administered, this outcome could only be analyzed for adolescents aged 14-17 (18 and 19 year olds were excluded).

Independent Variables

Child Characteristics. Some standard child characteristics that are associated with child outcomes, including gender and age, are included in the study. Several adolescent outcomes, including internalizing and externalizing problems (Skaggs & Jodl, 1999) and mother-child closeness (Mitchell, Booth, & King, forthcoming) vary by adolescent gender. Adolescent age is also associated with greater maturity and lower levels of some problem behaviors, but higher levels of others, such as delinquency and risky behaviors (Kann et al., 2000). These variables all come from child's report in the CNLSY. Male is measured as 1 = *male*, 0 = *female*. Age is a continuous variable ranging from 14-19.

Mother Characteristics. This study includes characteristics of the mother that measure some of her background characteristics, her family of origin, and basic attitudes in her youth that are likely to be associated with her relationship trajectories during her children's lives as well her children's outcomes. These questions were asked before the focal child was born. All of these questions come from the mother's direct responses to the NLSY79 questions.

Mother's family structure at age 14 is coded according to whether she was living in an intact family with both of her parents when she was 14 years old (0=*mother and father in household*, 1 = *other family structure*). Previous literature and family theory suggests that aspects of family structure are likely to be transmitted across generations (Axinn & Thornton, 1996; Thornton, 1991; Teachman, 2004). The most commonly cited example is divorce: experiencing parental divorce increases offspring risk of divorce for a variety of reasons (Amato, 1996). Likewise, economic circumstances are likely to persist across generations, and the

socioeconomic circumstances of one's family of origin often predict family formation choices as well (Edin & Kefalas, 2005). Family poverty status is calculated for 1979, the first year of the survey (1 = *in poverty*, 0 = *not in poverty*). Mother's parents' education was also included. Mother's mother's (child of interest's grandmother's) highest grade completed was coded into a set of dichotomous variables: less than high school, high school completed, education beyond high school. Mother's father's (child of interest's grandfather's) highest grade completed was also coded into the same set of dichotomous variables: less than high school, high school completed, and education beyond high school. Mother's race is coded is coded as a set of dichotomous variables: Black, Hispanic, and non-Black non-Hispanic.

Religiosity has been found to be associated with family formation choices, including actions regarding a premarital birth (Plotnick, 1992) and likelihood of cohabitation versus marriage (Thornton, Axinn, & Hill, 1992). In this study, mother's religiosity in young adulthood is coded from a question in 1979 asking the respondent what their present religion is (a separate question asks in what religion was the respondent raised and is not used in this study). A dichotomous variable was created from this question (1 = *respondent named a religion*, 0 = *none, no religion*). Attitudes toward marriage have also been found to be predictive of family structure choices (Clarkberg, Stolzenberg, & Waite, 1995). Mother's expectation of marriage is coded from a question asked in 1979 regarding the age at which the respondent expects to marry (1 = *already married or answers with an age range*, 0 = *never)*.

Mother's self-esteem in young adulthood may be associated with the type and stability of her future romantic relationships as well as her children's well-being. Specifically, having lower self-esteem lowers the chances that women will marry (Kim & McKenry, 2002). Following Fomby and Cherlin (2007), I use the Rosenberg Self-Esteem Scale administered in 1980 to tap

mother's self-esteem in young adulthood. In the Rosenberg scale, respondents indicate the degree (1-4) to which they agree with statements such as, "I am a person of worth," "I am inclined to think I am a failure," and, "Sometimes I think I am 'no good' at all." Mother's self-esteem is the mean of the 10 questions in the Rosenberg scale, some of which are reverse-coded, so that a higher score always indicates higher self-esteem on a scale of 1 to 4 (ten items, reliability $\alpha = .83$).

Mother's education in 1985 was coded into the same set of dichotomous variables as grandparents' educational attainment: less than high school, completed high school, or education beyond high school. The oldest adolescents in the sample were born in 1986, so this measure of mother's education predates the birth of the child yet all mothers are over 20 years old by this time.

Mother's age at first birth is coded as a dummy variable according to whether the mother was less than 20 years old at the time of her first birth. As Fomby and Cherlin (2007) discuss, having a teen birth has been associated with long-term disadvantage in terms of future economic circumstances and lower chances of marriage, resulting from both causal effects and family background (Geronimus & Korenman, 1992; Geronimus, Korenman, an& Hillemeier, 1994; Hayes, 1987; Hoffman, 1998; Hoffman, Foster, & Furstenberg, 1993).

Another independent variable that comes from the mother's survey is the percentage of the focal adolescent's childhood that was spent in poverty. This variable was calculated by adding the years spent in poverty over the course of the child's life as reported by the mother divided by the child's age in 2006 multiplied by 100 to obtain the percentage of childhood spent in poverty. It serves as a rough measure of financial stress that may connect children's family structure histories with their adolescent outcomes.

Analytic Strategy

The goal of this project was to analyze children's complete family structure histories. There were two main steps of the analytic strategy corresponding to the two specific aims and groups of research questions.

The first aim was to document children's long-term family histories. Therefore, the first step of the analytic strategy involved general descriptive analyses of children's family structure experiences over the course of childhood. This included the creation of trajectories of living arrangements over childhood and the use of latent class analysis (LCA) in M*plus* to determine the major groupings of such trajectories in the sample. Latent class analysis captures underlying patterns due to an unidentified latent variable, in this case of children's living arrangements over the course of childhood. LCA is particularly appropriate to describe the family structure experiences of American children over time, yet has not been applied for this purpose in extant research. McCutcheon (1987) states that latent class analysis is appropriate when people belong to different groups but how people fall into those groups is not known *a priori* and should be decided according to the data. Analysis of the demographic characteristics of children who grow up in different trajectories was conducted using crosstabulations and multinomial logistic regressions. Expectation maximization algorithms were used to deal with missing data in regression-based analyses. Five percent or fewer of the cases were missing on the imputed variables with the exception of time spent in poverty (8% of cases were missing) and grandfather's education (13% missing).

The second aim of the study was to determine whether living in different family structure trajectories is associated with various adolescent outcomes, including depression, delinquency, and mother-child relationship quality, using regression-based methods. The effects of growing

up in the different family structure trajectories identified by the latent class analysis as well as the effect of the number of family structure transitions experienced during childhood are analyzed with and without the aforementioned control variables.

Results

Diversity of Children's Living Arrangements over Time

Table 2 presents the descriptive characteristics of the main sample of 1,870 adolescents used in these analyses. The sample was composed of adolescents with a mean age of about 16 and a half years old. Just over half of the sample was male, and, on average, 11% (with a very large standard deviation) of the sample's childhood was lived in poverty. The mothers in the sample were about 30% Black, 20% Hispanic, and 50% non-Black non-Hispanic. Just under one-third of the mothers were living in a nonintact family at age 14, and about a quarter were living in poverty during the first wave of the NLSY. The mothers in the sample overwhelming reported having a religion and expecting to ever be married in 1979. Their mean self-esteem in 1979 was 3.21 on a scale of 1 to 4. About 20% of the mothers in the sample were teenagers at the time of their first birth.

Over 80% of the mothers had completed high school before the birth of the focal child, and nearly 40% had some education beyond high school. The grandparents of the focal child had lower levels of education, on average. About 43% of both grandmothers and grandfathers had less than a high school education, and only about 17% and 24% of grandmothers and grandfathers, respectively, had any education beyond high school.

TABLE 2 ABOUT HERE

Table 3 presents the number of family structure transitions experienced among the 1,870 adolescents in the sample, which is an increasingly popular way to document family instability.

The number of family structure transitions is calculated in two ways. In the maximum measure, every transition possible of the 16 listed in the methods section is included. In the traditional measure (e.g. Fomby & Cherlin, 2007), transitions from cohabitation directly into marriage and from separation directly into divorce are not included. The thinking is that in the case of those transitions, no one is actually moving into or out of the household, so those transitions may not have the same kind of impact on adolescent outcomes. It is evident from this table that the way in which the number of transitions are calculated has important implications in family research, as using the more traditional measure results in substantially fewer transitions being counted. Regardless of which measure is used, the results indicate that the majority of adolescents experience 0 transitions. However, a substantial number (around 40% using either measure) do experience one or more family structure transitions at some point, and a handful experience a very high number of transitions (five or more).

TABLE 3 ABOUT HERE

Table 4 presents the 22 most commonly experienced trajectories. There are two things that must be noted when looking at this table. First, in the NLSY data, some mothers reported a separation before their divorce and others only reported a divorce and no separation. In Table 4, similar trajectories that are different only in whether the mother reported a separation before divorce are listed next to each other. Second, it is important to remember that Table 4 shows the less complex trajectories with fewer transitions, because as children experience more transitions, the number of children who experienced exactly the same trajectories decreases dramatically. For example, many of the 187 different trajectories are experienced by fewer than five children because the exact order of experiencing different family structures varies so much.

TABLE 4 ABOUT HERE

As shown in Table 4, the most common trajectory was to be born to married biological parents and never experience any family structure transitions. Just over half of the sample (52%) experienced this trajectory.

The next most common trajectory was to be born to married biological parents who divorce and do not have any other transitions. Combining those who reported a separation prior to divorce and those who did not, about 8% of the sample was born to married parents who divorced and then did not have any other transitions.

The third most common trajectory was to be born to a single mother who never had a partner in the household. About 6% of the sample experienced this stable single-mother family. Thus, two of the top three most common family structure trajectories were stable trajectories with no transitions – stable married biological parent families and stable single mother families.

Two percent of the sample were born to cohabiting biological parents who subsequently married and stayed married. The other family structure trajectories were all experienced by only 1% of the sample.

Although Table 4 presents the 22 most common family structure trajectories, it does not include the family structure experiences of 17% of the sample. There are 165 other trajectories among the remaning 322 children in the sample. It is evident in looking at Table 4 that beyond the few trajectories described above, children's long-term living arrangements vary widely.

Latent Class Analysis Trajectories of Children's Living Arrangements

In order to better understand the predictors into various trajectories and outcomes associated with experiencing different trajectories of living arrangements, latent class analysis was utilized to group the children into a more parsimonious number of useful trajectories.

As a precaution against depending on a local instead of a global maxima, estimation in the latent class analysis was based on 500 iterations for each of 20 random starting values. The highest log likelihood was utilized as the starting value for the final optimization.

Latent class analysis was run on models specifying 1 to 12 latent classes, and three statistical methods were used to discover the best solution. First, the Bayesian Information Criterion (BIC) declined linearly as the number of classes was increased from 1 to 12. Lower values suggest better solutions, but statistical research indicates that the BIC may overestimate the optimum number of classes (Nylund, Asparoutiov, & Muthen, 2007). However, the BIC clearly leveled off at the 5-class solution, which was eventually determined to be the best solution (see Figure 1).

Second, entropy was used to determine the best number of classes, as it is a way to determine unambiguous classification into a particular number of separated groups (Wedel & Kamakura, 1998). The entropy values reached a maximum of .997 in the 5-class solution as well as several other solutions, indicating that the 5-class solution was among the best. Third, the Lo-Mendell-Rubin (L-M-R) likelihood ratio test of model fit (Lo, Mendell, & Rubin, 2001) compares the fit of each model to the data with the solution with one fewer class. The L-M-R suggested a perfectly significant improvement (p=.0000) from the 4-class solution to the 5-class solution, and increasing p-values thereafter (up to p=1.000 for the 8-class through 12-class solutions, indicating zero significant improvement in model fit with the addition of more classes). Taking all three tests into account, as well as a substantive interpretation of model usefulness, the 5-class solution emerged as the definitive best solution.

The children in the sample were assigned to one of the five classes based on their probability of being a member of each class (using the highest probability to assign classes

resulted in class membership almost exactly identical to class sizes resulting from the latent class probabilities identified by M*plus*). The 5 trajectories as identified by the 5-class solution are shown in Table 5.

TABLE 5 ABOUT HERE

The first trajectory, which contained 12% of the sample, was made up of children who were born into a married two-biological parent family in which the parents subsequently divorced or separated. Figure 2 presents the probability of children in the first trajectory experiencing each family structure over time. Children in this trajectory were born to two married biological parents. Sometime in middle childhood, these children experienced the divorce or separation of their parents, and their probability of living in a two married biological parent family plunged. At the same time, their probability of living with a single mother rose to between 70 and 80% in the teen years. Those who did not live with a single mother lived with a married or cohabiting stepfather after their parents' divorce. The odds of living with a married stepfather were higher than the odds of living with a cohabiting stepfather in this group.

FIGURE 2 ABOUT HERE

Figure 3 presents the trajectory of class 2: children living with long-term single mothers, who accounted for about 18% of the sample. Children in this trajectory spent the overwhelming majority of their childhood living with a single mother. In the early years some lived with married or cohabiting biological parents, but the probability of living with two parents was nearly zero by around age 6.

FIGURE 3 ABOUT HERE

Trajectory 3 was the largest class, with 55% of the sample experiencing a stable two married biological parent family. Children who experienced this trajectory were born to two

married biological parents and remained in that family structure their entire lives, except possibly at the very end of the teenage years, when less than 5% of the children in this trajectory began to live with a single mother as the result of separation or divorce.

FIGURE 4 ABOUT HERE

The fourth class was composed of children who were born to cohabiting biological parents. This trajectory was the smallest of the five; only 4% of the sample were in this class. The children in this trajectory had a high probability of being born to two cohabiting biological parents. By the late teen years, children in this class still had about a 30-40% chance of living with two cohabiting biological parents. They were most likely to live with two married biological parents by the end of childhood, and had about a 20% probability of living with a single mother. It is notable that children whose parents married and children whose parents broke up are in the same trajectory instead of the children whose parents married fitting in with the continuously married class.

FIGURE 5 ABOUT HERE

The fifth and final trajectory was distinctive because the children gained a stepfather at some point over the course of childhood. This class is depicted in Figure 6.

FIGURE 6 ABOUT HERE

Class 5 was made up of children who shared the experienced of gaining a stepfather, usually a married stepfather, at some point during childhood. These children were born into a variety of family structures, including single mothers, married biological parents, and cohabiting biological parents. About half of them were born to married biological parents who subsequently divorced (nearly all did so by age 8), so they share that experience with class 1. However, the probability of living with a stepfather who was married to the child's biological mother increased sharply in

middle childhood in class 5, then leveled off and declined a bit at the end of the teenage years as some of those marriages ended. The probability of living with a cohabiting stepfather peaked around age 9 at nearly 30%, then declined as some of those cohabitations with stepfathers became marriages and others broke up. The probability of living with a married stepfather peaked around age 14 at nearly 80%, as mothers married some of the cohabiting stepfathers or began marriages not preceded by cohabitation. This group clearly experienced some substantial instability.

Family Structure Trajectories and Adolescent Well-Being: What Really Matters?

The second research aim in this paper is to determine how experiencing different family structure trajectories is associated with adolescent outcomes and also to assess how other aspects of long-term living arrangements, such as the number of transitions or number of mother's partners children experience, predict well-being. Three adolescent outcomes are examined in this chapter using ordinary least squares regression: depression (CES-D), delinquency (SRD), and mother-child closeness. Adolescents are included in the analyses predicting each of these outcomes if they were asked the questions (adolescents who were not classified as young adults in the CNLSY were not asked about closeness to mother or depression, and adolescents older than 17 were not asked about delinquency) and provided valid responses (missing values were not imputed on the dependent variables). Adolescents 15-19 were included in analyses predicting mother-child closeness and depression, and adolescents 14-17 were included in analyses predicting delinquency. Not including missing data on outcomes due to age restrictions, about 4% of the sample were missing on depression, about 7% were missing on delinquency, and about 4% were missing on mother-child closeness).

Model 1 in Table 6 shows the association between number of family structure transitions and depression. Number of family structure transitions is a statistically significant predictor of depression ($p<.001$). Adding the control variables in Model 2 does not decrease the significant effect of number of transitions.

TABLE 6 ABOUT HERE

In Model 3, both children's long-term family structure classes and number of transitions are included. Number of family structure transitions remains statistically significant. Class 1 is no longer significantly different from class 3 (as it was in Table 19), suggesting that instability helps explain why growing up in that trajectory was associated with higher levels of depression compared to growing up with stably married parents. However, after controlling for instability, class 5 (gain a stepfather) is now significantly different from some of the other groups. The same results are evident in Model 4, which includes the control variables. When controlling for number of transitions, adolescents in the group that gained a stepfather have lower levels of depression than those who grew up with continuously married parents, divorced parents, and long-term single mothers. This suggests that family instability as measured by number of transitions is a key predictor of adolescent depression, but once the greater instability of children in the stepfather group is taken into account, experiencing the trajectory that includes living with a stepfather actually lowers the likelihood of experiencing depression as an adolescent. This finding makes theoretical sense when comparing the stepfather class with classes 1 and 2, where the alternative is likely a single mother, because the addition of a stepfather likely could translate into greater monitoring and emotional and financial support for the adolescent. However, it is surprising when comparing the stepfather group to the married biological parents

class, as the stepfather group has lower levels of depression, on average, than that group (only after controls are added).

Table 7 presents the association between number of family structure transitions, latent class trajectories, and delinquency. In Model 1, the number of transitions is a significant predictor of delinquency, and remains significant when controls are added in Model 2. In the combined analysis of number of transitions and latent class trajectories in Model 3, the number of transitions remains a significant predictor. Adolescents in class 5 (gain a stepfather) are no longer more likely to be delinquent compared to those with continuously married parents after controlling for the number of transitions. The differences between continuously married parents and the other two classes (married parents who divorce or separate and long-term single mothers) remain, with those two groups reporting more delinquency than the continuously married group. In addition, there is a significant difference between classes 2 and 5 ($p<.05$). Adolescents who grow up with a long-term single mother report significantly more delinquency than those who gain a stepfather when controlling for number of transitions. The same difference was found for depression in Table 6. However, when controls were added in Model 4, the only remaining differences were between Classes 1 and 3 and 1 and 5. Adolescents in class 1 (married parents who divorce or separate) had more delinquency than those in class 3 (continuously married parents) or class 5 (gain a stepfather). Those who grew up with a long-term single mother no longer have more delinquency than those who grew up with continuously married parents when the classes, instability, and all controls are included.

TABLE 7 ABOUT HERE

As a precaution against multicollinearity, correlations were run between all of the predictor variables in the preceding models. Bivariate correlations between all variables were

below .5 with the exception of the relationship between Class 5 (gain a stepfather) and number of transitions, where r=.52, and mother's expectation of marriage and adolescent's age (r=.53).

Table 8 presents models predicting the effects of number of transitions and latent class membership on mother-child closeness as reported by the adolescent. The bivariate model testing the association between number of transitions and mother-child closeness was not significant, indicating that the number of family structure transitions that children experience does not appear to affect how close they feel to their mothers. In model 3, which includes both number of transitions and latent class trajectories, the adolescents who grew up in trajectory 1 had significantly lower levels of closeness to their mothers than those in continuously married families or long-term single mother families and also had lower levels of closeness than those in class 4 (cohabiting parents who marry or break up). In Model 4, which included controls, adolescents in trajectory 1 (married parents who break up) had lower levels of closeness to their mothers, on average, than adolescents in continuously married parents. Other significant differences lost significance after controls were added in Model 4.

TABLE 8 ABOUT HERE

Discussion

The key research questions in this project were grouped into two aims. The first aim was descriptive in nature: document children's family structures over the course of childhood in their entirety. The first descriptive research question was: on average, how many changes in family structure do American children experience from birth through adolescence? In this sample, the mean number of family structure transitions was about 1 transition. However, the number of transitions the children in this sample experienced ranged widely from no transitions for about 60% of the sample to 7, 8, and 9 transitions for a handful of children. About 40% of the sample

experienced at least one family structure transition, which means they experienced two different family structures. The 5% of children who experienced four or more instances of partners moving in and out of the household experienced at least five distinct family structures over the course of childhood.

Today, there is no "normal" childhood family structure. The living arrangements children experience vary widely, with most children still growing up in stable households of different types, most often with with married biological parents or a single mother, and a substantial proportion of children experiencing multiple family structure transitions.

The second descriptive question was how many different trajectories of living arrangements exist, and what are the most common ones? In this sample of 1,870 adolescents, there were 187 different trajectories. The most common ones are described in Table 4 and are generally the less complex trajectories, such as living with stable married parents or a stable single mother or married parents who break up and do not remarry. However, the most common 22 trajectories only capture the family structure experiences of 83% of the sample. There are 322 children, or 17% of the sample, whose family structure experiences do not neatly fit into the most common trajectories. As children experience more complex trajectories with more family structure transitions, the odds that other children experience the exact same sequence of family structures decreases dramatically.

Because there are 187 distinct trajectories of family structures that children in the sample experienced, latent class analysis was utilized in order to understand the underlying pathways of children's family structure experiences. The fourth research question in this study was: what primary trajectories does latent class analysis reveal? Latent class analysis methods revealed five trajectories of family structure in the sample: born to married biological parents who divorce

or separate; grow up with long-term single mothers; grow up with continuously married biological parents; born to cohabiting biological parents who marry or break up; and a group that is distinguished by gaining a stepfather at some point.

The second aim in this study was to understand what it is about family structure that matters for children's outcomes. Specifically, how does experiencing different long-term trajectories and transitions predict depression, delinquency, and mother-child closeness? Analyses using the latent class trajectories to predict outcomes suggest that the trajectories which are more likely to be associated with negative outcomes are trajectories 1 and 2 (married parents who break up and long-term single mothers). Trajectory 3 (continuously married parents) is often associated with better outcomes than some of the other classes, and trajectory 4 (cohabiting parents who marry or break up) is generally not a significant predictor of adolescent outcomes (however, it is important to keep in mind that it is the smallest group, at only 4% of the sample). Children in trajectory 5, in which children gain a (usually married) stepfather, have the most family structure transitions, on average. This group has more delinquency than the continuously married parents group in models only examining the effects of trajectories on outcomes, but in analyses controlling for the number of transitions, which will be further discussed in the next section, adolescents who gained a stepfather actually had less depression and delinquency than several of the other groups. This analysis helped answer one of the key questions in the literature: are children from married stepfamilies better off than children from single-mother families once instability is taken into account? The results in this study suggest that they are, but of course if the stepfather group is the most unstable (and it is), it is impossible to "control" for instability in real life. Stable stepfather families, however, should be studied more carefully, as this study suggests that they may improve children's long-term outcomes significantly compared

to single-mother families. Overall, these results suggest that stress theory (e.g. Cox 1978) may help predict outcomes, as the trajectories which likely placed more demands on children to adjust and readjust to difficult family structures and changes were associated with worse outcomes than those that likely did not place such demands upon children.

Family instability is clearly an important predictor of future depression and delinquency. Even when the number of transitions children have experienced and the full family structure trajectories are entered in models predicting these outcomes together, both with and without control variables, the number of family structure transitions children have experienced remains a statistically significant predictor of depression and delinquency. The latent class trajectories, particularly classes 1 and 2, sometimes remain significant predictors of outcomes, but the number of transitions always remains a significant predictor of depression and delinquency.

However, cumulative instability does not appear to affect mother-child closeness. Mother-child closeness is generally stable regardless of family structure, with one important exception: divorce. When estimating the effects of family structure on mother-child closeness in several different ways, experiencing divorce stands out as perhaps the only family structure transition or experience to have a negative impact on how close adolescents feel to their mothers. Divorce also appears to be associated with increased depression and delinquency.There is a long-standing literature that divorce has long-lasting negative effects on outcomes into adulthood (e.g. Amato & Sobolewski, 2001), and in this recent cohort of the CNLSY, divorce still seems to be making a significant negative impact on several different outcomes.

Some specific conclusions about outcome differences between specific latent class trajectories can also be reached. First, adolescents who were born into marriage and experienced parental divorce (class 1) are clearly doing worse than adolescents whose parents were

continuously married. The difference in delinquency between classes 1 and 3 (married continuously) persisted even after all the variable for cumulative instability and all controls were added to the model. Divorce also predicted depression, even when controls were included, until the variable for instability was included. Finally, class 1 was also the only trajectory (or family structure variable of any kind, for that matter) that predicted mother-child closeness. This finding reiterates prior research that has demonstrated that divorce is clearly a problematic experience for children's later outcomes, including depression, delinquency, and mother-child closeness.

Perhaps the most surprising conclusion is the finding that once the greater instability experienced by the adolescents who gained a stepfather was taken into account, adolescents in this trajectory had less depression and delinquency than those in some of the other trajectories. Again, it is clear that instability is not a positive experience for children, but perhaps when a stably married stepfather is added to a family without a father figure (such as a long-term single mother family, as in trajectory 2, or a divorced mother family, as in trajectory 1), the extra supervision, economic support, emotional support, and other positive contributions the stepfather makes to the family help improve children's long-term outcomes. One thing to keep in mind is that "better" stepfathers may also be more likely to stay in the family. This finding warrants further investigation in the future.

When studying the number of transitions children experience, one must remember that 1 transition means that children experience two family structures, and that three transitions actually represents children experiencing four different family structures. Children must adjust to a new family with every change in family structure, and for depression and delinquency, this research

offers support for the family instability hypothesis – more transitions are associated with lower levels of well-being.

This study was able to work through the two main methodological issues in life course research as noted by Clausen (1986). A longitudinal lens was applied to family structure, and a single cohort of children was used. In addition, this study answered Rindfuss, Swicegood, and Rosenfeld's (1987) call to take a "more careful look at the life course *as it is actually lived*, not as we wish it to be for the sake of research" [emphasis theirs] (Rindfuss et al., 1987, p. 799).

This study finds support for the instability hypothesis, which posits that experiencing family structure transitions is detrimental for children's well-being. Although percentage of time spent in poverty was not a mechanism linking trajectories and outcomes, stress is still most likely the mechanism responsible. Psychological stress associated with adjusting to a new family system (e.g. Hetherington & Clingempeel, 1992) and financial stress (Gottschalk & Danziger, 1993; Hao, 1996) as well as stress associated with residential mobility (Speare & Goldscheider, 1987; South, 1999) likely contribute to the link between instability and outcomes and should be studied in greater depth in future work.

There were several limitations in this study. A major limitation is the fact that the sample only consisted of children who lived continuously with their biological mothers. Family instability is likely underestimated because children who did not live with their mothers throughout childhood and spent time in other family structures (with fathers and their partners, other family members, or non-family arrangements) likely experience greater and more intense instability than the children in this sample. Changing households from mother's home to father's home, for example, is probably a more intense and stressful family structure transition than having a mother's partner move in or out. In addition, some children may move out of the

mother's household as a result of the addition of a stepfather whom the child does not like. If such children are leaving their mother's household, it may be driving the positive effect on outcomes of having a stepfather in the household when controlling for instability, because children who do not like their stepfathers have left the household. Maccoby and Mnookin (1992) report that many children of divorce change their residence after initial custody is determined. However, Maccoby and Mnookin also found that the addition of a stepfather to the family is actually one of the major reasons why children of divorce spend more time in their mother's households. They wrote, "A mother's remarriage is associated with moderate shifts toward children spending more time in her household and less time with the father," (Maccoby and Mnookin, 1992, p. 200).

Despite the fact that the sample only includes children who lived continuously with their biological mothers, it is likely to be representative of American children's family structure experiences. According to the U.S. Census Bureau, in 2004, the vast majority of children did live with their biological mothers. About 3% of children lived in father-only families, and about one and a half percent of children lived in father-stepmother families. In addition, just under 4% of children lived with neither biological parent. Adding these numbers together, about 8.5% of children lived in households that did not include their biological mother in 2004, but only four and a half percent lived with their fathers and not their mothers; the rest lived with neither parent. Although this sample does not include children who left their mother's household, it does capture the experiences of the overwhelming majority of American children, who mostly do live with their biological mothers (Kreider, 2007).

Another limitation is the fact that the data are not perfectly nationally representative. Rather, the CNLSY is representative of the children of the women in the NLSY, which is

nationally representative of young Americans in 1979. Still, the data used in this study is an improvement in terms of representativeness upon other commonly used data sets used to study family instability because it follows children over their entire life course and is fairly representative of American children today.

This study is also limited because although all of the analyses predicting outcomes control for adolescent's age, it should be noted that the total number of transitions experienced by children at younger ages underestimates the total number of transitions they will ever experience because they still have several more years of risk for instability not captured in this study.

The fact that the mechanisms linking long-term family experiences with outcomes were not identified is also a limitation in this study. The next step of this study is to disentangle exactly which mechanisms might be linking various trajectories and instability with outcomes. As discussed earlier, psychological, financial, residential, and other changes should be analyzed with each family structure transition to determine exactly what it might be about family instability that is detrimental for adolescent well-being. However, it is likely that at least some of the stress associated with instability is somewhat intangible and might be not able to be measured in survey data.

The results in this study are derived from analyses using unweighted data. The regression-based analyses were not run with weights due to their disputed usefulness (Winship & Radbill, 1994). Additional descriptive analyses (not shown) were run using the sampling weight of the mother in 1979. The results of the descriptive analyses using sample weights were generally similar to the results of analyses using unweighted data. When the mother's sampling in 1979 weight was used, instability in the sample decreased somewhat. For example, the

number of children who experienced zero transitions increased from 59.1% of the sample to 65.1% of the sample, and the number of children who experienced at least one transition decreased slightly. For example, the percentage of children who experienced one transition decreased from 10.1% to 8.4%, and the percentage of children who experienced two transitions decreased from 12.2% to 10.5%. The latent class groups were generally the same, except the long-term single mother group decreased in size (from 17.6% to 11.3% of the sample) and the married continuously group increased in size (from 55.1% to 63.8% of the sample).

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Table 1. *Frequency and percentage of adolescents ever experiencing each birth status and subsequent family transitions (unweighted).*

	Frequency	Percent of Sample Ever Experienced
Family Structure at Birth		
Married biological parents	1411	75.5%
Cohabiting biological parents	156	8.3%
Separated biological parents	22	1.2%
Biological mother married to stepfather	0	0%
Biological mother cohabiting with stepfather	1	.1%
Single mother	280	15.0%
Possible subsequent family transitions		
Biological father marital transitions		
Biological parents marry	114	6.1%
Biological parents separate	319	17.1%
Biological parents divorce	409	21.9%
Married biological father dies	31	1.7%
Separated biological parents reunite	40	2.1%
Biological father cohabiting transitions		
Mother begins cohabiting with father	54	2.9%
Mother ends cohabitation with father	88	4.7%
Cohabiting father dies	2	.1%
Non-biological father marital transitions		
Mother marries stepfather	286	15.3%
Mother separates from stepfather	66	3.5%
Mother divorces stepfather	76	4.1%
Married stepfather dies	4	.2%
Mother reunites with separated stepfather	12	.6%
Non-biological father cohabiting transitions		
Mother begins cohabiting with stepfather	300	16.0%
Mother ends cohabitation with stepfather	120	6.4%
Cohabiting stepfather dies	0	0%

Table 2. *Descriptive Characteristics of Sample (unweighted)*

	% or M (SE)
Child characteristics	
Age	16.41 (1.62)
Male	52.2%
Percentage of childhood in poverty	11.02 (17.41)
Mother Characteristics	
Race	
Black	28.2%
Hispanic	19.9%
Non-Black, non-Hispanic	51.8%
Non-intact family at age 14	30.6%
Poverty in '79	24.7%
Claim a religion '79	92.1%
Expect to marry '79	98.6%
Self-esteem in '79	3.21 (.41)
Teen 1st birth	20.9%
Education in '85	
Less than HS	17.4%
High school	42.9%
More than HS	39.7%
Grandmother's Education	
Less than HS	43.7%
High school	39.7%
More than HS	16.6%
Grandfather's Education	
Less than HS	43.3%
High school	32.8%
More than HS	23.9%

Note: Imputed cases excluded.

Table 3. *Number of family structure transitions (measured two ways) in full sample.*

Number of Transitions (Maximum Measure)	Frequency	Percent of Sample	Number of Transitions (Traditional Measure)	Frequency	Percent of Sample
0	1,106	59.1	0	1,145	61.2
1	189	10.1	1	285	15.2
2	229	12.2	2	229	12.2
3	144	7.7	3	114	6.1
4	110	5.9	4	64	3.4
5	42	2.2	5	17	.9
6	27	1.4	6	8	.4
7	13	.7	7	6	.3
8	4	.2	8	1	.1
9	6	.3			

Table 4. *Number and percentage of adolescents in sample who experienced most common family structure trajectories.*

Family structure at birth	Trajectory after birth	n	%
Married biological parents	no transitions	971	52%
Married biological parents	→ separate → divorce	88	5%
Married biological parents	→ divorce	50	3%
Married biological parents	→ separate	27	1%
Married biological parents	→ separate → divorce → remarry stepfather	26	1%
Married biological parents	→ divorce → remarry stepfather	18	1%
Married biological parents	→ separate → divorce → cohabit with stepfather → → remarry stepfather	26	1%
Married biological parents	→ divorce → cohabit with stepfather → remarry stepfather	16	1%
Married biological parents	→ separate → divorce → cohabit with stepfather → → breakup	14	1%
Married biological parents	→ separate → cohabit with stepfather → divorce→ → remarry stepfather	11	1%
Married biological parents	→ separate → divorce → cohabit with stepfather	9	1%
Married biological parents	→ divorce → remarry stepfather → divorce	10	1%
Married biological parents	→ father dies	15	1%
Married biological parents	→ separate → reunite	13	1%
Cohabiting biological parents	→ marry biological father	39	2%
Cohabiting biological parents	→ breakup	24	1%
Cohabiting biological parents	no transitions	14	1%
Single mother	no transitions	117	6%
Single mother	→ cohabit with stepfather → marry stepfather	20	1%
Single mother	→ cohabit with stepfather → breakup	17	1%
Single mother	→ marry stepfather	13	1%
Single mother	→ cohabit with biological father → marry biological father	10	1%
TOTAL	22	1,548	83%
Other trajectories	165	322	17%
Total number of unique trajectories	187	1,870	100%

*separations and divorces are counted as individual transitions in this analysis.

Figure 1. *Model selection using BIC criteria.*

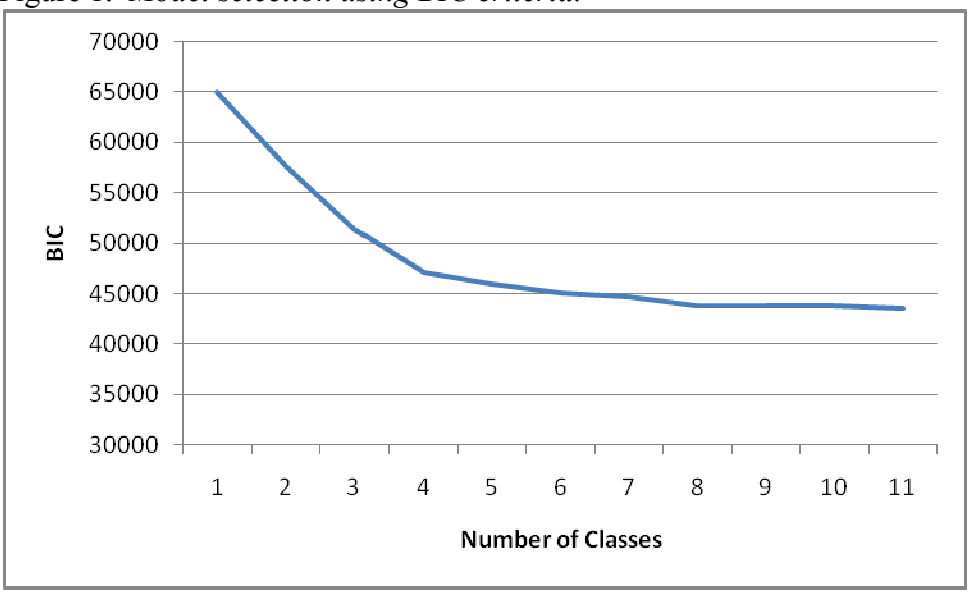

Table 5. *Latent Class Analysis: Membership (% or M).*

	n	%
Class 1: Born into married family, experience divorce or separation.	225	12.0
Class 2: Long-term single mothers.	329	17.6
Class 3: Married continuously.	1031	55.1
Class 4: Cohabiting biological parents who marry or break up.	72	3.9
Class 5: Gain a stepfather.	214	11.4

Figure 2. Trajectory 1:Born into married family, experience divorce or separation.

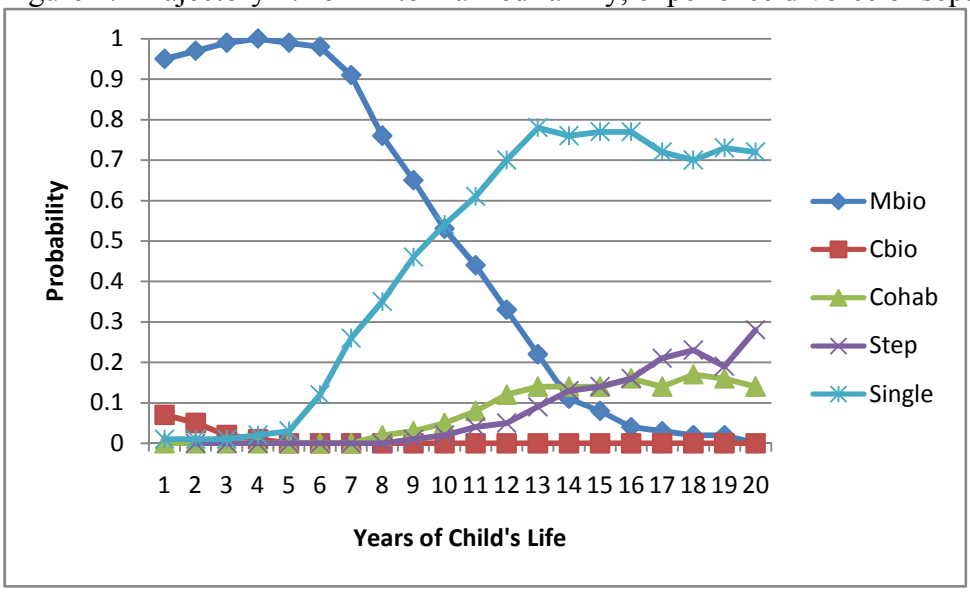

Figure 3. *Trajectory 2:Long-term single mothers.*

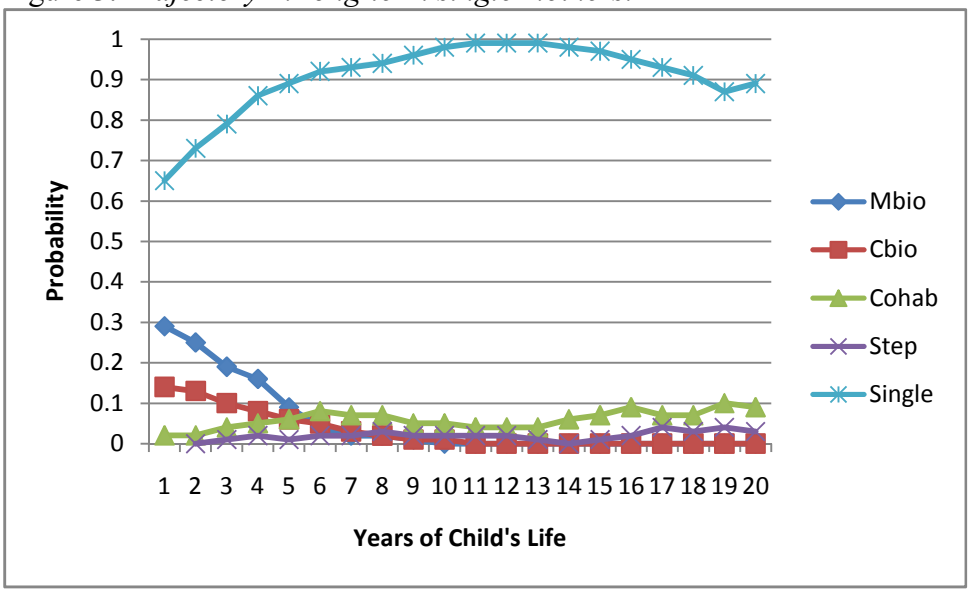

Figure 4. *Trajectory 3:Married continuously.*

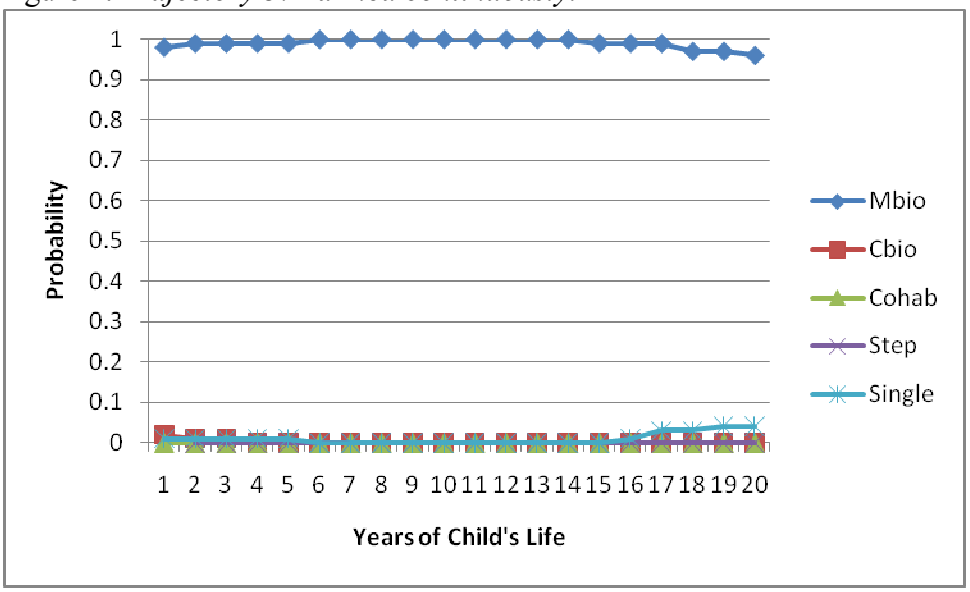

Figure 5. *Trajectory 4: Cohabiting biological parents who marry or break up.*

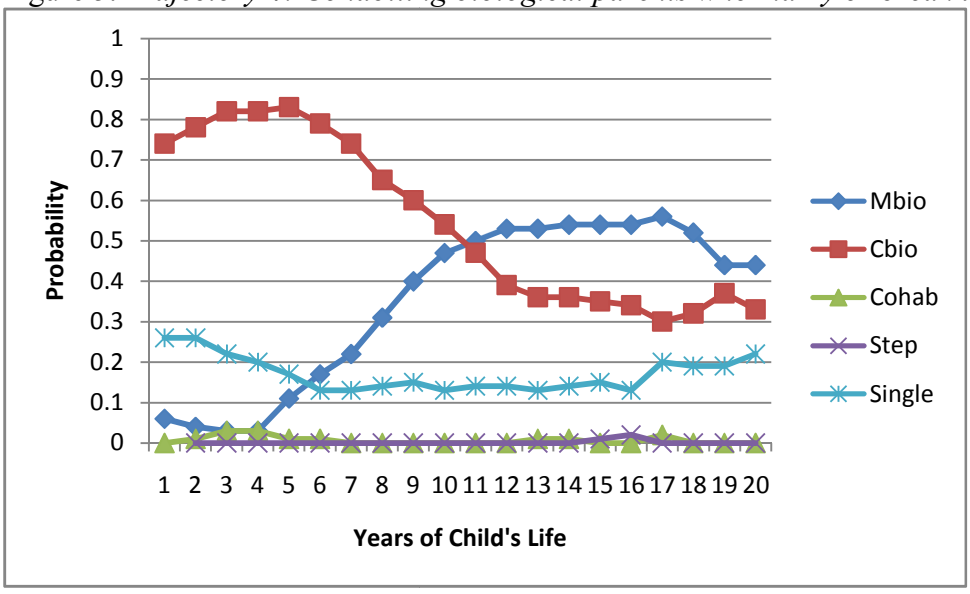

Figure 6. *Trajectory 5:Gain a stepfather.*

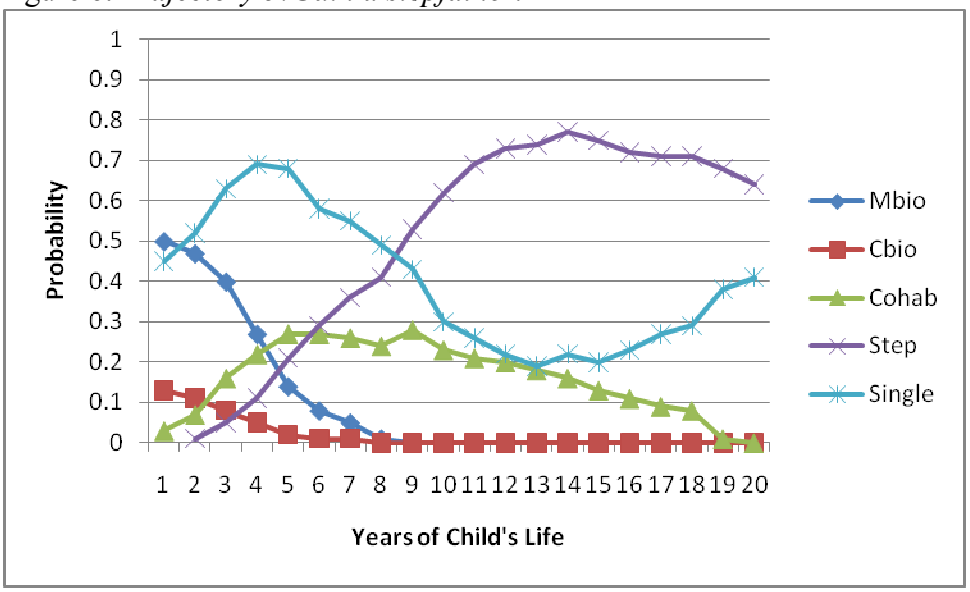

Table 6. *Unstandardized OLS Regression Coefficients Predicting the Effects of Latent Class Membership and Number of Family Structure Transitions with and without controls on Depression.*

	Model 1: Number of Transitions	Model 2: Transitions and Controls	Model 3: Classes and Number of Transitions	Model 4: Classes and Transitions and Controls
Class 1: Married family, divorce or separate.	--	--	-.02	-.04
Class 2: Long-term single mothers.	--	--	-.01	-.02
Class 3: Married continuously.	--	--	--	--
Class 4: Cohabiting parents, marry or break up.	--	--	-.01	-.05
Class 5: Gain a stepfather.	--	--	-.11*	-.14*
Number of Transitions	.04***	.04***	.05***	.05***
Class Differences[a]	--	--	Class2>Class5; Class3>Class5	Class1>Class5; Class2>Class5; Class3>Class5
Child Characteristics				
Male	--	-.15***		-.15***
Age	--	-.00		-.00
Mother Characteristics				
Race				
Black	--	-.01	--	.00
Hispanic	--	-.01	--	-.01
Non-Black, non-Hispanic	--	--	--	--
Non-intact family	--	.02	--	.02
Poverty in ‘79	--	-.02	--	-.03
Claim a religion ‘79	--	-.05	--	-.06
Expect to marry‘79	--	-.01	--	-.02
Self-esteem in ‘79	--	-.05	--	-.05
Teen 1st birth	--	.04	--	.04
Education in ‘85				
Less than HS	--	-.01	--	-.01
High school	--	--	--	--
More than HS	--	-.04	--	-.04
Percent childhood poverty	--	.00	--	.00
Constant	.56***	.91***	.56***	.94***
F	33.85***	5.99***	7.75***	5.07***
R^2	.02	.05	.02	.05
N	1,712	1,712	1,712	1,712

*p<.05. **p<.01. ***p<.001. [a]Significant differences at p<.05 between all classes on depression summarized.

Table 7. *Unstandardized OLS Regression Coefficients Predicting the Effects of Latent Class Membership and Number of Family Structure Transitions with and without controls on Delinquency.*

	Model 1: Number of Transitions	Model 2: Transitions and Controls	Model 3: Classes and Transitions	Model 4: Classes and Transitions and Controls
Class 1: Married family, divorce or separate.	--	--	.05*	.05*
Class 2: Long-term single mothers.	--	--	.06**	.03
Class 3: Married continuously.	--	--	--	--
Class 4: Cohabiting parents, marry or break up.	--	--	.03	-.00
Class 5: Gain a stepfather.	--	--	.01	-.01
Number of Transitions	.02***	.02***	.02**	.02**
Class Differences[a]	--	--	Class2>Class5; Class1>Class3; Class2>Class3	Class1>Class3; Class1>Class5
Child Characteristics				
Male	--	.04***		.04***
Age	--	-.00		-.00
Mother Characteristics				
Race				
Black	--	.03	--	.02
Hispanic	--	.04*	--	.04*
Non-Black, non-Hispanic	--	--	--	--
Non-intact family	--	.03	--	.02
Poverty in ‘79	--	-.00	--	-.01
Claim a religion ‘79	--	.02	--	.02
Expect to marry‘79	--	.04	--	.04
Self-esteem in ‘79	--	.01	--	.01
Teen 1st birth	--	-.01	--	-.01
Education in ‘85				
Less than HS	--	.00	--	.01
High school	--	--	--	--
More than HS	--	-.03*	--	-.03*
Percent childhood poverty	--	.00	--	.00
Constant	.17***	.13	.16***	.13
F	36.69***	5.70***	10.46***	4.90***
R^2	.03	.06	.04	.07
N	1,250	1,250	1,250	1,250

*p<.05. **p<.01. ***p<.001. [a]Significant differences at p<.05 between all classes on delinquency summarized.

Table 8. *Unstandardized OLS Regression Coefficients Predicting the Effects of Latent Class Membership and Number of Family Structure Transitions with and without controls on Mother-Child Closeness.*

	Model 1: Number of Transitions	Model 2: Transitions and Controls	Model 3: Classes and Transitions	Model 4: Classes and Transitions and Controls
Class 1: Married family, divorce or separate.	--	--	-.20**	-.22**
Class 2: Long-term single mothers.	--	--	.05	-.06
Class 3: Married continuously.	--	--	--	--
Class 4: Cohabiting parents, marry or break up.	--	--	.03	-.06
Class 5: Gain a stepfather.	--	--	-.08	-.14
Number of Transitions	-.01	-.02	.01	.01
Class Differences[a]	--	--	Class1<Class2; Class1<Class4; Class1<Class3	Class1<Class3;
Child Characteristics				
Male	--	.12**		.11**
Age	--	-.01		-.01
Mother Characteristics				
Race				
Black	--	.04	--	.05
Hispanic	--	.05	--	.05
Non-Black, non-Hispanic	--	--	--	--
Non-intact family	--	.03	--	.03
Poverty in ‘79	--	.07	--	.07
Claim a religion ‘79	--	.03	--	.03
Expect to marry‘79	--	-.04	--	-.05
Self-esteem in ‘79	--	-.05	--	-.05
Teen 1st birth	--	-.03	--	-.01
Education in ‘85				
Less than HS	--	-.04	--	-.05
High school	--	--	--	--
More than HS	--	-.07	--	-.06
Percent childhood poverty	--	.00	--	.00
Constant	3.31***	3.60***	3.32***	3.64***
F	.30	1.74*	2.37*	1.83*
R^2	0.00	.01	.01	.02
N	1,708	1,708	1,708	1,708

*p<.05. **p<.01. ***p<.001. [a]Significant differences at p<.05 between all classes on mother-child closeness summarized.