

Running Head: MEN'S EARLY FATHERHOOD PATHWAYS

**Pathways of Early Fatherhood, Marriage, and Employment:
A Latent Class Growth Analysis**

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Abstract

In NLSY79, young fathers (those with first births earlier than the cohort average) include heterogeneous subgroups with varying early life pathways in terms of fatherhood timing in relation to the timing of first marriage and to holding fulltime employment. Using Latent Class Growth Analysis (LCGA) with 10 observations between age 18 and 37, we empirically derived four latent classes representing different early fatherhood pathways (EFPs): (A) Married Fully-Employed Young Fathers, (B) Married Fully-Employed Teen Fathers, (C) Married Partially-Employed Teen/Young Fathers, and (D) Unmarried Partially-Employed Teen/Young Fathers. Men who become fathers around age 24 (cohort average), following fulltime employment and marriage, a fifth latent class termed On-Time fathers, are the comparison group. About 90% of all early fathers are married, nearly 75% are age 20 or older, and 74.3% hold fulltime employment at the time of the first birth. Even so, with sociodemographic background controlled, all or most early fatherhood groups show subsequent disadvantage in life outcomes (income, educational attainment, incarceration, and number of marriages and children). Nonetheless, as hypothesized, the extent of disadvantage on some outcomes is also greater when early fatherhood occurs at relatively younger age (before age 20), occurs outside marriage, or occurs outside full-time employment.

BACKGROUND

Many young men today are only loosely attached to their children, their children's mothers, and the workforce, coinciding with rising rates of non-marital childbearing, increases in divorce, increases in the share of children being raised in impoverished female-headed families, and the failure of some biological fathers to provide economic support to their children.

These trends are a cause for concern because accumulating evidence suggests that children living in a single parent household, especially one headed by a never-married mother, can experience substantial negative consequences (including poverty, problems with school, delinquency, dropping out, failure to go to college, teen parenthood, and employment difficulties (Cherlin and Furstenberg 1994; Fomby and Cherlin 2007; McLanahan and Sandefur 1994). Some link these shifts in family life to shifts in the labor force participation of men and women (Lundberg 2005). For example, several analysts have suggested that changes in marriage can be partially explained by declines in young men's ability to establish and maintain stable career trajectories (Anderson 1990; Oppenheimer et al. 1997).

There are significant gaps in our knowledge about men's roles in childbearing and marriage decisions, and the links between family and work for men (Oppenheimer, 2003). Sorting out the interconnections between employment and family patterns is complex because individuals typically make a number of interrelated transitions as they move out of their teen years into their twenties. These transitions are often packaged or occur together or in close proximity and including school completion and entry into the labor market, entry into romantic unions of various kinds, and the occurrence of pregnancies and births. Surprisingly little descriptive work has been conducted since Rindfuss (1991) documented both the density and complexity of the transitions that occur as teenagers grow up in the U.S.

Early Parenthood

Early motherhood. An extensive body of research has focused on mothers who are young (Astone and Upchurch 1994; Furstenberg 1991; Geronimus 1994; Jaffee 2002), unmarried (Wu and Wolfe 2003; Bronars and Grogger 1994), or both (Beutel 2000; Furstenberg et al. 1990; Moore, Manlove, Gleib, and Morrison 1998). These two indicators—early motherhood and unmarried motherhood—are highly correlated but the nature of the correlation has changed over time.

There is little research on how women's work lives are associated with *early* childbearing. This is probably because motherhood at any age is known to reduce women's labor force attachment and theory does not lead to any obvious a-priori hypothesis about how this association differs by the age at motherhood. Rather, researchers interested in how early motherhood affects women's attainment have focused on educational outcomes (Jones et al. 1999).

Early fatherhood. A much smaller but growing set of studies has also investigated young fatherhood. This literature has particularly addressed factors associated with teen fatherhood, and the service needs of teen and young married fatherhood (Lamb and Elster 1986; Lerman and Ooms 1993; Marsiglio and Cohan 1997; McLanahan and Carlson 2004). Research usually hypothesizes that young and/or unmarried fatherhood has negative consequences for men in later life (Garfinkel et al. 2009). This assumption provides part of the rationale for programs designed to delay young men's transition to fatherhood, and for interventions fostering marriage among young unmarried men whose partners become pregnant. As discussed below, several studies have empirically examined the consequences of teen and/or unmarried fatherhood (Marsiglio 1987; Nock 1998; Sigle-Rushton 2003). There are a number of "lessons learned" from

research on young motherhood that researchers could apply, and in many cases have applied, to research on young fatherhood.

The marital and employment context of first birth. First, research on the association of young fatherhood with outcomes needs to take into consideration the marital context of the birth and the timing and sequencing of marriage and parenthood more generally. There is some evidence that the sequelae of young fatherhood vary by whether the birth is marital or not and the sequelae of non-marital births depend on age at fatherhood (Marsiglio 1987; Sigle-Rushton 2003). For example, men who were not in a union with their female partners at the time of the birth had worse outcomes, especially pertaining to employment, than men in unions (Sigle-Rushton 2003). Further, based on NLSY79 data, only 31 percent men who marry as teenagers and become fathers within marriage and 63 percent of men who became nonmarital teenage fathers completed high school (Marsiglio 1987). This is in comparison to 86 percent of peers who postponed fatherhood past their teenage years. In turn, low school completion leads to employment and earning disadvantages. Marsiglio (1987) posed the question of how the relationship context with the child's mother – marital, cohabiting, non-residential - related to men's outcomes (education specifically).

Another important context for early parenthood is employment status, which may be particularly salient for men given their traditional role as breadwinner with resident children as well as their concern about financially supporting children with whom they do not live. Some research examines how fathers' employment is affected in the years following the birth. But, studies examining how this varies by fathers' marital status are recent and rare (Astone et al., forthcoming; Garfinkel et al. 2009; Percheski and Wildeman 2008). There is little study about how a father's employment status before, at and after the transition to fatherhood moderates the

association of young fatherhood with later outcomes.

Modeling strategies. One approach to understanding the linkages between marriage, parenthood and work is to apply various statistical modeling strategies in an effort to simulate experimental designs. This is the approach taken by econometricians (Upchurch et al. 2001, 2002) and it is essential if the goal is to inform policy makers on how intervening in one area (e.g. promoting marriage) may impact another (e.g. employment). An alternative is to recognize that people make decisions about work, family and marriage jointly to some extent, to model them as simultaneous decisions, and to look at the antecedents and consequences of these joint decisions. Recent advances in statistical methods make such complex models of the timing and sequencing of life events possible

For example, recent work explores how marital context relates to employment (Percheski and Wildeman 2008). Using growth curve models with Fragile Families baseline and five-year follow-up (after becoming a father) data from 1,084 fathers, Percheski and Wildeman (2008) report that in the year before becoming a father, married men work more weeks per year and many more hours per week compared to either cohabiting or non-residential men soon to be fathers. But, five years later these differences no longer hold as unmarried men increase their work while married fathers maintain their work levels. When selection variables are controlled, differences at baseline and five years later no longer exist for the *number of weeks* worked per year; yet, married men still maintain a significant lead in *hours* worked even though their values diminished. Other research supports the finding the increased work effort (in hours worked) is associated with becoming a first-time father for unmarried (but not married) men (Astone et al. forthcoming).

Selection. Another lesson learned from research on young motherhood is that young

mothers are highly *selected*. Many studies have established that the associations of young motherhood with later outcomes for the woman are diminished substantially when selection into young motherhood is taken into account (Lawlor and Shaw 2002). Second, selection effects need to be taken into account. Men who become fathers early and/or outside of marriage may differ markedly from those who do not in their sociodemographic background characteristics. Prior studies suggest that selection factors account for much of the poorer later life outcomes experienced by men who become fathers when young and/or unmarried compared to those who do not, although some differences remain. For example, Sigle-Rushton (2003), using a U.K. sample of men who become fathers prior to age 22 and a matched sample of older men who had children or did not become fathers, found that by age 30 early fathers only differed on three outcomes: public housing subsidies, welfare receipt, and malaise. Men did not differ on unemployment/ low occupational status. According to Sigle-Rushton childhood disadvantages contribute to both early fatherhood and its associated negative outcomes. In Nock's analysis of later life outcomes associated with unmarried fatherhood in the NLSY 1979, the deficit in earnings of decreased yearly employment, and increased poverty status of men becoming fathers under age 20 and between 20 and 25 relative to men over age 26, decreases in magnitude after controlling for race, family background, and individual characteristics. When men's relationship history (ever-married or ever-cohabited) is further added to the models, most of the relationships between early fatherhood and earnings, employment, and poverty are no longer significant. The one outcome variable that is robust against these selection variables is educational attainment, however.

Short versus long term outcomes. The final lesson learned from studies of young motherhood is that short term consequences and long term consequences of early parenthood

may be different. For women, it appears that in the years immediately following the birth young mothers are quite disadvantaged compared to their peers who delay childbearing, but many resilient young mothers recoup and the differences between them and their peers who delayed motherhood are not so profound in mid-adulthood (Furstenberg, Brooks-Gunn and Morgan 1987). These findings call attention to the importance, when comparing young fathers to men who make the transition later in life, making these comparison at more than one stage of the life course.

Research Questions and Hypotheses

Past research on early parenthood has established that the experience of becoming a father at a young age varies by whether or not it occurs in marriage, and by the work status of the father (Astone et al., forthcoming). Focusing on men who become fathers at a relatively young age, the overall objective of this study is to identify and explore the pathways men take into early parent, spouse, and worker roles; the sociodemographic background correlates of these pathways; and their sequelae in later life. Two more specific research questions guide this study. First, *do all young fathers have similar early life pathways? If not, how do their pathways vary in terms of the timing of first marriage and of their full-time employment status across time, and how are these varying pathways related to sociodemographic background characteristics?*

Second, *how are early fatherhood pathways associated with life outcomes in later life (young adulthood - age 26, and later adulthood - age 37), with sociodemographic background characteristics controlled?* We hypothesize that:

1. Early fatherhood pathways are associated with more disadvantaged later life outcomes than in pathways in which men transition into fatherhood “on-time,” in an

the normative sequence following marriage and fulltime employment (hereafter termed simply “on-time”).

Among early fatherhood pathways, more disadvantaged later life outcomes are associated with:

2. Pathways characterized by younger median ages of first fatherhood (i.e., before age 20) than in pathways characterized by older median ages at first fatherhood (age 20 or later), as well as on-time pathways.
3. Pathways in which the first birth occurs outside marriage (concurrent or soon thereafter) than in pathways in which the first birth occurs inside marriage, as well as on-time pathways.
4. Pathways in which the first birth occurs when the father does not have fulltime employment (concurrent or soon thereafter) than when he does have fulltime employment, as well as on-time pathways.

Finally, we also hypothesize that:

5. The later life disadvantages associated with young fatherhood decrease over the life span as they do for women.

We assess these hypotheses using two types of outcomes. Our primary outcomes of interest include income, educational attainment, and incarceration, all of which are commonly agreed upon indicators of disadvantage. Additional outcomes include the number of marriages and number of children. More marriages and children confer greater financial responsibilities to support others. If a man experiences lower attachment to the job market, having multiple children and a divorce may compound his already disadvantaged situation.

DATA AND METHODS

Sample

The 1979 Cohort of the National Longitudinal Survey of Youth (NLSY79), a nationally representative sample of youth aged 14 to 21 in 1979, is the data source for this study. These youth were interviewed annually until 1992 and biennially since then. These analyses are limited to the “cross-sectional¹” sample representative of the non-institutionalized civilian population of young people born from 1957 to 1964. We excluded female respondents and oversamples of poor respondents resulting in a sample size of 2800 men who were either African American, European American, or Latino. We examine men's role trajectories from age 18 through 37, spanning nearly 20 years of development. Given the computational complexity of analyzing 19 times of measurement, data from ten approximately evenly spaced ages (18, 20, 22, 24, 26, 28, 30, 32, 34, 35, and 37) were used. We restricted the sample to men who provided data at all 10 ages; the final study sample size is 1,992 men. The demographic characteristics of the study sample with the full sample are reported in Table 1.

The analytic sample differs on some demographic variables relative to the sample of respondents with missing data for at least one observation from the 10 used in these analyses (Table 1). The analytic sample is more advantaged in terms of youth poverty, highest educational attainment, living with both parents at age 14 and less likely to live with step parents, and less likely to have mothers with less than a high school education. Although the two samples do not differ with respect to proportion of Black men, they do differ on the proportion of white and Hispanic men with the analytic sample having more white men and fewer Hispanic

¹ This term is used by NLSY79 even though the sample is longitudinal. It is used to distinguish these respondents from the military and poor subsamples.

men. Although not addressing selection into the analytic sample, these variables are controlled in our analyses.

 Insert Table 1 about here

Variables for Latent Class Analysis

Three binary variables were created for each of the ten ages: ever fatherhood, ever married, and full-time work status. The distributions reported below pertain to the analytic sample (N=1992) and are unweighted unless so specified.

Ever fatherhood status. We used birth date information from the respondent's oldest child and his own birth date to calculate the respondent's age at first biological fatherhood. We coded whether or not each respondent was a father at each age observation used in the analysis. Respondents who never transitioned into fatherhood by age 37 were coded 0 on this variable for all observed ages up to 37. Men who became fathers were coded 1 for the age at first fatherhood and for each subsequent year of age observed up to age 37. For example, if we calculated that a respondent became a father for the first time at age 19, he was also coded as being a father for observed ages 20 through 37 (ever a father by age 37: N= 1429; 71.7% of the analytic sample). We did not take into account infant mortality, so any man whose only child died retained a code of 1 after the death.

Ever married status. We use a similar strategy for marriage. We pooled data across all survey years to calculate the date of first marriage for each respondent and used his birth date to generate his age at first marriage. Respondents who never married were coded 0 for marital status at all observed ages up to age 37. Respondents who ever married were coded 1 for ever

married marital status beginning at the observed age of first marriage and beyond up to age 37 (ever married by age 37: N= 1581; 79.4%). Given the construct was ever married, men who separated or divorced were still coded as 1.

Fulltime work status. We aggregated the weekly labor force activity data to calculate each man's median yearly work hours. Men who worked 1,440 hours or more a year (consistent with working 30 hours per week for 52 weeks) were classified as working fulltime for that year. For each age, we coded 0 for men who did not meet this criterion for hours worked in the past year and coded 1 for men who met or exceeded this criterion. Unlike the marital and fatherhood status variables, fulltime work status is allowed to vary (0 to 1 or 1 to 0) over time from age 18 to 37.

Background Demographic Variables and Covariates

Race/ Ethnicity. Our analyses include men of three racial/ ethnic backgrounds: Whites/ other (non-Hispanic whites, Asian Americans, missing ethnicity), Blacks (non-Hispanic blacks), and Latinos. The sample consisted of approximately 81.1 percent white, 12.4 percent black, and 6.5 percent Latino male youth.

Highest educational attainment. During each survey year respondents were asked their highest year of education completed to date. The sample average is 13.3 years of education (some college).

Youth poverty. We used youth poverty status variables from 1978 and 1979 (1= in poverty; 0 = not in poverty). These variables were created based on measures of family income at the time each youth entered the study (ages 14-21). Approximately 10.4 percent of the sample experienced youth poverty.

Family structure at age 14. In 1979 respondents reported with whom they lived at age

14. We recoded living arrangements at age 14 into four categories: with both biological parents, one biological parent only, one biological parent and a stepparent, and no biological parents. Both biological parents households were the predominant living arrangement at age 14 (77.6%) followed by biological and stepparent (8.4%), single biological parent (11.9%), and no biological parents (2.1%).

Mother's characteristics. Mother's highest level of educational attainment, a continuous variable, was collected in 1979. We also use mother's age at the time of the respondent's birth.

Limited work. Beginning in 1979, men reported whether their health limits the kind of work they can do. If a man reported his work was limited by his health by age 26 and by age 37, he was coded as being limited in work at that age. If he was disabled or completely unable to work during any wave, he was coded as ever being disabled (N=332; 16.7% by age 26; N=488; 24.5% by age 37).

Outcomes – Age 26, Age 37, and Lifetime

Respondents' income at ages 26 and 37. Annual incomes for each survey year were calculated based on wage data for each respondent. The sample average income was \$17,210 at age 26 and nearly \$39,781 at age 37.

Respondents' highest educational attainment at age 37. Respondents reported their highest grade of educational attainment at each observation. The sample average was 13.5 years of education (1.5 years beyond high school).

Number of marriages at age 26 and 37. Men reported the total number of marriages they experienced at ages 26 and 37. By age 26, nearly half (46.8%) of the sample had never married, 47 percent were married once, and 5.9 percent were married two times or more. More

than one-fifth of the sample did not report ever being married by age 37 (20.6%). Over half of the men reported being married once (56.5%) and 22.9 percent of the sample reported higher-order marriages.

Number of biological children at ages 26 and 37. Men reported the number of biological children they had at each observation. By age 26 about two-thirds (62.7%) of the sample did not have any children, 20.9 percent had one child, 12 percent had two children and 4.4 percent had three or more children. By age 37 over one-fourth had no children (28.3%), 18.9 percent reported one child, 30.6 percent reported having two children, and 22.2 percent reported having three or more children.

Incarceration: By age 26. Given that the NLSY79 does not contain an item that directly asks men if they have ever spent time in prison or jail, incarceration by age 26 was created using residence items from age 18 to 26². If a man ever reported he was currently residing in jail or prison, he was coded as having a history of incarceration (N=121; 6.1%). This by necessity is an underestimate given it is likely that some inmates attrited, and other respondents who had been imprisoned were not residing in prison when they were interviewed.

Analytic Strategy – Latent Class Analysis

Given the dichotomous nature of status variables and the need to assess trajectories overtime, we chose a longitudinal categorical data analysis strategy to address our primary research question.

Overview of latent class approaches. In principle, Latent Class Analysis (LCA) is akin

² Very few men reported being incarcerated for the first time after age 26 and the number of men incarcerated between ages 27 and 37 was too small for statistical analyses. Hence, we limit our analyses to incarceration prior to and including age 26.

to factor analysis with categorical variables (Lanza & Collins, 2006); how classes of individuals respond to various items can be thought of as equivalent to factors of items. Traditionally, LCA has been limited to single points in time and Latent Transition Analysis (LTA) is used to model the transitions among classes across adjacent time points. One limitation of LTA is that the class structure at one time point may not be the same as at latter time points even if the same number of classes is specified. This is also true of factor analysis; three factors may emerge at time 1 and time 2, but the loadings of specific items may be different for the two time points, resulting in different definitions and meanings over time. Although LTA has the added advantage of modeling transitions across time, one may be comparing apples to oranges over time even though the same overall number of classes is generated for each time point. To avoid both limitations – so we can model as many time points as possible in the same model to ensure equivalent meaning – we ran latent class analysis for repeated measures, also known as latent class growth analysis (LCGA) (Lanza & Collins, 2006; Muthén, 2004).

Latent Class Growth Analysis (LCGA). As applied here, this method *empirically* derives varying patterns of the acquisition of roles over the life course, marriage and fulltime employment, taking into account their sequencing and timing. We initially identify early life pathways in an LCGA analysis of a full cohort of men rather than just within the subsample of men who are early fathers for three reasons. First, pathways are defined relative to each other, so by deriving latent classes in the full sample, early father pathways are defined relative to non-early-father pathways. Second, rather than setting an arbitrary age cutoff for early fatherhood a priori (a controversial issue, even more so in light of the “emerging adulthood” concept; Arnett, 2000), we used LCGA to inform how early fatherhood should be defined. Third, empirically derived (rather than a priori) non-early-father classes can serve as comparisons for the early

father classes/pathways.

In LCGA, each class represents a pattern of behaviors across the times of measurement specified in the model (ten times of measurement for this study). In these analyses, we use data on fatherhood transitions, marital transitions, and fulltime employment status (30 indicators) over time to derive distinct classes (or subgroups) of men who are homogeneous with respect to patterns of these indicators over time. In other words, men in the same class have, at each age, equal probabilities of fatherhood, marriage, and employment in the way defined by the class. Each LCGA class represents a configuration of both the *ordering* of the three transitions and the *age* at which each transition occurs. For example, two classes might emerge characterized by the same transition sequencing (e.g., fulltime work followed by marriage and then fatherhood) but different timing and/or different spacing (one during the mid-20s that spans 10 years and the other during the mid-30s that spans five years).

At each time point, with three variables,, there are eight possible combinations of statuses (no transitions, fulltime work only, marriage only, fatherhood only, work and marriage, work and fatherhood, marriage and fatherhood, and all three statuses). The total number of possible combinations across all ten time points is 8^{10} . Backward transitions (e.g., scored 1 for having made the transition to fatherhood at age 20 but scored 0 at later ages) are excluded. Even with these exclusions, the number of theoretically possible combinations is unmanageably large. LCGA reduces these combinations into a smaller number of latent classes representing common patterns of the ordering of first fatherhood, first marriage, and fulltime employment over the period from age 18 to age 37, taking into account timing and spacing as well.

Model estimation. The current analyses were conducted using Proc LCA for SAS 9.1. Given the difficulty of handling missing data in LCGA models, listwise deletion was used based

on the three variables of interest over time (marital, fatherhood, and fulltime work status).

Analytic Strategy – Linear and Logistic Regression

For continuous outcome measures, we use linear regression to determine whether latent class (interpreted here as pathways) predict outcomes after controlling for covariates. For the dichotomous outcome (incarceration) we use logistic regression.

RESULTS

Are There Distinct Pathways of Early Fatherhood?

The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) for LCGA models with different numbers of classes were used to determine the best fitting model. The model with 12 classes³ had the best fit (AIC = 10518.7, BIC = 12595.1, compared to values of 10713.7 and 12616.6 for the 11 class model, and of 10719.3 and 12969.3 for the 13 class model), and was also the most interpretable.

The median age at first fatherhood for four classes was lower than the median age of first fatherhood (26.4) in the National Survey of Family Growth (NSFG) 2002 for men of this same cohort. These four groups thus constitute four empirically derived pathways of early fatherhood in relation to the timing of marriage and full-time employment. These four classes constitute 37.9% of the sample.

Serving as a comparison group for many of the analyses is the large latent class termed here On-Time On-Sequence Fathers (hereafter, On-Time Fathers; 17.0% of the sample). In this

³ This paper does not discuss the seven other latent classes in the LCGA. Four additional classes represent men who postpone fatherhood, two classes define men who forego fatherhood, and one class characterizes on-time single fathers. For ease of presentation, we only show the four classes for early fatherhood and the on-time on-sequence reference class.

class, men's transitions occurred in the normative sequence (work, marriage, fatherhood) and at almost exactly the median ages observed for this cohort in the NSFG2002.

For each early life pathway as well as the On-Time fathers, proportions are reported in Table 2 and graphically depicted in Figure 1 with values for first fatherhood, first marriage, and fulltime employment at each age observation.

 Insert Table 2 & Figure 1 about here

Class A. Married Fully-Employed Young Fathers (19.1% of full sample; 50.4% of early fathers). Nearly one in five men in the entire sample take the Married Fully-Employed Young Fathers pathway. Half of the men who take this pathway are fathers by age 23.5; this is about 4.5 years younger than On-Time fathers. Half of these men work fulltime from age 19.6 onward; so men are typically working when they become dads and they have been working for four years on average. Few of these men have children prior to age 20. Marriage and fatherhood are sequenced in that order. These men differ from the On-Time men is that they 1) start these role transitions (beginning with fulltime employment) early relative to the average, and 2) proceed through the role transitions relatively quickly, that is, have shorter intervals between role transitions.

Class B. Married Fully-Employed Teen Fathers (9.2% of full sample; 24.3% of early fathers). Men in this second most frequent early life pathway have their first children at the earliest of any of the four early fatherhood classes. Seventy percent have a birth prior to their 20th birthday. These men typically marry prior to the first birth, but the interval between marriage and birth is quite short (ages differing by 0.6). In addition, these fathers engage in

fulltime employment coincident with first birth, rather than prior to it as in class A.

Class C. Married Partially-Employed Teen/Young Fathers (5.2% of full sample; 14.0% of early fathers). Half of men in this early life pathway have their first child by age 21.2. Thirty percent have their child before age 20 and 70% do so after. Pathway C men marry nearly simultaneously with their first birth which suggests that for many, marriage might be triggered by the pregnancy. The distinctive feature of this pathway is the low rates of fulltime employment; this rate does not rise above 20 percent through their early 20s, and peaks at only 50 percent from age 29 to age 37.

Class D. Unmarried Partially-Employed Teen/Young Fathers (4.4% of full sample; 11.6% of early fathers). This final pathway straddles 20 as the age at which half report a first birth; about 45% report first birth prior to age 20. The first distinctive feature of this early life pathway is that members show higher rates of fulltime employment at earlier ages, reaching 50 percent by age 23 and remaining stable at nearly 60 percent through their 30s. Second, this pathway has the lowest rate of marriage, with no members reporting a marriage until after age 28, with less than 30 percent marrying by age 37. It is possible that many of these marriages are to a woman other than the mother of their oldest child.

On-Time Fathers (17.0% of full sample). The On-Time father pathway evinces median ages of first fatherhood, first marriage, and rates of fulltime work close to the medians observed in the NSFG2002 for men aged 38 to 42 (same cohort as NLSY79 men; author calculations). These men are “normative” in two respects: the timing *and* the sequencing of role transitions. Focusing specifically on On-Time fathers, the age by which half of men have entered fatherhood is approximately 28; similarly the age by which half of men have married for the first time is nearly 25 and the age by which half are currently employed fulltime is slightly

older than age 21. Furthermore, these men follow the normative sequence of working prior to marriage and marrying prior to becoming fathers. On-Time men serve as our comparison group rather than all men or all fathers. This strategy protects us from mistaking high levels of attainment by men who delay fatherhood for disadvantage among young fathers.

Do Men Who Take These Different Pathways Differ on Background Characteristics?

We assessed bivariate associations between early life pathway and four sociodemographic background characteristics (race-ethnicity, youth poverty status, living arrangements at age 14, mother's education). The results are reported in Table 3.

Insert Table 3 about here

All Early Fatherhood Pathways versus On-Time Fathers. Table 3 shows that when the men in all Pathways are pooled (top panel, row 3), and contrasted with the reference group (row 2), they are more likely to be ethnic minorities (although the percent Hispanic does not reach statistical significance) and more likely to be disadvantaged (in terms of youth poverty, family constellation at age 14, maternal education)⁴. These differences are apparent whether the comparison is with all men or with the On-Time men.

Individual Early Fatherhood Pathways and On-Time Fathers. Turning to specific pathways and their association with these demographic characteristics, we find heterogeneity among pathways. With respect to race-ethnicity, pathways C and D have high proportions of

⁴ Multiple group comparisons with Tukey adjustments were used for these bivariate analyses.

Classes that do not share any common superscripts are statistically significantly different from each other.

racial-ethnic minorities (i.e., significantly different from On-Time fathers, and from pathways A and B). Pathways C consists of 22.1 percent black men and over half of pathway D are black men.

In terms of youth poverty, the same two pathways also have high rates (over one-third of pathway D and one-sixth of pathway C). Similar to the findings for youth poverty, the lowest percent of men who lived with both parents at age 14 are reported by pathways D (58%) and C (60%). Mother's education is the only sociodemographic variable reported in Table 3 for which all four pathways report significantly lower values relative to On-Time fathers, with pathway A men reporting nearly one year less and other pathway men reporting 1.5 years less of maternal education. On average, men from all four pathways report their mothers earned less than a high school education with three reporting less than eleventh grade attainment for their mothers.

In contrast to the findings for combined pathways, the differences among pathways are notable with men on pathways C and D coming from more disadvantaged backgrounds than On-Time fathers. Pathway D also differs significantly from pathways A, B, and C with respect to race and youth poverty, and differ from pathways A and B in terms of living arrangements at age 14.

How Are Early Fatherhood Pathways Associated with Later Life Outcomes?

We test hypotheses concerning the later life disadvantages associated with young fatherhood in general (H1)⁵, concerning the role of age (H2), marital (H3), and employment (H4) contexts in these disadvantages, and concerning decreasing disadvantage over the life span (H5). As observed above, men in all early father pathways pooled together are more likely to be ethnic

⁵ H1, H2, H3, H4, H5 refer to hypotheses 1-5 described earlier. This shorthand will be used from this point forward.

minorities and to have disadvantaged backgrounds (youth poverty, family constellation at age 14, and maternal education). In addition, pathways C and D also include significantly higher proportions of racial-ethnic minorities, and more often report youth poverty, not living with both parents at age 14, and lower levels of maternal education attainment than do pathways A and B. Thus, it is evident that there are important processes of selection into the different pathways that need to be controlled for in all analyses.⁶ Although we control for typical selection variables, we recognize that unmeasured selection effects may still exist.

Tables 4-6 analyze how the four early fatherhood pathways compare to On-Time fathers (H1), and Table 7 provides additional comparisons of the four early fatherhood pathways with each other, in all cases with sociodemographic background controlled. We review the results in light of the hypotheses, making several different comparisons. First, we compare each early fatherhood pathway to On-Time fathers to test whether men with early transitions differ from the latter (H1). Next we compare pathway B to A given these pathways differ primarily in terms of the timing of fatherhood, not its work and marital context (H2). We then compare pathways C and D since their timing of fatherhood is the same, but the marital context differs (H3). Next, we compare pathways A and B to pathways C and D, since the two sets of pathways differ in the

⁶ For each outcome in Tables 4-6 we report three regression models. Model 1 depicts the relationship between each pathway and the outcome of interest with no other variables. Only sociodemographic variables are used to predict the outcome in Model 2. Both pathways and sociodemographic variables predict the outcome in Model 3, thereby representing the unique contribution of each variable above and beyond the other variables in the model. Differences in R-squares from Model 2 and Model 3 for continuous variables denote whether the addition of pathways to the model significantly improves the model.

employment context of first fatherhood (H4; though varying in age and marital context). For H2-4, detailed pairwise comparisons of pathways with each other and with On-Time Fathers are presented. Finally, we assess whether disadvantages associated with early fatherhood decrease from age 26 to 37 by comparing results for age 26 outcomes with those for age 37 outcomes (H5).

How Early Fatherhood Pathways Compare to On-Time Fathers (H1)

According to Hypothesis 1, early fatherhood pathways will report disadvantages in later life outcomes relative to On-Time fathers; recall that in this latter pathway, fatherhood occurs in the mid-twenties followed fulltime employment and marriage. Results for *income*⁷ and education are reported in Table 4. By age 37 men on all four pathways report significantly lower incomes (\$6,000-\$28,000 lower) relative to On-Time men. Compared to On-Time fathers, two of the four pathways report lower earnings at age 26. Men on pathways C and D reported significantly lower incomes (\$9,000-\$13,700 lower) than On-Time men (Table 4). In monetary terms, after controlling for sociodemographic variables including work limitations and region, pathway C men earn nearly \$14,000 less a year and pathway D men earn over \$9,000 less a year relative to On-Time fathers.

Insert Tables 4, 5, 6 about here

In terms of *educational attainment* by age 37, all four pathways also show lower levels of

⁷ Both log-income and income were modeled. Analyses determined that log-income models did not fit the data any better than income in dollars models. For ease of interpretation, only incomes in dollars for both ages 26 and 37 are presented in Table 4.

education relative to On-Time men, by 1.1 - 1.8 years (Table 4). Three of the four early father pathways (A, B, C) report more *marriages* at age 26, though only two do so at age 37 (B and C; Table 5). All early father pathways report more *children* at age 26 (1.2-1.8; $p < 0.001$) with men having children at the youngest ages (B) reporting the largest difference (almost two more children by age 26 than On-Time men), and three do so at age 37 (A, B, C; 0.35-0.53; $p < 0.05$).

There is least support for H1 for *incarceration* at age 26 with less than 1.5% of men on pathways A and B and On-Time men report incarceration by age 26. Two pathways (C and D; Tables 6), however, are characterized by significantly higher histories of being incarcerated relative to On-Time men (2.0-3.2 odds ratios, $p < 0.05$). In sum, men who transition early into fatherhood report lower incomes, less educational attainment, more marriages and children, and more incarceration (for two groups) relative to their On-Time peers, controlling for background factors.

It is important to note that selection differences explain *some, but not all*, of the observed disadvantage of young age at first fatherhood. For each outcome, models including demographic variables only (Models 2 in Tables 4 and 5) are improved with the addition of pathways (Models 3 in Tables 4 and 5) as evinced by significant changes in R-squares. Hence, early fatherhood pathways independently and uniquely influence outcomes of interest above and beyond sociodemographic variables.

How Relatively Younger Age at First Birth Relates to Disadvantaged Outcomes (H2).

We hypothesize- that among early fathers, becoming a father at a relatively younger age, e.g., before age 20, is associated with greater disadvantage. Among early fathers, pathway A (Married Fully-Employed Young Fathers) and pathway B (Married Fully-Employed Teen Fathers) differ on *how* early the transition into fatherhood occurs (as teens, or in early 20's),

while being similar in the marital and employment context of first births. Differences among these two pathways hold after controlling for confounders (Table 7). Those men with first births at relatively younger ages report lower *income* at both age 26 (ns) and age 37 (\$8,000 lower, $p < 0.05$). In addition, men on pathway B report three-quarters of a year less *educational attainment* relative to men on pathway A.

 Insert Table 7 about here

Men who transition earlier (B) report significantly higher numbers of *marriage* at both age 26 ($p < 0.05$) and age 37 ($p < 0.05$). Men who transition earlier (B) report significantly higher number of *children* relative to men who transition later (A) at age 26 (1.9 versus 1.3, respectively; $p < 0.05$) and age 37 (2.7 versus 2.5; $p < 0.05$). In short, among men who are both married and fully employed at the time of a first birth, men who transition into fatherhood *earlier* (B) report more disadvantage in terms of income, education, number of marriages, and number of children relative to their postponing peers (A).

How the Marital Context of First Births Relates to Disadvantaged Outcomes (H3)

We hypothesize that pathways characterized by *nonmarital* early births will be associated with more disadvantaged outcomes. All men of pathway D become fathers before marrying. By definition, these men report significantly lower number of *marriages* than the three other pathways and On-Time men. Hence, we will focus on the other outcomes of interest.

Unmarried fathers (D) report less *income* at age 26 and 37 compared to On-Time men (\$9,000 compared to \$28,000; Table 4). Men of pathway D also report significantly lower incomes relative to pathways A and B – both characterized by marital first births - at ages 26 and 37

(\$8,000-9,000 and \$14,467-22,457 lower, respectively, Table 7). Compared to their married partially-employed father counterparts, pathway C men, the income of pathway D is significantly higher at age 26 but not significantly different at age 37 (although it is lower at age 37).

By age 37 men of pathway D report 1.8 fewer years of *educational attainment* relative to On-Time men ($p < 0.001$). Furthermore, of all early fatherhood pathways, men in pathway D report the lowest level of education but only differ significantly from pathway A (Table 7).

By age 26, men reporting nonmarital first births (D) report higher *numbers of children* compared to On-Time men (1.2, $p < 0.01$). By age 37, however, the difference reverses whereby men of pathway D report marginally fewer children than On-Time men (ns) and the three remaining early fatherhood pathways (Table 7).

One potential explanation for the lack of marriages and fewer numbers of children for pathway D men at age 37 is high *incarceration* by age 26. Relative to On-Time men, pathway D men are 3.2 times more likely to have been incarcerated by age 26 ($p < 0.001$). Nearly one-in-four pathway D men (23.9%) report being incarcerated by age 26, making this group significantly higher than all three remaining pathways (the next closest is C with 8.7%).

In sum, men who transition into *nonmarital* first fatherhood report lower incomes at ages 26 and 37 relative to On-Time men and all three pathways defined by marital fatherhood at age 26 and two of these pathways (A and B) at age 37. Furthermore, pathway D men are significantly more likely to experience incarceration by age 26 relative to On-Time men and men of the three marital-birth early fatherhood pathways. Results for educational attainment and number of children are mixed although pathway D men report the lowest education levels of all pathways and On-Time men.

How the Employment Context of First Births Relates to Disadvantaged Outcomes (H4)

We hypothesize men who work less than fulltime (concurrently or soon after the birth) report greater lifetime disadvantage relative to men who work fulltime before and during the time of the birth. In other words, we expect men on pathways C and D (both *partially*-employed Teen/ Young Fathers) will fare worse than On-Time men and pathways A and B (*fully*-employed men at first births) in terms of income, educational attainment, incarceration, number of marriages, and number of children. We expect these patterns given pathway C and D men are underemployed.

As shown in Table 4, at ages 26 and 37, men of pathways C and D (both partially employed fathers) earn significantly less *income* relative to On-Time men. The gap widens substantially by age 37⁸. Pathway D men earn nearly twice as much as pathway C men at age 26. By age 37, however, men of these two pathways (C and D) do not significantly differ from each other in income. These partially employed fathers do significantly differ from their fully employed peers – pathways A and B – at ages 26 and 37 (Table 7).

In terms of highest *educational attainment* by age 37, both pathways C and D report lower education levels by at least one year relative to On-Time men (Table 4) but they do not significantly differ from each other or pathway B men (Table 7).

At both ages 26 and 37, pathway C men report significantly greater *number of marriages* (0.37 and 0.26 respectively, $p < 0.001$) and pathway D men report significantly lower number of marriages (-0.7 and -0.9 respectively, $p < 0.001$) relative to On-Time men (Table 5). Married fully-employed young fathers (A) report significantly fewer marriages than pathways B and C by age 37 (Table 7). These patterns may be partially attributable to the attractiveness of stable and high employment of men to women. Money concerns are most often cited as the impetus for

⁸ We acknowledge that inflation may partially explain the increase in the difference.

divorce (Amato & Previti, 2003) and earnings are considered a valuable characteristic when seeking a marital partner (Edin & Reed, 2005; Sprecher, Sullivan, & Hatfield, 1994).

At age 26, men of both partially-employed pathways reported significantly higher *numbers of children* compared to On-Time men (1.2-1.6; $p < 0.001$). At age 37, only pathway C men maintained this lead (0.5 children, $p < 0.001$). Relative to the other early fatherhood pathways, at age 26 pathway C and D men had moderate numbers of children. By age 37, pathway D men reported the fewest children and pathways B and C men reported the highest number of children.

As noted earlier, pathway C and D men report significantly higher levels of *incarceration* by age 26 relative to On-Time men (2.0 and 3.2 times higher, $p < 0.001$). Furthermore, given 24 percent of pathway D men and 9% of pathway C men experienced incarceration (Table 7), they are substantially more disadvantaged on this outcome relative to pathways A (1.3%) and B (1.2%).

In sum, *partially-employed* first-time fathers earn less income and report greater likelihoods of incarceration relative to their On-Time and pathway A and B peers. Furthermore, partially-employed men report less educational attainment than On-Time men. This confirms that partially-employed early fathers experience greater disadvantage than fully-employed peers on two important variables.

Decreasing Disadvantage Associated with Early Fatherhood Over the Life Span (H5)

Age 26 outcomes. By age 26 our multivariate regression analyses reveal that pathway A appears more advantaged, earning income comparable to On-Time fathers, supporting fewer children, and experiencing less marital dissolution. Pathways B, however, reports the highest number of marriages and children by age 26 of all pathways. Turning to the more disadvantaged

men at age 26, pathway C and D men significantly differ from On-Time fathers by earning far less income, fathering more children, completing less schooling, and experiencing jail. Pathway C men fare worst in terms of earning the least amount of money on which to support a relatively high number of children in the context of experiencing moderate marital dissolution. Pathway D men are not far behind in their lower earnings and a higher incarceration history.

Age 37 outcomes. By age 37 men on all pathways earn less income than On-Time fathers. Pathway A men earn \$6,000 less and pathway B men earn \$13,300 less. Pathway C and D men report at least \$25,000 less than On-Time fathers. Similar to findings for age 26, pathway A men appear most advantaged of the pathways. Of the remaining three pathways, pathway B and C men experience similarly high numbers of children, but pathway B men report a greater deficiency in educational attainment and greater marital dissolution relative to On-Time fathers than pathway C men. But, pathway C men have other problems with less income and employment and just as many children to support (in addition to an incarceration history). Although pathway D men have the fewest number of children by age 37, they also make the least amount of money, have the lowest level of educational attainment, and tend to marry less than other men (perhaps attributable, in part, to incarceration history and employment difficulties). In sum, the outcomes experienced by early fathers are worse at age 37 than at age 26 when compared to On-Time fathers.

DISCUSSION

This study documents and describes how young fathers sequence and interconnect work, marriage, and fatherhood roles, how these patterns vary across sociodemographic subgroups, and the later life sequelae of these patterns. Specifically, we employ a latent variable analysis technique – Latent Class Growth Analysis (LCGA) – to jointly model these processes. A

methodological limitation of the study is that the use of 10 observations per case led to considerable attrition in the analysis sample, with important sociodemographic background differences between the retained and attrited subgroups. Although not addressing this selectivity, these socioeconomic characteristics are controlled in the analysis. A compensating strength of the study is its use of NLSY data.

In this study we used LCGA to identify distinct pathways to fatherhood, marriage and work for men. We identified 12 pathways, of which four constitute pathways to *early* fatherhood (37.9% of the sample), that is, first fatherhood earlier than the median age of first fatherhood in the National Survey of Family Growth (NSFG) 2002 for men of this same cohort. About a quarter of early fathers were teens at first birth (pathway B, 24.3% of young fathers), with three-quarters age 20 or older, but still younger than the median age of first fatherhood. Most early fathers are married when the oldest child is born (A, B, and C, comprising together 88.7% of early fathers). About three-quarters of early fathers hold full-time employment at the time of first birth (A and B, 74.3%).

While we partially confirm prior research that with sociodemographic background controlled, early fatherhood results in subsequent disadvantage, we also find that the extent of disadvantage on some outcomes varies according to the marital and employment context of the early birth. Partially confirming our first hypothesis, all or most early fatherhood pathways are disadvantaged compared to On-Time fathers on the majority of outcomes. Confirming our second hypothesis that early fatherhood at a relatively younger age (before age 20) is associated with greater disadvantage, we found that even among young fathers who follow the normative sequence of work, marriage, and fatherhood, a teenage birth (pathway B) is associated with more disadvantage than a birth in the early 20s (pathway A).

Our results also confirm our hypotheses that men who become fathers at relatively younger ages, outside of marriage, and without fulltime employment report greater disadvantage relative to their married and fully employed peers, respectively. Those becoming fathers at relatively younger ages report lower income at both age 26 and 37, and less education at age 37. Unmarried fathers (pathway D) report lower income at both age 26 and 37 and less educational attainment. Pathways C and D include attenuated attachment to the labor force which in turn is related to lower income. There is some evidence that this low labor force attachment is due to involvement in criminal activity.

In contrast to early motherhood, the disadvantage associated with young fatherhood increases with age. It appears that compared to On-Time fathers, the outcomes experienced at age 37 are worse than those outcomes at age 26. The effects of early fatherhood are cumulative and men do not recover over time. There are important differences in the way that parenthood affects labor force attachment for men compared to women that may help explain why men show less recovery from early parenthood than do women. Women of all ages are likely to reduce their work effort at first birth and while their children are very young and then gradually increase their work effort as their children grow older (Glauber 2007). If women in their thirties are compared to each other, for example, it is possible that differences in economic outcomes (labor supply, wages, work effort) between young mothers and on-time/late mothers will be quite small. This is because the children of young mothers are, on average, older than the children of on-time/late mothers and are causing less of a conflict between work and family roles.⁹ For men,

⁹ It is possible that in mid-life and the older years, when all women's children are grown, economic differences between young mothers and on-time older mothers will re-emerge as a result of lower levels of education among young mothers.

however, parenthood typically intensifies work effort (Glauber 2008). It is possible that early fatherhood limits the acquisition of human capital either by interrupting education, or preventing fathers from putting in the extra efforts (overtime, residential moves) to acquire human capital at work, and that young fathers do not recoup these losses.

In conclusion, the study finds that, with sociodemographic background factors controlled, all early fatherhood pathways are associated with later life disadvantages on some outcomes. At the same time, the research also establishes that early fathers are a heterogeneous group, only minorities of whom at the time of first birth are teens, or are unmarried, or are not fully employed. As hypothesized, later life disadvantage on many outcomes occurs primarily when early fatherhood occurs in non-marital context, and when it occurs outside the context of fathers' full-time employment. These findings apply to a cohort of men who were teenagers in 1979. It is unclear whether these patterns would emerge in younger cohorts. The findings, however, suggest that intervention strategies addressing the needs of early fathers need to take into account both the commonalities and the differences among their heterogeneous subgroups.

REFERENCES

- Alan Guttmacher Institute. 2002. "Teen pregnancy: trends and lessons learned." Available online at: <http://www.guttmacher.org/pubs/tgr/05/1/gr050107.html>. Retrieved 19 August 2008.
- Amato, P.R. and D. Previti. 2003. "People's reasons for divorcing: Gender, social class, the life course, and adjustment." *Journal of Family Issues* 24: 602-626.
- Arnett, J.J. 2000. "Emerging adulthood. A theory of development from the late teens through the twenties." *American Psychologist* 55:469-80.
- Astone, N.M. and D. Upchurch. 1994. "Forming a Family, Leaving School Early and Earning a GED: A Racial and Cohort Comparison." *Journal of Marriage and the Family* 56:759-771.
- Bachrach, C. and F.L. Sonenstein. 1998. "Male Fertility and Family Formation: Research and Data Needs on the Pathways to Fatherhood." Pp. 45-98 in *Nurturing Fatherhood: Improving Data and Research on Male Fertility, Family Formation and Fatherhood*, edited by Federal Interagency Forum on Child and Family Statistics. Washington D.C.: U.S. Department of Health and Human Services.
- Beutel, A.M. 2000. "The Relationship between Adolescent Nonmarital Childbearing and Educational Expectations: A Cohort and Period Comparison." *The Sociological Quarterly* 41:297-314.
- Bronars, S.G. and J. Grogger. 1994. The Economic Consequences of Unwed Motherhood: Using Twin Births as a Natural Experiment. *The American Economic Review* 84:1141-1156.
- Hamilton, B.E., J.A. Martin, and S.J. Ventura, S.J. 2007. "Births: Preliminary data for 2006."

- National Vital Statistics Reports* 65. Hyattsville, MD: National Center for Health Statistics.
- Cooney, T.M., F.A. Pedersen, S. Indelicato, and R. Palkovitz. 1993. "Timing of fatherhood: Is "on-time" optimal?" *Journal of Marriage and Family* 55:205-215.
- Edin, K. and J.M. Reed. 2005. "Why Don't They Just Get Married? Barriers to Marriage among the Disadvantaged." *The Future of Children* 15(2):117-137.
- Eggebeen, D. and D. Litcher. 1991. "Race, family structure, and changing poverty among American Children." *American Sociological Review* 56:801-817.
- Furstenberg, F.F. 1991. "As the pendulum swings: Teenage childbearing and social concern." *Family Relations* 40: 127-138.
- Furstenberg, F.F., L.A. Levine, and J. Brooks-Gunn, J. 1990. "The children of teenage mothers: Patterns of early childbearing in two generations." *Family Planning Perspectives* 22: 54-61.
- Furstenberg, F.F. 1976. *Unplanned Parenthood: The Social Consequences of Teenage Childbearing*. New York: Free Press.
- Geronimus, A. and S. Korenman. 1992. "The socioeconomic consequences of teen childbearing reconsidered." *Quarterly Journal of Economics* 107:1187-1214
- Glauber, R. 2007. "Marriage and the Motherhood Wage Penalty Among African Americans, Hispanics, and Whites." *Journal of Marriage and Family* 69:951-961.
- Glauber, R. 2008. "Race and Gender in Families and at Work: The Fatherhood Wage Premium." *Gender & Society* 22:8-30.
- Hamilton, B.E., P.D. Sutton and S.J. Ventura. 2003. "Revised birth and fertility rates for the 1990s: United States, and new rates for Hispanic populations, 2000 and 2001." *National*

- Vital Statistics Reports* 51(12). Hyattsville, MD: National Center for Health Statistics.
- Hardy, J.B. and A.K. Duggan. 1988. "Teenage fathers and the fathers of infants of urban, teenage mothers." *Am J Public Health* 78:919-922.
- Meyer VF. 1991. "A critique of adolescent pregnancy prevention research: the invisible white male." *Adolescence* 26:217-222.
- Jaffee, S. R. 2002. "Pathways to adversity in young adulthood among early childbearers." *Journal of Family Psychology* 16:38-49.
- Lamb, M.E. and A. Elster. 1986. *Adolescent fathers*. Mahwah, NJ: Erlbaum Associates
- Lanza, S.T. and L.M. Collins 2006. "A mixture model of discontinuous development in heavy drinking from ages 18 to 30: The role of college enrollment." *Journal of Studies on Alcohol* 67: 552-561.
- Lerman, R.I. and T.J. Ooms (Eds.). 1993. *Young unwed fathers: Changing roles and emerging policies*. Philadelphia: Temple University Press.
- Mariglio, W. 1987. "Adolescent fathers in the United States: Their initial living arrangements, marital experience, and educational outcomes." *Family Planning Perspectives* 19:240-251.
- Marsiglio W. and M. Cohan 1997. "Young fathers and child development." M. E. Lamb (Ed.), *The role of the father in child development*, 3rd ed. (pp. 227-244). New York: Wiley.
- McLanahan, S. and G. Sandefur. 1994. *Growing Up with a Single Parent: What Hurts, What Helps*. Cambridge, MA: Harvard Univ. Press
- McLanahan, S. and M.S. Carlson. 2004. "Fathers in fragile families." In M. E. Lamb (Ed.), *The role of the father in child development*, 4th ed. (pp. 222-271). New York: Wiley.
- Moore, K.A., J. Manlove, D.A. Gleib, and D.R. Morrison. 1998. "Nonmarital school-age

- motherhood: Family, individual, and school characteristics.” *Journal of Adolescent Research* 13:433-457.
- Muthén, B. 2004. “Latent variable analysis: Growth mixture modeling and related techniques for longitudinal data.” In D. Kaplan (ed.), *Handbook of Quantitative Methodology for the Social Sciences*. Newbury Park, CA: Sage Publications.
- Nock, S. 1998. “The consequences of premarital fatherhood.” *American Sociological Review* 63:250-263.
- Oppenheimer, V.K. 2003. “Cohabiting and Marriage during Young Men's Career-Development Process.” *Demography* 40:127-149.
- Percheski, C. and C. Wildeman. 2008. “Becoming a dad: Employment trajectories of married, cohabiting, and nonresident fathers.” *Social Science Quarterly* 89:482-501.
- Sigle-Rushton, W. (2003). “Youth fatherhood and subsequent disadvantage in the United Kingdom.” *Journal of Marriage and the Family*, 67:735-753.
- U.S. Census Bureau. 2005. “Current Population Survey, March and Annual Social and Economic Supplements, 2005 and earlier”.
- Ventura, S.J. and C.A. Bachrach. 2000. “Nonmarital childbearing in the United States, 1940–99.” *National Vital Statistics Reports* 48(16). Hyattsville, MD: National Center for Health Statistics.
- Woodward, L., D.M. Fergusson, and L.J. Horwood. 2001. “Risk factors and life processes associated with teenage pregnancy: Results of a prospective study from birth to 20 years.” *Journal of Marriage and Family* 63:1170-1184.
- Wu, L.L. and B.B. Wolfe (Eds.) 2001. *Out of wedlock: Causes and consequences of nonmarital fertility*. New York: Russell Sage.

Table 1. Demographic Characteristics for Analytic and Attrited Samples

Demographic Characteristics	Analytic Sample (N=1992)	Attrited Sample (N=808)	p
Respondent Characteristics			
Youth poverty (% yes)	10.4	14.2	0.006
Age at Study Start (mean years)	17.5	17.4	ns
Highest Education (mean years)	13.5	13	0.0001
Respondent's Race/ Ethnicity			
Black (%)	12.4	12.3	ns
White (%)	81.1	76.7	0.009
Hispanic (%)	6.5	11	0.0001
Family Structure at age 14			
Live with Both Parents (%)	77.5	72.3	0.004
Live with Only One Parent (%)	8.4	7.7	ns
Live with Parent and Step Parent (%)	11.9	17.2	0.0002
Live on Own/ Other (%)	2.1	2.6	ns
Mother's Characteristics			
Mother age at birth of respondent (mean years)	44.1	43.9	ns
Mother education less than HS (%)	32.2	36.6	0.02
Mother education HS (%)	47.4	44.4	ns
Mother education more than HS (%)	20.4	18.9	ns
Mother's highest educational attainment (mean years)	11.8	11.5	ns

Table 2. Proportions with first fatherhood, first marriage, and fulltime work at each age, for four Early Fatherhood Pathways , and for On-Time On-Sequence Fathers

		Proportion in Each Role										Sample Percent (N)
Early Fatherhood Pathway	age	18	20	22	24	26	28	30	32	35	37	
A. Married fully- employed young fathers	father	0.00	0.02	0.19	0.61	0.93	1.00	1.00	1.00	1.00	1.00	19.1 (380)
	marriage	0.01	0.16	0.62	0.91	0.97	1.00	1.00	1.00	1.00	1.00	
	work	0.22	0.59	0.79	0.92	0.93	0.94	0.95	0.94	0.95	0.94	
B. Married fully- employed teen fathers	father	0.23	0.70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	9.2 (184)
	marriage	0.35	0.95	0.98	0.99	1.00	1.00	1.00	1.00	1.00	1.00	
	work	0.26	0.67	0.86	0.85	0.92	0.90	0.88	0.91	0.88	0.88	
C. Married partially- employed teen/young fathers	father	0.12	0.30	0.63	0.86	1.00	1.00	1.00	1.00	1.00	1.00	5.2 (104)
	marriage	0.09	0.33	0.69	0.90	0.97	1.00	1.00	1.00	1.00	1.00	
	work	0.13	0.18	0.20	0.18	0.27	0.23	0.37	0.45	0.53	0.51	
D. Unmarried partially-employed teen/young fathers	father	0.22	0.44	0.78	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.4 (88)
	marriage	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.14	0.22	0.27	
	work	0.22	0.34	0.48	0.52	0.57	0.56	0.59	0.59	0.59	0.58	
On-time on-sequence fathers	father	0.00	0.00	0.00	0.00	0.01	0.54	0.89	1.00	1.00	1.00	17.0 (339)
	marriage	0.00	0.01	0.08	0.36	0.76	0.98	1.00	1.00	1.00	1.00	
	work	0.14	0.34	0.56	0.75	0.89	0.89	0.94	0.90	0.92	0.92	

Table 3. Demographic Background Characteristics by Early Fatherhood Pathway

Sample	White		Black		Hispanic		Youth Poverty		Live with Both Parents Age 14		Mother's Education	
	N	%	%		%		%		%		Mean	
All males (including non-fathers)	1992	81.1		12.4		6.5		10.4		77.6		11.7
On-time On-sequence fathers	331	89.4	^a	4.7	^a	5.9		6.8	^a	83.8	^a	12.3
All ELPs Combined	756	73.9	^b	17.6	^b	8.5		12.8	^b	74.9	^b	11.2
Early Fatherhood Pathway	White		Black		Hispanic		Youth Poverty		Live with Both Parents Age 14		Mother's Education	
	N	%	%		%		%		%		Mean	
A. Married fully-employed young fathers	380	84.5	^a	10	^{ad}	5.5		7.9	^{ac}	82.4	^a	11.5
B. Married fully-employed teen fathers	184	77.2	^{ac}	12.5	^{cd}	10.3		7.9	^{ac}	76.1	^a	10.9
C. Married partially-employed teen/young fathers	104	66.4	^c	22.1	^c	11.5		18	^a	59.6	^b	10.8
D. Unmarried partially-employed teen/young fathers	88	30.7	^b	55.7	^b	13.6		37.4	^b	58	^b	10.7
On-time On-sequence fathers	339	89.4	^a	4.7	^d	5.9		6.8	^c	83.8	^a	12.3

* Note: Cells with different superscripts within each column are statistically significantly different from each other after Tukey adjustments.

Table 4. Linear Regression Models of Early Fatherhood Pathways and Income and Educational Attainment with and without Covariates

	R's Income at age 26						R's Income at age 37						Highest Education age 37					
	Model 1 (ELP Only)		Model 2 (demog only)		Model 3		Model 1 (ELP Only)		Model 2 (demog only)		Model 3		Model 1 (ELP Only)		Model 2 (demog only)		Model 3	
	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p
Early Fatherhood Pathways																		
A. Married fully-employed young fathers	-236.1	0.76			141.2	0.86	-7670.0	0.00			-6048.0	0.03	-1.3	<.001			-1.1	<.001
B. Married fully-employed teen fathers	-1970.7	0.04			-1228.6	0.23	-17461.0	<.001			-13355.0	<.001	-2.3	<.001			-1.8	<.001
C. Married partially-employed teen/young fathers	-15268.0	<.001			-13738.0	<.001	-33840.0	<.001			-25290.0	<.001	-1.9	<.001			-1.2	<.001
D. Unmarried partially-employed teen/young fathers	-11937.0	<.001			-9167.2	<.001	-37649.0	<.001			-28064.0	<.001	-2.7	<.001			-1.8	<.001
Demographics																		
Black			-3329.6	0.01	-665.8	0.57			-8844.0	0.02	-1517.2	0.70			-0.3	0.17	0.1	0.64
Hispanic			-1579.9	0.31	-1199.1	0.40			1265.1	0.80	2072.9	0.67			0.0	0.98	0.0	0.91
Youth Poverty			-5306.4	<.001	-4754.5	0.00			-9460.9	0.03	-9099.8	0.03			-0.1	0.57	-0.2	0.44
Live with Both Parents			1207.5	0.20	-101.4	0.91			2498.0	0.40	113.8	0.97			0.5	0.01	0.4	0.01
Mom's Education			397.4	0.01	214.2	0.13			3003.9	<.001	2479.6	<.001			0.3	<.001	0.3	<.001
Mom's Age when R was born			-25.0	0.63	-41.9	0.39			-159.9	0.33	-209.8	0.19			0.0	0.43	0.0	0.73
Work Limitation*			-1084.0	0.26	123.7	0.89			-11678.0	<.001	-9194.1	0.00			-0.4	0.00	-0.4	0.01
Northeast*			3630.5	0.00	3616.8	0.00			8099.8	0.02	8022.9	0.02			0.2	0.36	0.1	0.46
Northcentral*			1350.3	0.14	1339.5	0.11			3142.1	0.27	3307.6	0.23			0.2	0.15	0.3	0.11
West*			-16.8	0.99	787.0	0.44			-7218.0	0.05	-5751.1	0.10			0.1	0.75	0.1	0.58
R-sq - adj	0.19		0.08		0.21		0.11		0.11		0.16		0.16		0.20		0.27	

* Variable value at age of the outcome variable for income and value in 1979 for educational attainment.

Table 5. Linear Regression Models of Early Fatherhood Pathways and Number of Marriages and Biological Children with and without Covariates

	Number of Marriage at age 26				Number of Marriage at age 37				Number of Children at age 26				Number of Children at age 37			
	Model 1 (ELP Only)		Model 2 (demog only)		Model 1 (ELP Only)		Model 2 (demog only)		Model 1 (ELP Only)		Model 2 (demog only)		Model 1 (ELP Only)		Model 2 (demog only)	
	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p
Early Fatherhood Pathways																
A. Married fully-employed young fathers	0.33	<.001			0.32	<.001	0.10	0.07			0.09	0.12	1.17	<.001		
B. Married fully-employed teen fathers	0.45	<.001			0.45	<.001	0.41	<.001			0.40	<.001	1.79	<.001		
C. Married partially-employed teen/young fathers	0.38	<.001			0.37	<.001	0.36	<.001			0.26	0.00	1.59	<.001		
D. Unmarried partially-employed teen/young fathers	-	<.001			-0.69	<.001	-	<.001			-0.90	<.001	1.37	<.001		
	0.75						0.86									
Demographics																
Black			-0.37	<.001	-0.18	<.001			-0.23	0.00	-0.01	0.89			0.67	<.001
Hispanic			-0.17	0.02	-0.12	0.06			-0.14	0.19	-0.10	0.30			0.24	0.07
Youth			-0.08	0.22	0.02	0.71			-0.06	0.52	0.04	0.61			-0.30	0.01
Poverty																
Live with Both Parents			-0.01	0.87	-0.02	0.58			-0.11	0.09	-0.12	0.04			-0.09	0.27
Mom's Education			-0.01	0.19	0.00	0.93			-0.02	0.13	-0.01	0.31			-0.07	<.0001
Mom's Age when R was born			0.00	0.23	0.00	0.19			0.00	0.98	0.00	0.98			-0.01	0.00
Work Limitation*			0.07	0.11	0.10	0.01			0.12	0.04	0.13	0.02			0.05	0.52
Northeast*			-0.07	0.16	0.03	0.53			-0.14	0.06	-0.04	0.60			-0.04	0.65
Northcentral*			-0.10	0.03	-0.05	0.15			-0.12	0.05	-0.08	0.16			0.06	0.40
West*			-0.02	0.65	0.02	0.63			0.12	0.11	0.17	0.01			0.09	0.34
R-sq - adj	0.34		0.05		0.32		0.16		0.02		0.16		0.50		0.09	

* Variable value at age of the outcome variable.

Table 6. Logistic Regression Models of Early Fatherhood Pathways and Incarceration with and without Covariates

	<u>Model 1(ELP only)</u>			<u>Model 2 (Demog only)</u>			<u>Model 3</u>		
	Estimate	Odds ratio	p-value	Estimate	Odds ratio	p-value	Estimate	Odds ratio	p-value
Early Fatherhood Pathways									
A. Married fully-employed young Fathers	-0.06	0.94	0.86				-0.17	0.84	0.61
B. Married fully-employed teen fathers	-0.15	0.86	0.71				-0.27	0.76	0.53
C. Married partially-employed teen/young fathers	0.92	2.52	0.00				0.69	1.98	0.02
D. Unmarried partially-employed teen/young fathers	1.52	4.58	<.001				1.17	3.23	0.00
Demographics									
Black				0.63	1.88	0.01	0.19	1.21	0.48
Hispanic				0.11	1.12	0.74	-0.03	0.97	0.92
Youth Poverty				0.43	1.54	0.06	0.34	1.40	0.17
Live with Both Parents				0.01	1.01	0.96	0.12	1.13	0.59
Mother's Education				-0.07	0.94	0.39	-0.05	0.96	0.57
Mother's Age at R's birth				-0.09	0.92	0.00	-0.10	0.91	0.00
Work Limitation by age 26				0.58	1.78	0.00	0.46	1.59	0.03
Northeast*				0.01	1.01	0.97	-0.14	0.87	0.65
Northcentral*				-0.12	0.89	0.65	-0.27	0.77	0.32
West*				0.15	1.16	0.60	-0.05	0.95	0.87

* Variable value at age of the outcome variable.

Table 7. Adjusted Mean Differences across Pathways

Early Fatherhood Pathway	N	Age 26 Covariates				Age 37 Covariate	Lifetime Covariates			
		Respondent's Income at Age 26	Biological Children by Age 26	Marriages by Age 26	Incarceration by Age 26	Respondent's Income at Age 37	Highest Education	Biological Children by age 37	Marriages by Age 37	
		Mean \$	Mean N	Mean N	Mean %	Mean \$	Mean Years	Mean N	Mean N	
A. Married employed young Fathers	380	20667.45 ^b	1.29 ^a	1.07 ^b	1.32 ^b	45077.49 ^b	12.93 ^b	2.48 ^b	1.35 ^b	
B. Married employed teen fathers	184	19297.60 ^b	1.90 ^c	1.20 ^c	1.09 ^b	37087.52 ^d	12.20 ^a	2.68 ^b	1.67 ^c	
C. Married low- employed teen/young fathers	104	6787.84 ^c	1.71 ^d	1.12 ^{bc}	8.65 ^a	24490.53 ^a	12.79 ^{ab}	2.66 ^b	1.53 ^c	
D. Unmarried low- employed teen/young fathers	88	11359.04 ^a	1.31 ^{ac}	0.06 ^a	23.86 ^a	22620.29 ^a	12.18 ^a	2.11 ^a	0.37 ^a	
On-Time On- Sequence Fathers	339	20526.23 ^b	0.13 ^b	0.75 ^d	1.47 ^b	50949.10 ^c	14.00 ^c	2.14 ^a	1.27 ^b	

Note: Results based on models controlling for race/ ethnicity, youth poverty, mother's education, mother's age when respondent was born, disability, and region.

Note: Different subscripts within each column denote significant group differences on that variable at a $p < 0.05$ level.

Figure 1. Four Early Fatherhood and On-Time On-Sequence Pathways



