Running Head: MEN'S EARLY LIFE PATHWAYS

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

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Abstract

Using the NLSY79 we establish that young fathers (those with first births younger than the cohort average) are a heterogeneous group, and describe early life pathways (ELPs) in terms of fatherhood timing and its relationship to first marriage and 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 ELPs: (A) Married Fully-Employed Young Fathers (19.1% of all males in the sample), (B) Married Fully-Employed Teen Fathers (9.2%), (C) Married Partially-Employed Teen/Young Fathers (5.2%), and (D) Unmarried Partially-Employed Teen/Young Fathers (4.4%). Men who become fathers around age 24 (cohort average) are our comparison group rather than all men or all fathers. Results indicate that 1) some young fathers are more disadvantaged than others; 2) in contrast to motherhood, the disadvantage associated with young fatherhood increases with age; and 3) the relationship and fulltime employment status context of an early first birth influence its impact on fathers' later marital and fertility behaviors, income, educational attainment, and incarceration.

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INTRODUCTION

Many young men today are only loosely attached to their children, their children's mothers, and the workforce, as a result of 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 of 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, having babies as teenagers, and having difficulty finding employment (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, often packaged or occurring together or in close proximity, and include 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 done since Rindfuss (1991) documented the complexity and density of the transitions that occur as teenagers grow up in the U.S.

WHAT WE KNOW ABOUT EARLY PARENTHOOD

In contrast to early fatherhood, 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, Glei, and Morrison, 1998). These two indicators—early motherhood and unmarried motherhood—are highly correlated but the nature of the correlation has changed over time.

According to vital statistics, the total percentage of births that were to unmarried women rose from 32 .2 percent in 1995 to 35.8 percent in 2005. Although the percentage of births that were to unmarried teenage mothers accelerated a little more slowly during the same time period (a 9 vs. 11 percent rise) the level was much higher with 75.6% of teenage births outside marriage in 1995 and 82.6 percent ten years later. Of course, the percentage of births that are to unmarried women is just one fertility indicator. Differential trends in birth rates to unmarried women by age (going up over time for older women, going down for younger women) have caused changes in the percent of all non-marital births that were to teenagers during this 10 year period. In 1995, almost a third (30.8%) of non-marital births were to teenagers, but in 2005 just over one-fifth were. So, although teenage mothers have been and remain much more likely than older mothers to be unmarried, an increasing proportion of non-marital births are to older women (Martin et al. 2007; NCHS 1997).

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).

Paralleling this literature on young, unmarried mothers, a much smaller but growing set of studies has also investigated young unmarried fatherhood. This literature has particularly addressed factors associated with teen fatherhood, and the service needs of teen and young married fatherhood (Lamb and Elster book, 1986; Lerman and Ooms, 1993; Marsiglio and Cohan, 1997; McLanahan and Carlson, 2004). Most scholars begin studies with a hypothesis 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. Several studies have empirically examined the consequences of teen and/or unmarried fatherhood (Marsiglio, 1987; Nock, 1998; Sigle-Rushton, 2003); this empirical literature is small, however.

Since research on young fatherhood is still taking shape, there are a number of "lessons learned" from research on young motherhood that researchers should apply, and in many cases have applied. First, research on the association of young, fatherhood with outcomes should 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 varies 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 evinced outcomes, especially pertaining to employment, poorer than men in unions (Sigle-Rushton, 2003).

Based on NLSY79 data, compared to 86 percent of peers who postponed fatherhood past their teenage years, only 31 percent men who marry as teenagers and become fathers within mar-

riage and 63 percent of men who became nonmarital teenage fathers completed high school (Marsiglio, 1987). In turn, low school completion begets 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 and this may be particularly salient for men, given their traditional role as breadwinner and concern about men financially supporting children with whom they do not live. There is some research that examines how fathers' employment is affected in the years following the birth and 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 if any study on how a father's employment status before, at and after the transition to fatherhood moderates the association of young fatherhood with later outcomes.

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 and better understand the causal links among them. 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) will 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

Recently more studies explore how marital context relates to employment (Percheski and

Wildeman 2008). Using growth curve models on 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 number of weeks worked per year and married men still maintain a significant lead in hours worked, albeit diminished.

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, in that 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 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 are in large part attributable to 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 de-

creased yearly employment, and increased poverty status of men 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 robust against these selection variables is educational attainment, however.

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 of comparing young fathers to men who make the transition later in life at various stages of the life course.

Research Questions and Hypotheses

In sum, past research on early parenthood has established that the experience of becoming a father at a young age is highly likely to vary quite a bit by whether or not it occurs in marriage, and there is good reason to hypothesize that the experience is different depending on the work status of the father. The objective of this study is to identify and explore the pathways men take into worker, spouse, and parent roles with a focus on men who become fathers at a relatively young age. Hereafter we refer to these as Early Life Pathways (ELP). We examine how early life pathways relate to men's income earnings at ages 26 and 37, the number of marriages men report at ages 26 and 37, the number of children men have by ages 26 and 37, incarceration

history by age 26, and highest educational attainment by age 37. Two research questions guide the analyses of this study. First, *do all young fathers have similar early life pathways and if not, how do pathways vary in terms of (1) their first marital union formation and their full-time employment status across time, and (2) sociodemographic background characteristics?* This research question stems from the studies discussed above that demonstrate (a) some negative effects of youthful fatherhood are found on later outcomes for men and (b) a need for assessing the extent to which these outcomes are accounted for by selection. Furthermore, previous studies highlight age, marriage, and employment as important contexts for fatherhood that may moderate its association with both antecedents and outcomes. We identify men's characteristics associated with the different pathways to early fatherhood.

Our second research questions is: *how are ELPs associated with life outcomes in young adulthood (age 26), and in later adulthood (age 37), with sociodemographic background characteristics controlled?* We have the following hypotheses about the answer. Men who report more disadvantaged lifetime outcomes will be characterize by

1. Pathways of younger age at first birth,
2. Pathways in which the first birth occurs *outside* the context of marriage (concurrent or soon thereafter).
3. Pathways of the first birth occurring in the context *outside* of fulltime employment (concurrent or soon thereafter).

Furthermore, the disadvantages associated with younger age at first birth, and with first birth not occurring in the context of marriage:

4. Are partly, but not entirely, explained by selection differences (based on mixed results in prior research).

5. Differences between young fathers and others decrease over the life span as they do for women.

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-sectional[1]" sample representative of the non-institutionalized civilian population of young people born from 1957 to 1964. Furthermore, we excluded female respondents and over-samples of poor respondents. This resulted in a sample size of 2800 men who were either African American, European American, or Latino. As described below, we examine men's role trajectories from age 18 through 37, spanning nearly 20 years of development. The NLSY79 provides data on men's role trajectories on an annual basis, but 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 on these 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.

According to Table 1, the reduced sample used in these analyses (n=1992) does differ on some demographic variables and not on others relative to the sample of respondents who lacked at least one observation from the 10 used in these analyses (n=808). 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

[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.

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 men. As described below, 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.

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. This enabled us to code whether or not each respondent was a father at each observation of age 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%). 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. The NLSY79 provides data on each respondent's labor force activity for each week of the calendar year prior to the interview, including the total number of hours worked at each job. We aggregated this weekly 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. Thus, a man who received a code of 1 (working full time) at age 26, might receive a 0 at age 28.

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. For these analyses, we recoded living arrangements at age 14 into four categories: with both biological parents, with one biological parent only, with 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 $17210.08 at age 26 and nearly $39781.38 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 26[2]. 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 many inmates attrited, at least while they were in prison.

Analytic Strategy – Latent Class Analysis

Given the dichotomous nature of status variables and the need to assess trajectories over-time, we chose a longitudinal categorical data analysis strategy to address our primary research question - what trajectories emerge with respect to the interplay of fatherhood, marital, and work behavior patterns?

Overview of latent class approaches. In principle, Latent Class Analysis (LCA) is akin 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). This method *empirically* derives varying patterns of the acquisition of roles over the life course, taking into account the sequencing and the timing of fatherhood and other roles (in our application, marriage and fulltime employment). There were three reasons why we 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. First, pathways are defined relative to each other, so by deriving latent classes in a broad sample, early father pathways are defined relative to non-early-father pathways. Second, rather than defining some arbitrary age cutoff for early fatherhood a priori (a controversial issue, which has become even more so in light of the "emerging adulthood" concept; Arnett, 2000), we used LCGA to inform

[2] Very few men reported being incarcerated for the very 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

us how early fatherhood should be defined. In other words, this strategy yields a set of early fatherhood classes/pathways in the context of other classes/pathways. Third, empirically derived (rather than a priori) non-early-father classes 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 fatherhood transition patterns, marital transition patterns, and fulltime employment status over time to represent distinct pathways (30 indicators). As a result of LCGA, multiple classes are empirically generated and these classes (or subgroups) of men are homogeneous with respect to how they respond to these three items over time. In other words, men in the same class are assumed to have, at each age, equal probabilities of fatherhood, marriage, and employment in the way defined by the class. Men were assigned to latent classes based on answer patterns. Latent classes in LCGA are themselves defined as patterns over time in three adult roles. That is, 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 may emerge characterized by the same transition sequencing (e.g., fulltime work followed by marriage and then fatherhood) but different life-stage 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.

Using Latent Class Growth Analysis (LCGA) for ten points of measurement with three variables at each point, there are eight possible classes at each time point (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 (such as having a positive value for having made the

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and including age 26.

transition to fatherhood at 20 but scored negatively for having made the fatherhood transition at later ages) can of course be excluded. Even with these backward transitions excluded, however, the number of theoretically possible combinations is unmanageably large. LCGA reduces these combinations into a smaller number of latent classes representing common patterns of first fatherhood, first marriage, and fulltime employment over the period from age 18 to age 37.

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 ELPs predict each outcome after controlling for the other covariates in the model. For the dichotomous outcome (incarceration) we use logistic regression.

RESULTS

Are There Distinct Pathways to 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 classes had the best fit (AIC = 10518.66, BIC = 12595.11 compared to values of 10713.68 and 12616.62 for the 11 class model, and of 10719.32 and 12969.27 for the 13 class model), and was the most interpretable.

We found four distinct pathways to early fatherhood. The median age at first fatherhood in these four groups 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 age and thus became the groups of interest. These four classes constitute 37% of the sample. Given that these latent classes repre-

sent patterns of the sequencing of marriage and fulltime employment in relation to early fatherhood over the lifecourse to age 37, they are hereafter referred to as early life *pathways* (ELPs).

The class that will serve as a comparison group for many of the analyses is a large class (17.0%) termed here On-Time On-Sequence Fathers (OTOS). In this 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 National Survey of Family Growth 2002.

For each early life pathway (ELP) as well as the OTOS 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

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, constituting 50.4% of early fathers. Half of the men who take this pathway are fathers by age 23.5; this is about 4.5 years younger than On-Time On-Sequence fathers. In this pathway, half of men in this class work fulltime from age 19.6 onward, so men are not only typically working when they become dads, but they have been working for four years on average. . Very few of these men have children prior to age 20. For these men work, marriage and fatherhood are sequenced in that order.. What makes these men different from the on-time on-sequence 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.

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 co-incident with first birth, rather than prior to it as in class A.

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. Men in this class marry nearly simultaneously with their first birth which suggests that for some, 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 their age 29 to age 37.

D. Unmarried Partially-Employed Teen/Young Fathers (4.4% of full sample; 11.6% of early fathers). This final early life 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 though their 30s. Second, this class has the lowest rate of marriage of any ELP class, 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 On-Sequence Fathers (17.0% of full sample). The On-Time On-Sequence Fa-

ther pathway is the second largest latent class of the 12 we derived[3], and evinces median ages of first fatherhood, first marriage, and rates of fulltime work close to the medians observed in the NSFG 2002 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 On-Sequence 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. Men in this class serve as our comparison group rather than all men or all fathers. This strategy protects us from mistaking very 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 found that men who take these four pathways to early fatherhood do differ on socioeconomic background characteristics. We assessed the 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 Fathers versus On-Time On-Sequence Fathers. Table 3 shows that when the men in all ELPs 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 con-

[3] This paper does not discuss the seven other latent classes in the LCGA.

stellation at age 14, maternal education). These differences are apparent whether the comparison is with all men or with the On-Time, On-Sequence men.

Individual ELPs and On-Time On-Sequence Fathers. Turning to specific ELPs and their association with these demographic characteristics, we find heterogeneity[4] among ELPs. With respect to race-ethnicity, ELP classes C and D have high proportions of racial-ethnic minorities (i.e., significantly different from On-Time On-Sequence Fathers, and from ELP classes A and B). ELP class C consists of 22 percent black men and over half of ELP class D are black men.

In terms of youth poverty, the same two ELPs also have high rates (over one-third of ELP class D and one-sixth of class C). Similar to the findings for youth poverty, the lowest percent of men who lived with both parents at age 14 are reported by ELP class D (58%) and class C (60%). Mother's education is the only sociodemographic variable reported in Table 3 for which all four ELPs report significantly lower values relative to On-Time On-Sequence fathers, with men in class A reporting nearly one year less and other classes reporting 1.5 years less of maternal education. On average, men from all four ELPs 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 ELPs, the differences among ELPs are notable with classes C and D coming from more disadvantaged backgrounds than On-Time On-Sequence fathers. These findings also reveal that class D differs significantly from ELP classes A, B, and C with respect to race and youth poverty and differ from ELPs A and B in terms of living arrangements at age 14.

Do Men With Different Pathways To Early Fatherhood Differ Later in Life?

We test several hypotheses related to this research question. Given ELPs C and D in-

[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.

clude significantly higher proportions of racial-ethnic minorities, those experiencing youth poverty, those not living with both parents at age 14, and men reporting lower levels of maternal education attainment than do pathways A and B, it is evident that there are important processes of selection into the different pathways, so we control for background factors in all analyses of the outcomes[5].

We test our hypotheses in three ways for each outcome. First, we compare ELPs to On-Time On-Sequence men to demonstrate whether men with early transitions differ on outcomes of interest (Tables 4-6). Second, we compare ELP B to ELP A given they differ primarily in terms of the timing of fatherhood, not its work and marital context. Third, we compare ELPs C and D given the timing of fatherhood in these two cases are the same, but the marital context differs. Differences among the four ELPs are reported in Appendix A.

H1: Younger age at first fatherhood and disadvantaged outcomes. We hypothesize that men classified by pathways of younger age at first birth will report greater lifetime outcome disadvantage. In other words, we expect men on all four ELPs to fare worse than On-Time On-Sequence (OTOS) men in terms of income, educational attainment, number of marriages, number of children, and incarceration.

Results for *income*[6] and education are reported in Table 4. Compared to On-Time On-Sequence men, three of the four early life pathways report lower earnings at age 26 with ELPs C and D reporting significantly lower incomes ($9,000-$13700 lower) than On-Time On-Sequence men. To put this in perspective, after controlling for sociodemographic variables including work limitations and region, ELP class C earns nearly $14,000 less a year and class D earns over

[5] In comparing the four pathways on later life outcomes, it is essential to control for differences in socioeconomic background. For each outcome we report three regression models. Model 1 depicts the relationship between each ELP and the outcome of interest with no other variables. Only sociodemographic variables are used to predict the outcome in Model 2. Both ELPs 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 ELPs to the model significantly improves the model.

$9,000 less a year relative to On-Time On-Sequence fathers. By age 37, all four ELPs report significantly lower incomes ($6,000-$28,000 lower) relative to OTOS men. Compared to ELP A (Married Fully-Employed Young Fathers) men on pathway B (Married Fully-Employed Teen Fathers) report lower earnings at both age 26 (ns) and age 37 ($10,000 lower, $p < 0.05$).

Insert Table 4 about here

In terms of *educational attainment* by age 37, all four ELPs have lower levels of education (ranging from 1.1 years to 1.8 years lower) relative to OTOS men (Table 4). Comparing the ELPs A and B, men on pathway B report one year less educational attainment relative to men on pathway A ($p <0.05$; Appendix A).

With respect to *number of marriages* at ages 26, three of the ELPs (A, B, C) report significantly greater number of marriages relative to OTOS men (range: 0.32 – 0.45; $p<0.001$ for each comparison). By age 37, only two ELPs (B and C) report higher number of marriages (range: 0.26-0.40; $p < 0.01$). When examining ELPs A and B (Appendix A), we find that men who transition earlier (B) report significantly higher numbers of marriage at both age 26 ($p < 0.05$) and age 37 ($p < 0.05$) with the gap widening at later ages.

By age 26, men of all four EPTs report higher *numbers of children* compared to OTOS men (1.2-1.8; $p<0.001$) with men having children at the youngest ages (ELP B) reporting the largest difference (almost two more children by age 26 than OTOS men). By age 37, men of three EPTs continue to report greater numbers of children relative to OTOS men although the gap is lower than at age 26 (0.35-0.53; $p < 0.05$). When comparing the number of children for

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[6] 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.

men of ELPs A and B (Appendix A), we discover that 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 (2.6 versus 2.4; $p < 0.05$).

In terms of *incarceration* by age 26 (Table 6), two ELPs are characterized by significantly higher histories of being incarcerated relative to OTOS men (2.0-3.2 odds ratios, $p < 0.05$). By age 26 nearly 24% of men on ELP D and 9% of men on ELP C served time in jail. Less than 1.5 percent of men on ELP A and B and OTOS men report incarceration by age 26 (no differences among these three groups).

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 On-Sequence peers. Furthermore, 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).

H2: Nonmarital first births and disadvantaged outcomes. We hypothesize that men classified by pathways in which the first birth occurs *outside* the context of marriage (concurrent or soon thereafter) will report greater lifetime outcome disadvantage. In other words, we expect men on ELP D (Unmarried Partially Employed Teen/ Young Fathers) will fare worse than On-Time On-Sequence (OTOS) men and the other three ELPs in terms of income, educational attainment, number of children, and incarceration. By definition, men of ELP D report significantly lower number of marriages than the three other ELPs and OTOS men. Hence, we will focus on the other outcomes of interest.

As expected, unmarried fathers (D) report less income at age 26 ($9000 lower) and 37

($28000 lower) compared to OTOS men (Table 4). Compared to their nested counterpart ELP C, the income of ELP D is not significantly different (although it is lower by age 37). Men of ELP D, however, have significantly lower incomes relative to ELPs A and B – both characterized by marital first births - at both ages 26 and 37 (Appendix A).

By age 37 men of ELP D report 1.8 fewer years of *educational attainment* relative to OTOS men ($p < 0.001$). Furthermore, of all ELPs, men who report nonmarital first births (D) report the lowest level of education (less than high school, 11.5 years, Appendix A). Although men of ELP D report lower levels of educational attainment than men of ELP C, the difference is not significant.

By age 26, men reporting nonmarital first births (D) report higher *numbers of children* compared to OTOS men (1.2, $p < 0.01$) . By age 37, however, the difference reverses whereby men of ELP D report 0.04 fewer children than OTOS men (ns). Despite reporting the fewest children of all four ELPs, men of ELP D do not significantly differ from two of the remaining classes (A and C).

One potential explanation for the lack of marriages and fewer numbers of children for men of ELP D is high *incarceration* by age 26. Relative to OTOS men, men of ELP D are 3.2 times more likely to have been incarcerated by age 26 ($p < 0.001$). Nearly one-in-four men of ELP D report being incarcerated by age 26, making this group significantly higher than all three remaining ELPs (the next closest is C with 9%).

In sum, men who transition into nonmarital first fatherhood report lower incomes at ages 26 and 37 relative to OTOS men and two of the three ELPs defined by marital fatherhood (A and B). And, men of ELP D are significantly more likely to experience incarceration by age 26 relative to OTOS men and men of the three marital birth ELPs. Results for educational attainment

and number of children are mixed although men of ELP D report the lowest education levels of all ELPs and OTOS men.

H3: Partial employment context of births and disadvantaged outcomes. We hypothesize men who begin working concurrently or soon after fatherhood will report greater lifetime outcome disadvantage. In other words, we expect men on ELPs C and D (both Partially Employed Teen/ Young Fathers) will fare worse than On-Time On-Sequence (OTOS) men and the remaining two ELPs A and B (characterized by fully-employed men at first births) in terms of income, educational attainment, number of children, number of marriages, and incarceration.

As shown in Table 4, at ages 26 and 37, men of ELPs C and D (both partially employed fathers) earn significantly less income relative to OTOS men. The gap widens substantially by age 37[7]. Men of these two ELPs do not significantly differ from each other in income at ages 26 and 37; but, these men do significantly differ from their fully employed peers – ELPs A and B (Appendix A). We expect these patterns given ELP C and D men are underemployed.

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

At both ages 26 and 37, men of ELP C report significantly greater *number of marriages* 0.37 and 0.26 respectively, $p < 0.001$) and men of ELP D report significantly lower number of marriages (-0.7 and -0.9 respectively, $p < 0.001$) relative to OTOS men (Table 5). Married fully-employed young fathers report significantly fewer marriages than ELPs B and C by age 37 (Appendix A). These patterns may be partially attributable to the attractiveness of stable and high employment of men by women. Money concerns are most often cited as the impetus for divorce (Amato & Previti, 2003) and earnings are considered a valuable characteristic when seeking a

martial partner (Sprecher, Sullivan, & Hatfield, 1994).

Insert Table 5 about here

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

As noted earlier, men of ELPs C and D report significantly higher levels of incarceration by age 26 relative to OTOS men (2.0 and 3.2 times higher, $p < 0.001$). Furthermore, given 24 percent of men of ELP D and 9% of men of ELP C experienced incarceration (Appendix A), they are substantially more disadvantaged on this outcome relative to ELPs 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 On-Sequence and ELP A and B peers. Furthermore, partially employed men report less educational attainment than OTOS men but not different from their early fatherhood peers. This confirms that partially employed early fathers experience greater disadvantage than fully-employed peers on two important variables.

H4: Selection differences explain some, but not all, of the disadvantage of young age at and nonmarital first fatherhood. For each outcome, models including demographic variables only (Models 2 in Tables 4 and 5) are improved with the addition of ELPs (Models 3 in Tables 4 and 5) as evinced by significant changes in R-squares. Hence, ELPs independently and uniquely

[7] We acrecognize that inflation may partially explain the increase in the difference.

influence outcomes of interest above and beyond sociodemographic variables.

H5: Disadvantages of young age at and nonmarital first fatherhood decrease as men age.

Age 26 outcomes. By age 26 our multivariate regression analyses reveal that in terms of income and incarceration experience, ELP classes A and B do not differ significantly from On-Time On-Sequence Fathers. These two ELPs, however, do differ with respect to number of marriages and number of children by age 26 whereby ELP class A reports 0.3 higher number of marriages and 1.2 higher number of children relative to On-Time On-Sequence Fathers. ELP B reports 0.45 and 1.8, respectively. Hence, of these two classes, ELP class A appears more advantaged, earning income comparable to On-Time On-Sequence Fathers, having to support fewer children, and experiencing less marital dissolution. Class B, however, reports the highest number of marriages and children by age 26 of all ELPs.

Now, turning to the more disadvantaged ELPs at age 26, classes C and D differ from On-Time On-Sequence Fathers significantly on all four outcome variables (with the exception of ELP D on number of biological children). Both ELPs earn less income ($13,700 and $9,000 less), are two and 3.2 times more likely to have experienced jail. ELP class C reports 0.37 more marriages and 1.6 more children whereas and ELP class D reports.69 fewer marriages. It appears that ELP class C fares 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. ELP class D is not far behind in their lower earnings and a higher incarceration history.

Age 37 outcomes. By age 37 all ELPs earn less income than On-Time On-Sequence Fathers. ELP class A, however, experiences the smallest difference ($6,000) and ELP class B experiences twice the decrease as ELP class A ($13,300). ELP classes C and D report a four-fold loss in income relative to ELP A. Similar to findings for age 26, class A appears most advan-

taged of the ELPs. These men earn more than the other ELPs, experience the least educational differential, the lowest number of marriages among the ELPs characterized by marriage, and a moderate number of children. Of the remaining three classes, ELP classes B and C experience similarly high numbers of children, but ELP B reports a greater deficiency in educational attainment and greater marital dissolution relative to On-Time On-Sequence Fathers than ELP class C. But, class C has other problems with less income and employment and just as many children to support (in addition to an incarceration history). Although class D has the fewest number of children by age 37 of the ELPs, they also make the least amount of money, have the lowest level of educational attainment, and tend to marry quite less than other men (perhaps attributable, in part, to incarceration history and employment difficulties).

DISCUSSION

This study documents and describes how young fathers sequence and interconnect work, marriage, and fatherhood roles, how these patterns vary across subgroups of the population, and the consequences of these patterns. Specifically, we employ latent variable analyses – Latent Class Growth Analysis – to jointly model these processes and we use early fatherhood transitions as a substantive example of why we need to appreciate and assess the heterogeneity of men who transition into fatherhood at roughly the same time.

Summary of Findings

In this study we used LCGA to identify distinct pathways to fatherhood, marriage and work for men. We identified a total of 12 pathways, of which four constitute pathways to *early* fatherhood. Our results indicate that many young fathers are married when the oldest child is born and exhibit strong attachment to the labor force which began before the birth, contrary to stereotypes. While we confirm prior research finding that young fatherhood results in men's

subsequent disadvantage, we also establish that young fathers are a heterogeneous group regarding economic and social outcomes in young and middle adulthood and different pathways lead to different outcomes, even after family background factors are controlled.

We report evidence to confirm our first hypothesis that men on pathways of younger age at first birth would report more disadvantaged lifetime outcomes. Specifically, we found that all young fathers are disadvantaged in adulthood compared to on-time on-sequence (OTOS) fathers. Even among young fathers who follow the normative sequence of work, marriage, and fatherhood, a teenage birth (Group B) in particular is associated with more disadvantage than a birth in the early 20s (Group A).

Our results also confirm our hypothesis that men who become fathers outside of (a) marriage and (b) fulltime employment report greater disadvantage relative to their married and fully employed peers, respectively. Unmarried fathers (Group D) report less income at both age 26 and 37 and less educational attainment. Some pathways to early fatherhood (e.g., Groups C and D) include very 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 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. This finding underscores the importance of incorporating labor force outcomes into studies of early parenthood for both men and women. There are important differences in the way that parenthood affects labor force attachment. 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 you compare women in their thirties, 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[8]. For men, 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.

The take-home message of these findings is that not all men who become fathers early are destined to "unsuccessful" adult lives. On the contrary, the vast majority of these men appear to be living successful – albeit modest – lives. A lower – yet equally noteworthy – proportion of the sample are members of the most alarming classes. For those who do experience greater disadvantages accompanying transitions, assistance and interventions need to take into account the heterogeneity among different classes of men.

[8] 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 human capital among young mothers.

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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 Life Pathways , and for On-Time On-Sequence Fathers

		Proportion in Each Role										Sample Percent (N)
	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 Life Pathway

Sample		**White**		**Black**		**Hispanic**	**Youth Poverty**		**Live with Both Parents Age 14**		**Mother's Education**	
Label	*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	*a*
All ELPs Combined	756	73.9	*b*	17.6	*b*	8.5	12.8	*b*	74.9	*b*	11.2	*b*

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

Fatherhood Pathway		**White**		**Black**		**Hispanic**	**Youth Poverty**		**Live with Both Parents Age 14**		**Mother's Education**	
Label	*N*	*%*		*%*		*%*	*%*		*%*		Mean	
A. Married fully-employed young fathers	380	84.5	*a*	10	*ad*	5.5	7.9	*ac*	82.4	*a*	11.5	*a*
B. Married fully-employed teen fathers	184	77.2	*ac*	12.5	*cd*	10.3	7.9	*ac*	76.1	*a*	10.9	*a*
C. Married partially-employed teen/young fathers	104	66.4	*c*	22.1	*c*	11.5	18	*a*	59.6	*b*	10.8	*a*
D. Unmarried partially-employed teen/young fathers	88	30.7	*b*	55.7	*b*	13.6	37.4	*b*	58	*b*	10.7	*a*
On-time On-sequence fathers	339	89.4	*a*	4.7	*d*	5.9	6.8	*c*	83.8	*a*	12.3	*b*

* 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 Life 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 (de-mog only)*		*Model 3*	
	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p	Beta	p
Early Life 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 Life 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 3*		*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	Beta	p	Beta	p	Beta	p
Early Life Pathways																								
A. Married fully-employed young fathers	0.33	<.001			0.32	<.001	0.10	0.07			0.09	0.12	1.17	<.001			1.16	<.001	0.30	<.001			0.35	<.001
B. Married fully-employed teen fathers	0.45	<.001			0.45	<.001	0.41	<.001			0.40	<.001	1.79	<.001			1.76	<.001	0.53	<.001			0.53	<.001
C. Married partially-employed teen/young fathers	0.38	<.001			0.37	<.001	0.36	<.001			0.26	0.00	1.59	<.001			1.58	<.001	0.51	<.001			0.50	<.001
D. Unmarried partially-employed teen/young fathers	-0.75	<.001			-0.69	<.001	-0.86	<.001			-0.90	<.001	1.37	<.001			1.18	<.001	0.16	0.20			-0.04	0.81
Demographics																								
Black			-0.37	<.001	-0.18	<.001			-0.23	0.00	-0.01	0.89			0.67	<.001	0.42	<.001			0.64	<.001	0.66	<.001
Hispanic			-0.17	0.02	-0.12	0.06			-0.14	0.19	-0.10	0.30			0.24	0.07	0.24	0.01			0.67	<.001	0.69	<.001
Youth Poverty			-0.08	0.22	0.02	0.71			-0.06	0.52	0.04	0.61			-0.30	0.01	-0.21	0.01			-0.15	0.23	-0.09	0.45
Live with Both Parents			-0.01	0.87	-0.02	0.58			-0.11	0.09	-0.12	0.04			-0.09	0.27	-0.02	0.68			0.11	0.20	0.12	0.16
Mom's Education			-0.01	0.19	0.00	0.93			-0.02	0.13	-0.01	0.31			-0.07	<.0001	-0.02	0.04			0.01	0.53	0.02	0.11
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	-0.01	0.00			0.01	0.27	0.01	0.19
Work Limitation*			0.07	0.11	0.10	0.01			0.12	0.04	0.13	0.02			0.05	0.52	0.01	0.88			0.05	0.52	0.04	0.63
Northeast*			-0.07	0.16	0.03	0.53			-0.14	0.06	-0.04	0.60			-0.04	0.65	0.08	0.26			0.00	0.97	0.06	0.55
Northcentral*			-0.10	0.03	-0.05	0.15			-0.12	0.05	-0.08	0.16			0.06	0.40	0.09	0.11			0.24	0.01	0.26	0.00
West*			-0.02	0.65	0.02	0.63			0.12	0.11	0.17	0.01			0.09	0.34	0.08	0.23			0.20	0.06	0.21	0.04
R-sq - adj	0.34		0.05		0.32		0.16		0.02		0.16		0.50		0.09		0.54		0.03		0.05		0.07	

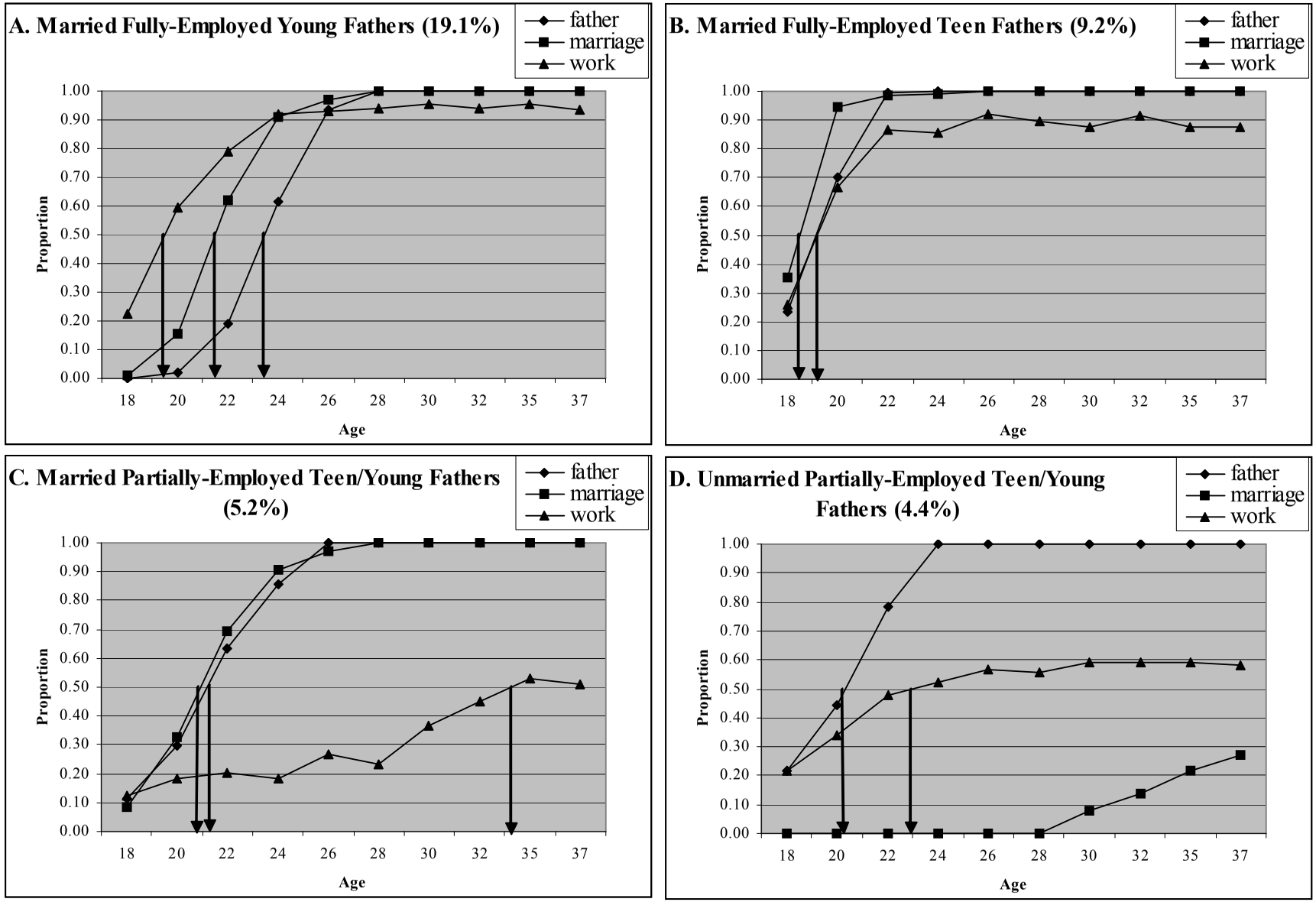
* Variable value at age of the outcome variable.

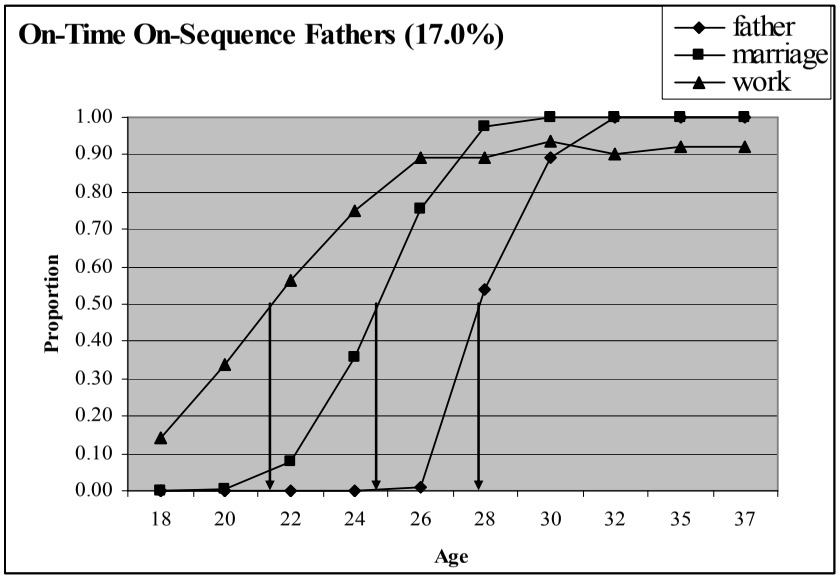
Table 6: Logistic Regression Models of Early Life Pathways and Incarceration with and without Covariates

	Incarcerated by age 26								
	Model 1(ELP only)			*Model 2 (Demog only)*			*Model 3*		
	Estimate	Odds ratio	p-value	Estimate	Odds ratio	p-value	Estimate	Odds ratio	p-value
Early Life 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.

Figure 1: Four Early Life and On-Time On-Sequence Pathways




On-Time On-Sequence Fathers (17.0%)
father
marriage
work
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Proportion
18
20
22
24
26
28
30
32
35
37
Age

Appendix A

Demographic Explanatory Covariates by Latent Class (Age 26, Age 37, and Lifetime)

		Age 26 Covariates								Age 37 Covari-ates		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	
Label	N	$		N		N		%		$		*mean*		N		N	
A. Married fully-employed young Fathers	380	20897.26	*ac*	1.26	*a*	1.08	*b*	1.32	*c*	45401.27	*c*	12.96	*b*	2.41	*a*	1.35	*bd*
B. Married fully-employed teen fa-thers	184	19162.60	*c*	1.88	*b*	1.20	*c*	1.09	*c*	35609.7	*b*	11.93	*a*	2.64	*b*	1.66	*c*
C. Married partially-employed teen/young fathers	104	5864.97	*b*	1.68	*bc*	1.13	*bc*	8.65	*b*	19230.81	*a*	12.34	*ab*	2.62	*ab*	1.62	*c*
D. Unmar-ried par-tially-employed teen/young fathers	88	9196.41	*b*	1.45	*ac*	0.00	*a*	23.86	*a*	15422.7	*a*	11.52	*a*	2.26	*acd*	0.4	*a*
On-Time On-Sequence Fathers	339	21133.37	*c*	0.09	*d*	0.75	*d*	1.47	*c*	53071.2	*d*	14.24	*c*	2.1	*d*	1.25	*d*
Sample Average	1992	17210.08		0.59		0.60		3.71		39781.38		13.5		1.57		1.09	