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Precursors of Young Women's Family Formation Pathways

Paul R. Amato, Nancy S. Landale, Tara C. Havasevich, Alan Booth, David J. Eggebeen*, Robert Schoen, Susan M. McHale*, and Pennsylvania State University

Department of Sociology, 211 Oswald Tower, Pennsylvania State University, University Park, PA 16802-6207

Paul R. Amato: pxa6@psu.edu; Nancy S. Landale: landale@pop.psu.edu; Tara C. Havasevich: tch110@psu.edu; Alan Booth: axb24@psu.edu; David J. Eggebeen: e5x@psu.edu; Robert Schoen: schoen@pop.psu.edu; Susan M. McHale: x2u@psu.edu

Abstract

We used latent class analysis to create family formation pathways for women between the ages of 18 and 23. Input variables included cohabitation, marriage, parenthood, full-time employment, and attending school. Data ($n = 2,290$) came from Waves I and III of the National Longitudinal Study of Adolescent Health (Add Health). The analysis revealed seven latent pathways: college-no family formation (29%), high school-no family formation (19%), cohabitation without children (15%), married mothers (14%), single mothers (10%), cohabiting mothers (8%), and inactive (6%). Three sets of variables distinguished between the groups: personal and social resources in adolescence, family socioeconomic resources and adolescent academic achievement, and conservative values and behavior in adolescence.

Keywords

Adolescence; latent class analysis; life course; life events/and or transitions; youth/emergent adulthood

The transition to adulthood has changed dramatically in recent decades, and scholarly interest in the topic has increased accordingly. The demographic facts of recent changes are well known: On average, men and women are marrying and becoming parents later (Ventura & Bachrach, 2000), cohabiting rather than marrying in the early adult years (Bumpass & Lu, 2000), and bearing more of their children outside of marriage (Wu, Bumpass, & Musick, 2001). Young adults are also continuing their educations beyond high school because of the changing skill requirements of jobs, and the pursuit of higher education is most likely to be undertaken by individuals who postpone family formation.

*Department of Human Development and Family Studies, 211 Henderson Building South, Pennsylvania State University, University Park, PA 16802-6504

Contact information: Paul R. Amato: Department of Sociology, 211 Oswald Tower, Pennsylvania State University, University Park, PA 16802-6207. Telephone (814) 865-8868

Nancy S. Landale: Department of Sociology, 211 Oswald Tower, Pennsylvania State University, University Park, PA 16802-6207. Telephone: (814) 863-7276

Tara C. Habasevich: Department of Sociology, 211 Oswald Tower, Pennsylvania State University, University Park, PA 16802-6207. Telephone: (814) 865-2527

Alan Booth: Department of Sociology, 211 Oswald Tower, Pennsylvania State University, University Park, PA 16802-6207. Telephone: (814) 863-1141

David J. Eggebeen: Department of Human Development and Family Studies, Pennsylvania State University, 211 Henderson Building South, University Park, PA 16802-6504. Telephone (814) 865-2655

Robert Schoen: Department of Sociology, 211 Oswald Tower, Pennsylvania State University, University Park, PA 16802-6207. Telephone: 814-865-8869

Susan M. McHale: Department of Human Development and Family Studies, Pennsylvania State University, 211 Henderson Building South, University Park, PA 16802-6504. Telephone: (814) 865-2663

The late teens and early twenties have become a period of great variability in the life course, with some individuals postponing all family-related transitions, others making tentative commitments (e.g., cohabitation), and still others making choices with more enduring consequences (e.g., entry into parenthood). Studies conducted in the 1980s and early 1990s (Hogan & Astone, 1986; Rindfuss, 1991) described the young adult years as demographically dense, diverse, and disordered. Family formation pathways have become even more diverse since then. Currently, only 12% of women marry in their early 20's without a prior cohabitation or nonmarital birth (Schoen, Landale, & Daniels, 2007). Despite the complexity of this stage of the life course, the great majority of demographic studies have focused on transitions into a single status (e.g., marriage or parenthood).

Rather than focusing on individual status (or role) transitions, life course theory emphasizes the *timing and sequencing* of transitions (Elder, 1998; Zollinger & Elder, 1998). Transitions have different meanings, precursors, and consequences depending on *when* they occur in the life course and *where they fit* within larger sequences. For example, first marriages at age 19 and 30 are qualitatively different events. Similarly, births that precede marriage differ from births that follow marriage in many ways. Life course theory, therefore, holds that *pathways* (the timing and sequencing of multiple transitions), rather than single transitions, should be the subject matter of research.

The present study has two aims. The first is descriptive. Drawing on data from Waves I and III of the National Longitudinal Study of Adolescent Health (Add Health), we use latent class analysis to determine the most common pathways that women between the ages of 18 to 23 follow with respect to cohabitation, marriage, parenthood, attending school, and working full-time. Marriage and parenthood have long been defined as the key transitions that constitute family formation (Bumpass & Lu, 2000; Schoen, Landale, & Daniels, 2007), although demographers have increasingly recognized nonmarital cohabitation as a distinct family form (Bumpass & Raley, 1995). An innovation of the present study is the inclusion of cohabitation as a transition in young adults' family formation pathways. We also include school attendance and full-time employment, because decisions about these topics are often made in conjunction with decisions about family formation. The second aim is explanatory. Although life course theory provides a general framework for our analysis, we draw on three mid-range perspectives to guide the selection of variables that distinguish between pathways: (1) a demographic perspective that emphasizes the structural advantages associated with the family of origin, (2) a developmental perspective that emphasizes adolescents' social and personal resources, and (3) a values perspective that emphasizes religious beliefs and sexual behavior during adolescence.

Data Analytic Issues

One of the main challenges of studying the life course is the complexity of life course data (Zollinger & Elder, 1998). Consider five commonly studied life course transitions: finishing school, beginning full-time employment, entering a nonmarital cohabitation, becoming a parent, and getting married. The fact that these transitions can occur in different orders and at different ages yields literally thousands of possible permutations. To study the diverse experiences of youth, it is necessary to reduce the number of pathways to a manageable number.

To our knowledge, only three studies on this topic have used latent class analysis—the method used in the present paper. Osgood, Ruth, Eccles, Jacobs, and Barber (2005) used the Michigan Study of Adolescent Life Transitions and included the following variables measured at age 24: employment, residing with parents, being in a romantic relationship, parenthood, and education. A latent class analysis (based on a combined sample of men and

women) revealed six groups that the authors labeled “fast starters,” “parents without careers,” “educated partners,” “educated singles,” “working singles,” and “slow starters.”

Sandefur, Eggerling-Boeck, and Park (2005) applied latent class analysis to two cohorts of youth: people born in 1964 who participated in the High School and Beyond Survey (HSB), and people born in 1974 who participated in the National Educational Longitudinal Study (NELS). Their analysis revealed four latent classes for women: “limited postsecondary education with early marriage and childbearing,” “limited postsecondary education with children, but not marriage,” “obtaining a BA without marriage or childbearing,” and “obtaining a BA with marriage and childbearing.”

MacMillan and Copher (2005) used four waves of data from the National Longitudinal Study of Youth to develop latent classes based on marriage, parenthood, employment, and schooling at ages 17, 19, 21, 23, and 25. The authors conducted separate analyses by race and found three latent classes among African American women (rapid school to parent, school to parent, and school to work), three latent classes among Hispanic women (rapid school to family, school to work to family, and extended schooling with delayed work), and four latent classes among white women (school to early work, extended schooling with delayed work, school to work to family, and school to early family).

Although these three studies broke new ground, each had limitations. The Osgood et al. (2005) study did not have life course histories, which made it impossible to incorporate the timing and sequencing of status transitions into the analysis. Correspondingly, the Sandefur, Eggerling-Boeck, and Park (2005) and MacMillan and Copher (2005) studies did not contain information on nonmarital cohabitation--a common step in the family formation process.

Precursors of Family Formation Pathways

Although early marriage, cohabitation, and childbearing are not necessarily problematic (especially when they occur after the teen years), Arnett (2000) suggested that early family formation interferes with individuals' opportunities to experience an extended period of personal growth and exploration before settling into adult roles. Moreover, the restructuring of the U.S. economy during the last few decades means that workers without tertiary educational qualifications are likely to face downward economic mobility (Haveman & Wolfe, 1994). Consequently, delaying family formation until later in the life course (after completing some form of post-high school education) is now seen as a desirable pathway for contemporary youth. For these reasons, we are particularly interested in factors that lead some youth to complete college (and delay family commitments) and other youth to form family commitments (which tend to truncate educational opportunities) early in the life course.

Structural Resources in the Family of Origin

Demographic studies of family formation tend to emphasize family-of-origin variables that signal the availability of resources for offspring, such as socioeconomic status, family structure, and race. Parental education and income are good predictors of offspring's later educational and occupational attainment (Featherman & Hauser, 1978; Teachman, 1987). Because youth from advantaged backgrounds are especially likely to pursue higher education, they typically delay marriage and childbearing. With respect to family structure, women who grow up in single-parent households are especially likely to engage in nonmarital cohabitation and have nonmarital births (McLanahan & Bumpass, 1988; Miller, 2002). Explanations for the links between childhood family structure and adult transitions have emphasized economic disadvantage, along with stress in parent-child relationships

(McLanahan & Sandefur, 1994; Thomson, Hanson, & McLanahan, 1994). Although race can be viewed as a personal attribute, it is also a structural variable that reflects a group's history of disadvantage and discrimination. For example, African Americans, compared with whites, are less likely to marry and more likely to have nonmarital births (Casper & Bianchi, 2002). Explanations for these differences usually refer to economic inequality, cultural factors, and the lack of marriageable men in the population (Wilson, 1996).

Personal and Social Resources in Adolescence

Developmental research has identified a variety of personal and social resources in adolescence that are associated with later educational and family formation transitions. For example, close relationships with parents are linked to adolescent adjustment and social competence and make youth less susceptible to negative peer influences (Darling & Steinberg, 1993). Along these lines, adolescent daughters with close relationships with parents are especially likely to delay first sexual intercourse (Miller, 2002; Regnerus & Luchies, 2006). Adolescents with positive attitudes toward school are less likely to be involved in problematic behaviors, such as drug use, delinquency, and early sexual involvement (Dornbush, Ericson, & Wong, 2001). In addition, positive school experiences enhance educational achievement and promote occupational aspirations, thereby increasing adolescents' motivation to avoid early pregnancy and parenthood (Kerkhoff, 1993). Similarly, adolescents with high levels of self-esteem and psychological adjustment are less likely to engage in behaviors that place them at risk for early childbearing and more likely to pursue activities that put them on a path toward educational and occupational achievement (Kirby, Lepore, & Ryan, 2005).

Value Orientations in Adolescence

Our attention to values focuses on religiosity among youth and their parents, along with the avoidance (or exhibition) of sexual behaviors during adolescence. A focus on values-based decision making is consistent with life course theory's emphasis on human agency (Elder, 1998), as well as social psychological perspectives that emphasize people's intentions as predictors of behavior (e.g., Ajzen & Fishbein, 1980). Adolescents' attitudes are good predictors of their decisions to cohabit, have a nonmarital birth, marry, attend college, and enter full-time employment (Carlson, McLahanan, & England, 2004; Cunningham, Beutel, Barber, & Thornton, 2005). Religiosity appears to be particularly influential. When parents and offspring are highly religious, adolescents tend to hold conservative attitudes toward family formation (Pearce & Thornton, 2007). Religious adolescents, for example, are less likely to engage in early sexual activity (Heynes, 2003; Rostosky, Regnerus, & Wright, 2003). Early sexual activity, in turn, predicts cohabiting and marrying in early adulthood (Raley, Crissey, & Muller, 2007).

Approach of the Present Study

Philosophers of science (e.g., Hanson, 1958) as well as social scientists (e.g., Abbott, 1998; Goldthorpe, 2001; Merton, 1987) have emphasized the necessity of describing a phenomenon before attempting to explain it. Merton argued that it is necessary to establish that a phenomenon has a sufficient degree of regularity and coherence before embarking on explanation. Others, such as Abbott and Goldthorpe, are critical of the tendency for many social scientists to disparage descriptive work and rush prematurely into devising causal models for outcomes that are insufficiently defined. In a classic statement, Hanson argued that the scientific method does not start with theory but with observation, description, data reduction, and pattern recognition. In the context of the current study, latent class analysis is a useful method for discovering patterns within data and reducing a large number of possible

pathways to a smaller number that capture much of the variability in the timing and sequencing of young women's status transitions.

Our approach builds on prior research in two ways. First, like Osgood et al. (2005), Sandefur et al. (2005), and MacMillan and Copher (2005), we used LCA to determine women's family formation pathways in early adulthood. Specifically, we used information on women's statuses (from ages 18 to 23) with respect to cohabitation, births, marriage, education, and full-time employment. Our study is the only one to incorporate information on nonmarital cohabitation. Given that more than half of all women now cohabit prior to first marriage (Smock & Gupta, 2002), the inclusion of this variable is critical. We included education and employment because decisions about union and family formation are often made at the same time as decisions about education and employment.

Second, explanatory studies of early adult role transitions have tended to focus on a limited set of predictors. In contrast, we relied on three frameworks to distinguish between the family formation pathways of young women: a demographic focus on structural factors in the family of origin, a developmental focus on adolescents' personal and social resources, and adolescents' value orientations as reflected in religiosity and sexual behaviours. With respect to the family of origin, we included parents' education, income, whether adolescents lived with both biological parents, and the adolescent's race/ethnicity. With respect to personal and social resources, we included parents' and children's reports of emotional closeness, adolescents' reports of feeling "cared for" by significant others, self-esteem, symptoms of depression, adolescents' reports of positive (or negative) school experiences, school grades, an objective measure of intellectual ability, and parents' reports of whether their child suffered from a cognitive impairment. With respect to values, we included parents' religiosity, adolescents' religiosity, whether adolescents had ever been sexually active, whether adolescents had sex prior to age 16, and the total number of sexual partners.

Methods

Sample

Our data source was the National Longitudinal Study of Adolescent Health (Add Health). Add Health started in 1994-95 with a nationally representative sample of adolescents in grades 7 through 12. Researchers conducted in-home interviews with the adolescent and one parent—usually the biological mother. Adolescents completed a second interview one year later. Add Health respondents completed a third interview in 2001 or 2002, when their ages ranged from about 18 to 25. We focused on young women for two reasons. First, the timing of family formation events tends to be earlier for women than for men. For example, the median age at first marriage is about 25 for women compared with 27 for men (Casper & Bianchi, 2002). Given the relatively young age of our sample, more women than men would have experienced family formation transitions. Second, becoming a parent is a central variable in our analysis, and men's reports of child-bearing are less reliable than those of women. Indeed, one third to one half of men's nonmarital births and births within previous marriages are missed in estimates based on men's retrospective reports (Rendell et al., 1999). One potential limitation is that students who dropped out of high school prior to data collection in Wave 1 were not included. An analysis by Udry and Chantala (2000), however, demonstrated that the omission of high school drop outs from the Add Health sample has only trivial effects on population estimates.

The 1995 Add Health sample included a total of 10,480 women. Because our goal was to model early family formation pathways between the ages of 18 and 23, we restricted our analysis to women 23 years of age or older at Wave III. This restriction, along with attrition between wave I and III, reduced the sample size to 2,437 women. We omitted a small

number of women (2%) who failed to provide complete answers to questions on cohabitation, marriage, parenthood, education, and schooling, which resulted in a sample of 2,387. Wave III sample weights were missing for 97 women, which reduced the final sample size to 2,290. At the time of the third interview, these women ranged in age from 23 to 25.

Measures

Family formation pathways—We relied on five variables from the Wave III interview to construct young women's family formation pathways: cohabitation, marriage, having a child, attending school, and being in full-time employment. For each year between the ages of 18 and 23, we created a binary variable that indicated whether respondents occupied each of these statuses. This procedure generated 30 separate variables (five statuses across six years) for each respondent.

To determine cohabitation history, respondents were asked “Have you ever lived with someone in a marriage like relationship for one month or more?” If respondents answered yes, they were asked about the month and year the cohabitation started and, if appropriate, the month and year it ended. Women who reported that they were in a cohabiting relationship were coded 1 for that age and 0 otherwise. For example, a woman who cohabited at age 20 but broke up with her partner (or married her partner) at age 21 received scores of 0, 0, 1, 1, 0, 0 for ages 18 through 23, respectively.

To determine if respondents were married, we relied on questions about the month and year of marriage and, if appropriate, the month and year the marriage ended. If a respondent was married during a given age, she was coded 1 for that age and 0 otherwise. Respondents received a code of 1 if they were married (or cohabiting) during any portion of the year, irrespective of whether they were married (or cohabiting) for one month or the entire year. Note that it was possible to be both cohabiting and married at a given age.

Questions on births were included in a section of the interview dealing with the respondent's history of intimate relationships. Month and year of birth were used to determine the age of the mother when the child was born. This set of questions, however, inadvertently omitted some births. Consequently, we supplemented these data with information on resident biological children drawn from women's household rosters (see Schoen, Landale, & Daniels, 2007 for details on this procedure). Although it was possible to enter and leave other statuses during the six-year period, once a woman became a mother, she did not relinquish this status.

For each year from 1995 through 2001, respondents were asked “Since the beginning of (year), have you worked for pay?” Respondents who reported working full-time during a given year were coded 1, and those working part-time or not at all were coded 0. Unlike the questions for marriage, cohabitation, and births (which provided information on month and year), the employment questions covered an entire calendar year. To determine the age of the respondent at the time of employment, we used the following rule: the age of the respondent for most of the year determined whether the respondent was employed at that age. For example, a respondent employed full-time in 2000 and born in March of 1980 was coded 1 for age 20.

Because complete education histories were not available, we relied on several questions to determine whether respondents were attending school at particular ages. One question asked about the highest degree the respondent earned and the respondent's age at the time. In addition, respondents were asked if they were attending school at the time of the Wave III interview, which made it possible to identify their school status and link it with their current age.

Family-of-origin structural resources—To capture structural resources in the family of origin, we used the parents' education (1 = *no education*, 10 = *professional training after a bachelor's degree*) and total household income, which were recorded in Wave 1. We also coded whether the adolescent was living with both biological parents in Wave 1 (0 = *no*, 1 = *yes*). Finally, we coded whether the adolescent self-identified as non-Hispanic Black (0 = *no*, 1 = *yes*). We originally included a variable for Hispanic origin. This variable did not distinguish between pathways, however, so we omitted it from the analysis.

Adolescents' personal and social resources—To assess the quality of the parent-adolescent relationship, parents responded to four statements, such as: “You get along well with him/her” (1 = *never*, 5 = *always*), and “Overall you are satisfied with your relationship with your child” (1 = *strongly disagree*, 5 = *strongly agree*; $\alpha = .76$). Correspondingly, adolescents were asked three questions, including: “Most of the time, your mother (father) is warm and loving toward you,” and “Overall you are satisfied with your relationship with your mother (father).” Response options were 1 = *strongly disagree*, 5 = *strongly agree* ($\alpha = .87$ for mothers and .90 for fathers). Some adolescents had not seen or heard from their fathers in many years and, consequently, were not asked these questions. In these cases, we imputed the minimum scale score. A measure of positive attitudes toward school was based on five statements from the Wave I adolescent interview including: “You feel close to people at your school,” and “The teachers at your school treat you fairly” (1 = *strongly disagree*, 5 = *strongly agree*; $\alpha = .76$). To see how well students were doing at school, we relied on students' reports of their most recent grades in math, English, science, and history and calculated the grade point average across the four subjects ($\alpha = .74$). We also included adolescents' scores on the Add Health Picture Vocabulary Test (AH_PVT), which is a measure of verbal intelligence. Parents also were asked if their adolescent was “mentally retarded” or suffered from a “learning disorder” (0 = *no*, 1 = *yes*). We relied on three variables to assess adolescents' subjective well-being and adjustment. The first consisted of a 7-item measure of self-esteem. Sample items included: “You have a lot of good qualities,” and “You have a lot to be proud of,” (1 = *strongly disagree*, 5 = *strongly agree*; $\alpha = .85$). The second measure was a 19-item depression scale. Adolescents were asked, “How often was each of the following things true during the last week?” (0 = *never or rarely*, 3 = *most of the time or all of the time*). Sample items included: “You felt that you could not shake off the blues, even with help from your family and your friends,” “You felt depressed,” and “You felt sad.” Items were scored in the direction of depressive affect ($\alpha = .87$). The third measure reflected adolescents' feelings of being cared for by others. The four items included: “How much do you feel that your teachers care about you?” and “How much do you feel that your parents care about you?” (1 = *not at all*, 5 = *very much*; $\alpha = .63$). To facilitate later interpretation, all scale scores were transformed to Z-score distributions prior to analysis.

Values and behavior—Three questions measured the parent's religiosity: “In the last 12 months, how often did you go to religious services?” (1 = *never*, 4 = *once a week or more*), “How important is religion to you?” (1 = *not important at all*, 4 = *very important*), and “How often do you pray?” (1 = *never*, 5 = *every day*). The three items were summed to form a scale of parents' religiosity ($\alpha = .70$). Adolescent religiosity was based on their answers to the same three questions ($\alpha = .85$). We used a Z-score transformation of these variables in subsequent analyses. With respect to sexual behavior, adolescents were asked if they had engaged in sexual intercourse (0 = *no*, 1 = *yes*). Experienced adolescents were asked about their ages at first intercourse, and we created a variable indicating whether sex occurred prior to age 16 (0 = *no*, 1 = *yes*). Finally, adolescents reported on their total number of sexual partners.

Missing Data

The major source of missing data was the failure of some parents ($n = 434$) to complete an in-home interview. We used logistic regression analysis to locate Wave 1 variables that were associated with the noncompletion of a parent interview. Only three variables were significant: children's emotional closeness to mothers, children's school attachment, and children having sex prior to age 16. Given our general inability to predict parent nonparticipation, we assumed that omissions were missing at random. Consequently, we relied on full-information maximum likelihood estimation, as implemented in Mplus (version 3), so that data from all cases were included in the analysis.

Data Reduction: Factor Analysis

To reduce the complexity of the analysis, we subjected the precursor (independent) variables to an exploratory factor analysis using varimax rotation. We conducted this analysis using SPSS, and the resulting factor scores were imported into Mplus for further analysis. This analysis revealed three factors with eigenvalues greater than one that accounted for 39% of the variance in the 19 precursor variables. (Results from a promax rotation, which allowed the factors to be correlated, yielded factor loadings that were nearly identical to those produced by varimax rotation.)

Factor 1, which we labeled *personal and social resources*, was defined by high self-esteem (.74), few symptoms of depression (-.67), feeling cared for by others (.66), adolescents' ratings of closeness to mothers (.67) and fathers (.59), parents' ratings of closeness to adolescents (.51), and liking school (.59). Young women scoring high on this factor tended to have strong social bonds and high levels of emotional well-being. Factor 2, which we labeled *family socioeconomic resources and adolescent academic achievement*, was defined by AH_PVT scores (.74), parent education (.58), parent income (.60), growing up in a two-parent family (.56), being non-black (-.52), reporting high grades (.50), and not having a cognitive disability (-.36). Note that some variables that we had envisioned as personal resources during adolescence (AH_PVT scores, grades, and cognitive disabilities) loaded on the same factor with the structural family-of-origin variables. This finding reflects the close connection between academic success and structural advantages in the family of origin. Finally, Factor 3, *conservative values and behavior*, was defined by adolescent religiosity (.72), parent religiosity (.69), ever having had sex (-.42), having first sex prior to age 16 (-.56), and the total number of sexual partners (-.55).

Results

Latent Class Analysis

We begin by showing the proportion of women who occupied each status at each age. Table 1 shows that the proportion attending school declined from .82 at age 18 to .31 at age 23. In contrast, the proportion with a full-time job increased from .36 at age 18 to .69 at age 23. The proportion of women in nonmarital cohabiting relationships increased from .13 to .38. Similarly, the proportion of women who were married increased from .04 to .29 at age 23. Finally, parenthood increased from .09 to .31. Because these numbers represent group averages, *they do not reflect the actual pathway of any particular woman.*

Based on the timing and sequencing of statuses, 145,152 different pathways were possible. To establish a parsimonious number, we subjected the age-status matrices for each respondent to a latent class analysis. This method is appropriate when the researcher assumes that respondents belong to different groups, but membership in these groups is not known *a priori* and must be determined inductively from the data (McCutcheon, 1987; Muthén, 2004). We used Mplus (version 3) to estimate a mixture model with a categorical

latent dependent variable and binary observed variables (Muthén & Muthén, 2005). The associations between variables were modeled using logistic regression with a maximum likelihood estimator. To minimize the possibility of inadvertently settling on a local (rather than a global) maxima, estimation was based on ten iterations for each of 10 random starting values, and the value with the highest log likelihood was used as the starting value for the final optimization.

We specified models with 1 to 12 latent classes and relied on three methods to determine the optimal solution. The Bayesian Information Criterion (BIC), in which smaller values indicate better solutions, declined continuously from one to 12 classes. These results were unclear with respect to the optimal number of classes. Entropy is a measure of the extent to which cases can be classified unambiguously into a given number of well-separated groups (Wedel & Kamakura, 1998). Entropy values increased from two to six classes, reached a maximum of .96 at seven classes, and then declined with larger numbers of classes—a finding which suggested that the 7-class solution was optimal. Finally, we relied on the Lo-Mendell-Rubin likelihood ratio test of model fit (Lo, Mendel, & Rubin, 2001). This test compares a given model with a model with one less class. Results indicated that increases from 2 to 7 classes provided significant improvements in the fit of the model to the data. In particular, the 7-class model provided a significantly better fit than did the 6-class model (likelihood ratio = 914.756, $p < .001$). The 8-class model, however, did not improve model fit ($p = .63$). On the basis of the latter two tests, we retained the 7-class solution for further analysis.

We assigned cases to the class in which they held the highest probability of membership. The resulting class sizes were nearly identical to the class sizes based on the latent class probabilities generated by Mplus (not shown). Consistent with the entropy measure, this result suggested that group assignment based on the highest probability of membership did not distort the class sizes based on latent class probabilities (Goodman, 2007).

In Figure 1, the results for Class 1 ($n = 659$, 29%) indicate that the probability of being in school was close to 1 for women at ages 18-21 and began to decline at ages 22 and 23. Correspondingly, the probability of full-time employment began to rise after age 21. The probabilities of family formation behavior (cohabitation, marriage, and childbearing) were low at all ages. Of all groups, these women had the highest level of educational attainment. We refer to this trajectory as *college-no family formation*.

Women in Class 2 ($n = 426$, 19%), showed a sharp decline in the probability of being in school between ages 18 and 19 and a corresponding increase in the probability of being employed full-time. The probability of full-time employment was close to 1 by age 21. Members of this group exhibited little family formation behavior. We refer to this trajectory as *high school-no family formation*.

Class 3 ($n = 333$, 15%) showed a decline in the probability of being in school between ages 18 and 19, with the probability of being in full-time employment being slightly over .5 at age 18. Especially striking is the rapid increase in the probability of nonmarital cohabitation, which peaked around .9 by age 21. The fact that these women were living with a partner may account for their lower level of full-time labor force participation, compared with women in Group 2. At ages 22 and 23, the probability of marriage (and parenthood) began to rise and the probability of cohabitation began to decline, suggesting that some of these women were transforming their unions into marriages. We refer to this group as *cohabiting without children*.

Class 4 ($n = 326$, 14%) was distinctive for the high probability of marriage, which was close to 1.0 by age 21. The probability of nonmarital cohabitation was never particularly high for this group, which suggests that these women were interested in marriage rather than living

together. Shortly following the transition to marriage was a rise in the probability of having a child, which was over .8 by age 23. These results indicate that most of these women had their first child within a year or two of marrying, and it is likely that some of these women were pregnant at the time of marriage. We refer to this class as *married mothers*.

Class 5 ($n = 221$, 10%) was primarily comprised of single mothers. The probability of being a parent was about .4 at age 18 and rose rapidly to 1.0 by age 21. The probabilities of cohabitation and marriage were never high for this group. The probability of full-time employment, however, increased over time. Presumably, the need to support a family, combined with current work requirements for women receiving Temporary Assistance to Needy Families (TANF) ensured that the majority of these women were in the labor force. The trend for some women to continue their educations may reflect TANF rules in many states that allow mothers to count school attendance toward work requirements. We refer to this class as *single mothers*.

Class 6 ($n = 191$, 8%) revealed a high probability of nonmarital cohabitation, which was slightly under .5 at age 18 and rose to nearly 1.0 by age 20. The probability of parenthood also was high and increased from slightly more than .4 at age 18 to 1.0 at age 21. The probability of cohabitation declined slightly after age 20, which suggests that some of these unions were breaking up or being converted into marriages. We refer to this group as *cohabiting mothers*.

Finally, Class 7 ($n = 134$, 6%) revealed a rapid decline in the probability of being in school, which dropped from 1.0 at age 18 to less than .20 at age 20. A slight increase in school attendance occurred after age 20. Otherwise, this group showed little activity, with the probabilities of full-time employment, cohabitation, marriage, and parenthood being consistently low. Although not shown in the figure, it is of interest that 44% of women in this group were still living with their parents at the time of the Wave III interview—a substantially higher number than in any other class. We refer to women in this class as *inactive*.

Precursors of Family Formation Pathways: Multinomial Logistic Regression

The final step involved a multinomial logistic regression in which the seven latent pathways were predicted by the three factor scores. Multinomial logistic regression is appropriate then the outcome is an unordered categorical variable that takes on more than two values (See StataCorp., 2005, pp. 209-229 for a technical discussion of this method and Wagmiller, Lennon, Kuang, Alberti, & Aber, 2006, for an application of this method in conjunction with latent class analysis). We conducted six analyses and rotated the omitted group to show all possible group comparisons. These results are summarized in Table 2. A table of descriptive statistics in the appendix shows the means or percentages for the individual precursor variables for women in each of the seven latent classes.

The results of the first analysis, in which the *college-no family formation* class served as the omitted comparison group, appear in panel one. Note that the b coefficients for all three factors in this panel were negative and significant. Correspondingly, the relative risk ratios (RRR) were all less than 1. (A value of 1 indicates no association.) Because a rise in each factor decreased the odds of being in classes 2 – 7, it logically follows that each factor increased the odds of being in Class 1 (the omitted comparison group). For example, a one standard deviation increase in Factor 1 decreased the odds of being in the *high school-no family formation* class by 23% relative to being in the *college-no family formation* class ($[.77 - 1] * 100$). In simpler terms, compared with individuals in the *college-no family formation* class, individuals in all other classes scored significantly lower on Factor 1 (personal and social resources), Factor 2 (family socioeconomic resources and adolescent

academic achievement), and Factor 3 (conservative values and behavior). These results reveal the privileged status of the *college-no family formation* class: Along with being more conservative, these individuals had the highest levels of personal, social, family, and academic resources.

The second panel shows an analysis in which the *high school-no family formation* class served as the omitted comparison group. Compared with this class, all other classes shown in the panel scored lower (except for the *inactive* class) with respect to personal and social resources (Factor 1). In addition, *single mothers*, *cohabiting mothers*, and women in the *inactive* group scored lower on family socioeconomic resources and adolescent academic achievement (Factor 2), whereas women *cohabiting without children*, *single mothers*, and *cohabiting mothers* scored lower on conservative values and behavior (Factor 3). Although individuals in the *high school-no family formation* class were not as privileged as were individuals in the *college-no family formation class*, they had more resources and reported higher levels of conservatism than did individuals in most other classes.

The third panel reveals that *single mothers*, *cohabiting mothers*, and *inactive* women scored lower on family socioeconomic resources and adolescent academic achievement (Factor 2) than did individuals in the *cohabitation without children* class (the comparison group). In contrast, *married mothers* and *inactive* women were more conservative than were individuals in the *cohabitation without children* class (Factor 3). The fourth panel, in which *married mothers* served as the comparison group, shows that *inactive women* had more personal and social resources; *single mothers*, *cohabiting mothers*, and *inactive* women had fewer family and academic resources, and *cohabiting mothers* were less conservative. The fifth and sixth panels show that *inactive* women had more personal and social resources and were more conservative than were *single mothers* or *cohabiting mothers*. Overall, the results from this analysis revealed that the three explanatory factors were able to discriminate successfully between women who followed various latent pathways.

Discussion

Our study had two major goals, one descriptive and one explanatory. With respect to the first goal, our analysis was based on one of the fundamental insights of life course theory. That is, pathways of transitions, rather than individual transitions, should be the main focus of inquiry (Elder, 1998). Accordingly, we relied on LCA to produce a typology of women's family formation pathways in emerging adulthood. Our study built on the prior work of Osgood et al. (2005), Sandefur et al. (2005), and MacMillan and Copher (2005). Each of these studies used different data sets, age ranges, and transition variables. No prior study, however, has incorporated information on nonmarital cohabitation. A comprehensive typology of family formation pathways among contemporary young adults is necessarily incomplete if it excludes cohabitation, (Bumpass and Lu, 2000; Schoen, Landale, & Daniels, 2007; Smock & Gupta, 2002). Consequently, the first major contribution of our study is the incorporation of cohabitation as a major event in women's family formation pathways.

A latent class analysis will produce different results, depending on the age range of the sample and the variables included in the analysis. For this reason, it is useful to compare the seven-class solution in the present study with earlier work. Our results are similar to Osgood et al. (2005) in identifying groups of fast starters (comparable to our *married mothers* group), educated singles (comparable to our *college-no family formation* group), working singles (comparable to our *high school-no family formation* group), and slow starters (comparable to our *inactive* group). The study by Sandefur et al. (2005) identified four classes of women, three of which correspond to classes from the present study: limited education with early marriage and childbearing (comparable to our *married mothers* group),

limited education with children but not marriage (comparable to our *single mothers* and *cohabiting mothers* groups), and obtaining a BA without marriage or childbearing (comparable to our *college-no family formation* group). Finally, MacMillan and Copher (2005)—the study most similar to our own in approach—identified four classes of young women, three of which have counterparts in our study: school to early work (comparable to our *high school-no family formation* group), extended schooling with delayed work (comparable to our *college-no family formation* group), and high school to early family formation (comparable to our *married mothers*, *single mothers*, and *cohabiting mothers* groups). Given the use of different data sets, variables, and age ranges, the similarity in pathways is noteworthy. Nevertheless, a definitive set of pathways will emerge only when a critical mass of studies has been conducted with a broad range of variables measured over long periods.

Our second goal was explanatory: to identify precursors of various family formation pathways. In contrast to prior studies that have relied on a relatively small number of predictors, our study is the first to incorporate data on three broad sets of precursor variables: structural resources in the family of origin, personal and social resources in adolescence, and conservative values and behaviors in adolescence.

A three-factor solution adequately summarized the precursor variables. The first factor, personal and social resources, included high self-esteem, few symptoms of depression, feeling cared for by others, positive feelings about school, and having close ties with mothers and fathers. The multinomial logistic regression analysis revealed that this factor primarily distinguished young women who avoided early family formation behaviors from those who engaged in early union formation and childbearing. These results suggest that adolescent girls with few emotional and social resources tend to start their families and unions relatively early. This conclusion is consistent with the ethnographic work of Edin and Kefalas (2005), who noted that young single mothers in poor neighborhoods tend to have few friends, experience weak bonds with parents, distrust relatives, and are generally socially isolated. As Edin and Kefalas stated, “Pregnancy offers the promise of relational intimacy at a time few other emotional resources are available” (p. 34). These authors also pointed out that depression and despondency keep many of these women from taking precautions to prevent unintended pregnancies (p. 39). In addition, our findings are consistent with studies showing that adolescent daughters are especially likely to delay first intercourse if they have close relationships with parents (Miller 2002; Regnerus & Luchies, 2006) and positive psychological adjustment (Kirby, Lepore, & Ryan, 2005),

The second factor reflected a combination of socioeconomic advantage in the family of origin (high parental education, high family income, growing up in a two-parent household, and not being Black—an indicator of truncated opportunities) and academic success (high cognitive ability, grades, and the absence of a cognitive disability). The fact that these items loaded on the same factor reflects the high correlation between parents' socioeconomic advantages and children's academic achievement. A substantial research literature indicates that high SES parents devote a considerable degree of time and attention to prepare their children for school success (Lareau, 2003). This factor clearly distinguished the *college-no family formation* class from the other groups. In contrast, *single mothers* and *cohabiting mothers* scored particularly low on this factor. Young women with high SES families of origin and a history of success in high school are well prepared to attend college and have a clear incentive to avoid family entanglements until their educations are completed. In contrast, young women from low SES families of origin and a history of failure in high school have limited options for higher education. As Edin and Kefalas (2005) stated, “Unlike their wealthier sisters, who have the chance to go to college and embark on

careers...poor young women grab eagerly at the surest source of accomplishment within their reach: becoming a mother” (p. 46).

The third factor reflected conservatism—a high level of religiosity and the avoidance of sexual behaviors during high school. It is not surprising that religiosity and sexual behavior loaded on the same factor. Prior research demonstrates that religious adolescents are especially likely to postpone sexual relationships until later in the life course (Rostosky, Regnerus, & Wright 2003). This factor distinguished the *college-no family formation* class from other classes, especially those who were cohabiting. This factor also distinguished between young women who were cohabiting or had a nonmarital birth from young women who were either single (and not cohabiting) or married. In general, these results suggest that young people's values and early sexual behaviors are good predictors of their early family formation outcomes.

Our results demonstrate the remarkably advantaged status of women in the *college-no family formation* class. In contrast, young mothers, irrespective of whether they were married, cohabiting, or single, tended to be disadvantaged in most respects. The *inactive* group, tended to have moderate scores on all three factors. Presumably, the high percentage of women with a cognitive impairment in this group partly accounts for why so many were disengaged from school, employment, and family formation. (See the table in the appendix.)

Our study, like all studies, contains limitations. In particular, having a broader range of ages in our sample would have been useful. We relied on the oldest women in the Add Health Wave III because they were most likely to have made family transitions. These women were between the ages of 17 and 19 during the Wave I interview. This means that data on the precursors of family formation pathways were collected either in the year prior to the beginning of the pathway or during the first year or two. We would have preferred more separation in time between the collection of data on precursors and pathways. Unfortunately, the constraints of the Add Health sample did not make this possible.

In conclusion, our study provides a useful taxonomy of young women's family formation pathways, with the inclusion of nonmarital cohabitation being a distinct advantage over prior work. Moreover, we were able to show that structural features in the family of origin, developmental variables (personal and social resources) and conservative orientations measured during adolescence predict young women's life paths. Clearly, a broad range of factors influence young women's family formation pathways. Integrating family demographic, developmental, and values perspectives into the study of family formation would appear to be a fruitful approach for future researchers.

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Appendix

Means and Standard Deviations of Precursor Variables at Wave I by Young Adult Latent Pathways

Precursors	Young Adult Latent Pathways					
	(1) College-no family formation	(2) High school-no family formation	(3) cohabiting without children	(4) Married mothers	(5) Single mothers	(6) Cohabiting mothers
Parent education	5.1 (1.5)	4.2 (1.6)	4.3 (1.5)	4.1 (1.4)	4.2 (1.6)	3.9 (1.4)
Parent income(in thousands)	59.9 (50.6)	43.8 (37.6)	47.0 (54.8)	35.0 (21.3)	36.1 (29.5)	30.1 (27.3)
Lives with two biological parents%	74	58	51	51	39	27
Black%	12	19	11	9	44	28
Parent close to daughter (Z)	.35 (.77)	.10 (1.01)	-.20 (.95)	-.25 (1.09)	-.37 (1.21)	-.33 (1.04)
Girl close to mother (Z)	.15 (.93)	.15 (.91)	-.10 (1.03)	-.10 (1.04)	-.10 (.96)	-.11 (1.15)
Girl close to father (Z)	.15 (.84)	.03 (.92)	-.03 (.88)	-.15 (.93)	-.37 (1.21)	-.47 (1.22)
Girl likes school (Z)	.28 (.91)	.06 (.99)	-.25 (1.11)	-.23 (.98)	-.33 (1.01)	-.28 (1.12)
Girl feels cared for (Z)	.22 (.84)	.00 (1.03)	-.09 (1.00)	-.16 (1.09)	-.01 (1.04)	-.09 (1.03)
Girls' self-esteem (Z)	.16 (.94)	.10 (.99)	-.15 (1.04)	-.20 (.91)	.11 (.92)	-.11 (1.16)
Girls' depressive symptoms (Z)	-.32 (.77)	-.11 (.94)	.06 (.99)	.06 (.99)	.09 (.99)	.44 (1.29)
Girls' grades	3.3 (.61)	2.8 (.71)	2.8 (.69)	2.8 (.73)	2.6 (.68)	2.5 (.75)
Girls' PVT score (Z)	108.7 (12.1)	100.5 (13.3)	101.3 (12.7)	100.1 (13.2)	97.1 (12.6)	96.8 (12.37)
Girls' cognitive disability%	05	09	15	13	23	22
Parent religiosity (Z)	.10(.93)	-.08(.98)	-.37(1.11)	.01(1.01)	-.03 (1.10)	-.12 (.94)
Girls' religiosity (Z)	.10(1.00)	-.07(1.05)	-.36(1.04)	-.06 (1.00)	-.07 (1.02)	-.28 (1.04)
Ever had sex	83	93	98	97	98	98
Girls' first sex before 16	14	21	39	37	43	51
Girls' sex partners	1.5 (1.6)	1.6 (1.7)	2.0 (2.0)	1.8 (2.1)	2.1 (2.2)	2.0 (2.2)
Sample size(unweighted)	659	426	333	326	221	191

Note: Means and standard deviations are based on weighted data. Standard deviations are not shown for dichotomous variables. Standard errors are adjusted for sample weighting, clustering, and stratification.

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Figure 1.
Seven Class Solution of Latent Pathways

Table 1
Proportion of Young Adult Women Occupying Various Statuses by Age

Young Adult Statuses					
Age	In school	Employed	Cohabiting	Married	Parent
18	.82	.36	.13	.04	.09
19	.57	.46	.22	.09	.14
20	.49	.52	.28	.13	.18
21	.43	.56	.32	.18	.23
22	.40	.66	.36	.23	.28
23	.31	.69	.38	.29	.31

Note: Proportions are based on weighted data. $N = 2,290$

Table 2
Multinomial Logistic Regression of Latent Class Membership Regressed on Precursor Factors: B Coefficients and Relative Risk Ratios (RRR) for Each Class Compared with the Omitted Comparison Class

Comparison class	Personal and social resources			Family socioeconomic resources and adolescent academic achievement			Conservative values and behavior		
	B	(SE)	RRR	B	(SE)	RRR	B	(SE)	RRR
College-no family formation									
Vs. High school-no family formation	-0.26 *	(.10)	0.77	-1.04 ***	(.12)	0.35	-0.35 **	(.11)	0.70
Vs. Cohabitation without children	-0.59 ***	(.10)	0.55	-1.03 ***	(.14)	0.36	-0.86 ***	(.10)	0.42
Vs. Married with children	-0.64 ***	(.10)	0.53	-1.17 ***	(.13)	0.31	-0.53 ***	(.13)	0.59
Vs. Single mothers	-0.63 ***	(.09)	0.53	-1.73 ***	(.15)	0.18	-0.73 ***	(.15)	0.48
Vs. Cohabiting mothers	-0.77 ***	(.14)	0.46	-1.94 ***	(.19)	0.14	-1.00 ***	(.13)	0.37
Vs. Inactive	-0.31 *	(.15)	0.74	-1.71 ***	(.26)	0.18	-0.32 *	(.16)	0.72
High school-no family formation									
Vs. Cohabitation without children	-0.33 **	(.09)	0.72	0.00	(.10)	1.00	-0.51 ***	(.08)	0.60
Vs. Married with children	-0.38 ***	(.09)	0.68	-0.13	(.11)	0.88	-0.18	(.11)	0.84
Vs. Single mothers	-0.37 ***	(.10)	0.69	-0.70 ***	(.12)	0.50	-0.37 **	(.12)	0.69
Vs. Cohabiting mothers	-0.51 ***	(.15)	0.60	-0.91 ***	(.14)	0.40	-0.65 ***	(.12)	0.52
Vs. Inactive	-0.05	(.13)	0.95	-0.68 **	(.26)	0.51	0.03	(.13)	1.02
Cohabiting without children									
Vs. Married with children	-0.05	(.09)	0.95	-0.13	(.10)	0.88	0.33 **	(.11)	1.39
Vs. Single mothers	-0.04	(.12)	0.96	-0.70 ***	(.12)	0.50	0.14	(.12)	1.15
Vs. Cohabiting mothers	-0.18	(.13)	0.84	-0.91 ***	(.12)	0.40	-0.14	(.10)	0.87
Vs. Inactive	0.28	(.15)	1.32	-0.68 **	(.24)	0.51	0.53 ***	(.13)	1.71
Married with children									
Vs. Single mothers	0.01	(.11)	1.01	-0.57 ***	(.13)	0.57	-0.19	(.16)	0.82
Vs. Cohabiting mothers	-0.13	(.14)	0.88	-0.77 ***	(.14)	0.46	-0.47 **	(.15)	0.63
Vs. Inactive	0.33 *	(.15)	1.39	-0.55 *	(.25)	0.57	0.21	(.14)	1.23
Single mothers									

Comparison class	Personal and social resources			Family socioeconomic resources and adolescent academic achievement			Conservative values and behavior		
	B	(SE)	RRR	B	(SE)	RRR	B	(SE)	RRR
Vs. Cohabiting mothers	−0.14	(.14)	0.87	−0.21	(.15)	0.81	−0.27	(.15)	0.76
Vs. Inactive	0.33 [*]	(.15)	1.38	0.02	(.28)	1.02	0.40 [*]	(.16)	1.49
Cohabiting mothers									
Vs. Inactive	0.46 ^{**}	(.15)	1.58	0.23	(.27)	1.25	0.67 ^{***}	(.14)	1.96

Note: Significance tests are two-tailed. To simplify the presentation, the constant terms are not shown. Sample sizes are 659 for college-no family formation, 426 for high school-no family formation, 333 for cohabiting without children, 326 for married mothers, 221 for single mothers, 191 for cohabiting mothers, and 134 for the inactive group.

^{*} $p < .05$.
^{**} $p < .01$.
^{***} $p < .001$.