Breaking Up the Empty Nest: Implications for Grown Children

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Breaking Up the Empty Nest: Effects on Grown Children

Introduction

There is a widely-held view that children benefit when they are raised by married parents. This view is supported by a vast body of research that shows that children's educational, developmental and subsequent life outcomes are all positively associated with the parents' marital status. A lively debate has ensued regarding whether these associations represent an actual effect of parents' marriage and divorce decisions, an artifact of selectivity, or something else. Attitudes have swung back and forth regarding the proper balance that should be given to parents' happiness and children's well-being. Nevertheless, it is undoubtedly the case that many parents who are considering divorce remain together largely for the sake of their children.

The role of parents in helping children make the transition into early adulthood has also received growing attention and become increasingly important. Parents provide numerous forms of assistance including financial support, co-residence, and time transfers. Schoeni and Ross (2005) estimate that young adults between the ages 18 and 34 receive an average of $38,000 in material support and hundreds of hours in time support from their families. In a very real sense, the time that children remain dependent on their parents is lengthening.

These twin issues motivate us to investigate early adult outcomes for children with parents whose marriages dissolve during or after the children's transition to adulthood. We compare the outcomes for these adults to outcomes for others whose parents dissolved their marriages just before the transition to adulthood. This allows us to examine whether remaining married for the last few years of childhood is associated with detectable, later-life benefits for children. We also compare outcomes for adults whose parents divorced after the children were grown with those of adults whose parents remained married to see if marital disruptions are associated with detrimental outcomes outside the "empty nest." We hypothesize that such disruptions might hinder parents' ability to provide time, financial or co-residence assistance to their adult children.

The study examines these questions using data from the Panel Study of Income Dynamics (PSID). The PSID is an indispensable resource in this regard. The survey initially interviewed roughly 5,000 families in 1968 and has been successful in interviewing many of the families and family members since then. Because the survey follows the original family members and children born into these families even after they depart their original families, it is possible to link information about adult children to (1) their family circumstances while growing up and (2) their parents' circumstances after the children leave home. The size of the PSID means that there are appreciably large subsets of adult children in relevant comparison groups.

An important methodological concern in our study is that the parents' marital histories may be selectively determined—families that experience a disruption or experience disruptions at different times may not be comparable to other families. To address this concern we estimate models of family structure jointly with models of the children's subsequent socioeconomic attainments. The unobserved determinants in the models are assumed to share a common discretely distributed factor, which can be accounted for in a computationally tractable manner.

The rest of this paper is organized as follows. The next section describes the data that we extract and the variables we construct from the PSID. The following section examines descriptive evidence from these data. Next, we discuss in more detail our multivariate estimation strategy and then report results from our multivariate models. A final section of the paper offers conclusions.

Data

The analyses in this paper use data from the 1968-2001 waves of the Panel Study of Income Dynamics. The PSID is a prospective longitudinal survey consisting of a representative sample of individuals and the families in which they reside. Detailed information on economic and demographic behaviors, including labor market hours and earnings, education, family income, marriage and fertility histories and home-leaving transitions and new household establishment, was collected on an annual basis from 1968 to 1997 and has been collected biennially since then. The original core sample began with 4,800 families (approximately 53,000 individuals) in 1968 and has grown to more than 7,000 families (almost 63,500 individuals) in 2001.

Our sample consists of people who were born between 1950 and 1972, were sons or daughters in an original "sample family" in 1968 or were born into a "sample family," and had valid retrospective marital histories for at least one parent.[1] Being an original sample member or being born into a sample family is important in the PSID because the survey followed these subjects after they left their original households. We examine different attainments for each person in the analysis sample beginning at age 19 and continuing until the person either leaves the sample or until 2001. Thus, the sample includes information from age 19 to as late as age 47. The final extract includes 43,546 person-years of information for 2,919 men and 44,228 person-years of information for 2,747 women.

Outcomes. We examine three socioeconomic outcomes for the people in our sample: annual needs-adjusted family incomes, annual earnings, and marriage. Family economic

[1] A sample member is anyone living in, or temporarily away from, a family selected as part of the 1968 PSID core sample. In addition, anyone born to a sample member while that sample parent was part of a family unit interviewed in the year of birth is considered a sample member.

resources are measured by the family income-to-needs ratio. This ratio is constructed by dividing total family income by an annualized version of the USDA thrifty food plan, the primary component in the Orshansky poverty threshold. The USDA need standard is adjusted for family size. Because the USDA need standard is updated to reflect changes in costs, no further adjustment for inflation is necessary.

In addition to this measure for resources, the PSID also gathers annual information on people's earnings. We use this measure directly and deflate it by the Consumer Price Index using 1987 as a base year to adjust for price inflation.

The PSID also includes an annual variable noting whether an individual is currently living with a spouse or cohabiting partner. We construct an annual dummy variable coded one if the PSID variable indicates that an individual is married or cohabiting.

Family structure. The PSID collected retrospective marital histories between 1985 and 1993 for all individuals. Although retrospective marital history variables are not available after 1993, annual marital status indicators have been collected prospectively for each individual since then. We combine the retrospective and prospective marital status variables in order to characterize the living arrangements of a person's parents from the time the person was born through young adulthood. There are many different types of family histories in the data. After some experimentation, we grouped these histories into five categories: (1) parents were not together – neither married nor cohabiting – within one year of the child's birth; (2) parents were together at or within a year of the child's birth but split up before the child reached age 14; (3) parents were together at or within a year of the child's birth but split up when the child was aged 15 to 18; (4) parents were together at or within a year of the child's birth and were never observed to split up; and (5) parents were together at or within a year of the child's birth but were observed to split up after the child reached age 18.

Other variables. The PSID contains several other measures that are relevant to people's socioeconomic attainments and family histories. We construct time-invariant measures of birth cohort, race and parental education. Birth cohort is measured using the person's year of birth. To measure race, we use the race of the head of the original family with which the child was first observed in the panel. A dichotomous variable is created to denote whether or not the family head was black.[2] Cumulative education measures are created to note the highest grade completed in school for the mother and father by the time the child reached age 18. Dummy variables are constructed to note whether educational data were missing for either parent. Schooling data for the fathers were missing for a third of the sample, rates were especially high among families in which the parents either never married or dissolved their relationship.

We also include several time varying explanatory measures in our analyses. Our descriptive and multivariate analyses of socioeconomic outcomes condition on the person's age at the time of each annual observation. To control for skills, we include a cumulative measure of the highest grade completed at the time of the survey. We control for geographic differences by including time-varying regional dummy variables for residence in the South, residence in the Midwest, residence in the western contiguous states, and residence outside the contiguous states (residence in Alaska, Hawaii, any of the territories, or a country outside the U.S.). The omitted category is residence in the Northeast. For our analyses of family structure, we use the region of residence at age 18. For our analyses of socioeconomic outcomes, we include both the region of residence at age 18 and the region of residence at the survey date.

[2] Although the ethnicity variable identifies other backgrounds, the representation of other groups in the original sample is very small and does not support additional distinctions beyond black and non-black.

Descriptive Analysis

We begin our empirical analysis by examining age profiles of the socioeconomic outcomes. Figure 1 graphs the average income-to-needs ratios across different ages conditional on a person's family history. To simplify the presentation, we have combined results for people whose parents were not initially married or cohabiting when they were born and people whose parents split up before they reached age 15. Thus, we examine income-to-needs by age for four types of family histories. In the figure, the thin solid line graphs the average income-to-needs for people from the combined group. The dashed line graphs the results for people whose parents split up when they were 15-18 years of age; the dotted line graphs the results for people whose parents split up after they were 18 years old, and the thick solid line graphs results for people whose parents never split up. Results for men are shown in the top panel, while results for women are shown in the bottom panel.

For both men and women, there is a clear distinction in Figure 1 between those whose parents never lived together or split up early and those whose parents always remained together. Income-to-needs for the group with the least exposure to their parents living together were generally lowest, while income-to-needs for the group with the most exposure were generally highest. Average income-to-needs for the other two groups – those with parents who split up when the children were 15-18 years of age and those whose parents split up after the children were 18 years old – generally fell between these two extremes, but not always. Of the two intermediate groups, again it was those with the most exposure to parental unions who usually had the better outcomes.

These patterns are mostly repeated when we examine age-earnings profiles in Figure 2. On average, people with little or no exposure to parental unions had the lowest earnings. Those whose parents split up when they were 15-18 years old generally had higher earnings. Those whose parents split up after they reached age 18 had slightly higher earnings still, and those whose parents never split up had the highest earnings.

Results for the age profiles of marriage, shown in Figure 3, are similar for those with the least and most exposure to parental unions. Marriage rates for people whose parents split up when the children were 15-18 years old and after the children were 18 years old were generally close to the rates for people whose parents never split up. For women, the marriage rates for those whose parents split up after they were 18 years old were actually higher than the never-dissolved group from ages 19-25.

The results from the graphs indicate that family history is associated with children's subsequent family incomes, earnings and marriage behavior. The outcomes for people whose parents split up after they reached age 18 are generally slightly better than those whose parents split up earlier and slightly worse than those whose parents never split up. It is unclear, however, whether these associations represent direct relationships between the outcomes and family structure or indirect relationships involving other variables.

Table 1 lists means of the outcome and explanatory variables for our analysis separately for men and women with different family histories. From the table, we can see that family background is not only associated with subsequent socioeconomic status but also with several other characteristics. For example, blacks were substantially less likely to have ever lived with both parents. People in younger age cohorts also had more exposure to not living with both parents and to union dissolution. There are also differences in geographic location and in parents' educational attainments. These are all characteristics that might influence socioeconomic attainments and that need to be controlled for using multivariate methods.

Multivariate Specifications

Our multivariate analyses extend the preceding descriptive results to examine how family incomes, earnings and marriage rates vary with a person's earlier family structure, age and other characteristics. We face two critical complications in conducting these analyses. First, the measures of family structure may not be independent of the other unobserved determinants of later socioeconomic attainments. For instance, there may be unmeasured elements of the home environment, such as financial resources, attitudes or the level of conflict, that contribute to both family stability and subsequent socioeconomic success. Our estimates of the association between family structure and socioeconomic outcomes need to account for confounding influences from these types of unobserved variables. Second, our indicators of socioeconomic attainments are measured longitudinally—repeatedly for the same individuals over time. Observations that come from the same person may not be independent of one another. The estimation procedure needs to control for person-specific serial correlation in the unobserved determinants of socioeconomic attainments.

To address these concerns, we jointly estimate a system of multivariate models, consisting of a multinomial choice model of "initial" family structure and a repeated series of models for the subsequent longitudinal socioeconomic outcomes. We discuss the specifications of these models and the methods for allowing for correlations between the models in more detail below.

<u>Multinomial choice model for family structure</u>. In our empirical analyses, we distinguish between five types of living arrangements for the child's biological parents:

1. the parents were not together – neither married nor cohabiting – within one year of the child's birth

2. the parents were together at or within a year of the child's birth but split up before the child reached age 14,

3. the parents were together at or within a year of the child's birth but split up when the child was aged 15 to 18,

4. the parents were together at or within a year of the child's' birth and were never observed to split up, and

5. the parents were together at or within a year of the child's birth but were observed to split up after the child reached age 18.

We model these living arrangements as reflecting choices or decisions of the parents.

Let v_j represent the value, or indirect utility, to the parents of the j^{th} living arrangement, where j = 1, 5. We assume that the values depend linearly on a set of observed and unobserved characteristics such that

$$v_j = \gamma_j' Z + \lambda_j \mu + \varepsilon_j$$

where Z is a vector of observed characteristics, μ is an unobserved, family-specific variable that is common across outcomes, ε_j is an unobserved variable that is specific to the j^{th} outcome, and γ_j and λ_j are coefficients. We further assume that the parents choose the living arrangement with the highest value to them. We let ε_j follow an extreme value distribution with mean zero. Thus, conditional on μ, the choice of living arrangement is specified as a multinomial logit model. For purposes of identification, we normalize the value of the fifth choice (splitting up after the child reaches age 18) to zero; thus, when we report estimation results, the estimates for the other γ_j and λ_j coefficients need to be interpreted relative to this fifth choice. We assume that μ is a random variable, which is distributed independently of Z and ε_j.

Longitudinal models for socioeconomic outcomes. Let y_t be a continuous socioeconomic outcome measure that is observed when the "child" is age t. We specify a linear model for the observed and unobserved determinants of y_t such that

$$y_t = \beta' X_t + \delta_I' F + \delta_T' F t + \mu + \eta_t$$

where X_t is a vector of observed and possibly time-varying measures, F is a vector of family structure indicators, μ is the same unobserved, time-invariant variable that we described in the living arrangements model, η_t is a time-varying error term, and β, δ_I, and δ_T are vectors of coefficients.[3] We assume that η_t is identically and independently normally distributed over time. We also assume that it is distributed independently of μ. With these assumptions, the specification describes a random effects regression model.

The inclusion of the μ term in the longitudinal outcomes specification accounts for a source of serial correlation in the unobserved determinants of the socioeconomic outcomes. Because μ also appears in the family structure specification, it also controls for a source of omitted variables bias in the F variables.

Following Heckman and Singer (1984) and Mroz (1999), we specify μ as a discretely distributed random variable and estimate the points of support and weights associated with this variable. This specification for the unobserved common factor in the model is very flexible. For most of our models, we report results from specifications estimated with four points of support. We estimate our models using the aML software package.

The advantages of this approach for addressing the problems of omitted variables bias and serial correlation are that it is computationally tractable and that it relies on a flexible specification of the unobserved, common factor. Nevertheless, the procedure still has several

[3] We also estimate models that involve binary outcomes (marriage) and censored outcomes (earnings). For these outcomes, we estimate probit and tobit models, respectively, in which the latent index is a linear function of observed and unobserved variables.

restrictions that should be kept in mind. First, the procedure only accounts for correlations between the unobserved variable and the observed family structure variables. The time-invariant error term μ is assumed to be independent of the other observed and unobserved variables in the system. Second, the procedure assumes that a single, time-invariant factor is the source of omitted variables bias and serial correlation. The procedure does not allow for other factors or for decay in the influence of its factor. Third, the choice-specific errors in the multinomial choice specification are assumed to follow a restrictive extreme value distribution, which (conditional on μ) gives rise to the Independence of Irrelevant Alternatives (IIA) problem.

Estimation Results

Table 2 reports coefficient estimates and standard errors from two jointly estimated systems of models for family incomes adjusted for needs and family structure. Results for men appear on the left side of the table, and results for women appear on the right side. For each gender, the results in the first column come from longitudinal regression models of the ratio of annual family incomes and needs, while the results in the next four columns come from multinomial choice models of family structure.

The first three rows in Table 2 report coefficients for a linear spline in age for people whose parents' unions dissolved after the people turned 18 years of age (our reference group). For both the men and women in this group, adjusted family incomes are estimated to grow at an increasing rate with age. This is different from the pattern in the descriptive analysis, which indicated that the growth in adjusted incomes was relatively constant across ages.

The next eight rows report coefficients for dummy variables for the four alternative family structures and interactions of these dummy variables with the person's age. Thus, the coefficients represent offsets in the intercept and the slope of the age profile of adjusted incomes that are associated with different family structures. As we look at the results, the first thing that we notice is that nearly all of the coefficients are significantly different from zero, indicating that the age profiles of the income-to-need ratios differ with family structure, even after controlling for other observed characteristics and for the selectivity of family structure. Relative to our reference group of people whose parents split up after they reached age 18, people with every other type of family history had higher intercepts and flatter age profiles.

Because the intercept and slope parameters are all oppositely signed, it is difficult to discern the implications of the results. Calculations using the coefficients reveal that men in each of the comparison groups had higher adjusted incomes at age 19 than men in the reference group. By age 47, men in the "no union" group had adjusted incomes that were below those of the reference group. At age 47, men whose parents split up before the men were age 15 had adjusted incomes that were roughly the same as those of the reference group, while men whose parents split up when the men were 15-18 years old or never split up had adjusted incomes that were above those of the reference group. For men, the results indicate that having parents split up after the children reach age 18 confers advantages in terms of adjusted incomes relative to having parents that never lived together; however, the situation appears to impose a disadvantage relative to other family histories.

When we perform the same calculations for women, a different picture emerges. At age 19, women in all of the comparison groups except those whose parents initially lived together but split up before the children reached age 15 had higher adjusted incomes than women in the reference group. By age 47, women in the three groups with less exposure to parental unions had lower adjusted incomes than the reference group, while women in the group with more exposure had higher adjusted incomes.

As we examine the other results in the adjusted income specifications, having more schooling, having an educated father, and being born in a later birth cohort are all positively associated with adjusted incomes. Being black is strongly, negatively associated with adjusted income. There also appear to be geographic differences in adjusted incomes, both in terms of the region of residence at the time of the annual survey and the region of residence at age 18.

In the models for family structure, blacks are estimated to be more likely than other groups to have parents that never married or cohabited. The father's education is negatively associated with "no union" status, though the coefficient is insignificant for women. Later birth cohorts were more likely than earlier cohorts to either grow up outside a parental union or to have parents who split up before the children reached 18. Several regional differences in family status also appear.

Near the bottom of the table, the estimates of the loading parameters (λ_j coefficients) on the common unobserved heterogeneity term indicate the extent of association between the unobserved determinants of family structure and subsequent adjusted incomes. The terms indicate whether there is selectivity based on shared unobservable characteristics. For men, all four factor loadings are significantly negative, which implies that the common unobserved component that contributes positively to adjusted incomes also contributes positively to having parents who split up after the men turned age 18. Thus, there appears to be selectivity for men on the unobserved variables. For women, the factor loading for the "no union" category is significantly negative, while the loadings for the other outcomes are not significantly different from zero. These results suggest that some selectivity is also present for women.

Table 3 lists results from joint models involving annual earnings for men and women.[4] Instead of fully continuous specifications for the outcome variables, the models for the longitudinal earnings amounts are specified as panel tobit models. For these systems we were not able to get models with discretely distributed unobserved variables to converge; so, the models shown in Table 3 were instead estimated using a normally distributed common heterogeneity term.

The estimates from Table 3 indicate that earnings for men and women in the reference family history group increased from ages 19-24 and continued increasing, but at a slower rate from ages 25-34. From there, the results diverge. Earnings for men in the reference group leveled off after age 34, while earnings for women continued to grow. The coefficients on most of the family structure intercept and slope shifters are statistically significant; however, the coefficients produce a very mixed pattern. Earnings for men and women in the "no union" group are estimated to have been above those of the reference group at age 19, but the profiles cross so that earnings for the "no union" group were below those of the reference group by age 47. Earnings for men and women whose parents split up when the parents were 14-18 are estimated to have been higher at all ages than earnings for people in the reference group, though for women the difference all but disappears by age 47. For the two other groups – people whose parents split up when the children were younger than 15 and people whose parents never split up – earnings were consistently below those of the reference group. In fact, people whose parents never split up are estimated to have the lowest earnings of all of the family structure groups.

The estimated differences in the age structure associated with family structure are strongly influenced by the controls for selectivity. An inspection of Table 3 reveals that several of the factor loadings on the unobserved heterogeneity term are significant. For both men and

[4] The outcomes for the models are expressed in units of $10,000.

women, the loading on the "never dissolved" outcome is significantly positive. For men, the loading on the early dissolution outcome is also significantly positive. When these controls are omitted the profiles for the "never dissolved" group are much closer to those for the reference group.

Having more education is estimated to have been positively associated with earnings; being black and being born in a later birth cohort are estimated to have been negatively associated with earnings. There were geographic differences, though the associations for particular regions tended to differ between men and women.

Table 4 reports results from the joint estimation systems for marriage and family structure. In each system, marriage outcomes are modeled using longitudinal probit specifications. Estimates from the linear splines in age indicate that the incidence of marriage for both men and women increases sharply from ages 19 to 24, increases much more modestly from ages 25 to 34, and actually falls modestly after age 34.

The estimated coefficients for the dummy variables for the four alternative family structures and interactions of these dummy variables with the person's age are generally significant. Relative to the reference group of people whose parents split up after they reached age 18, people in the "no union" group had a higher intercept but a flatter age profile. People whose parents were initially together but split up before the children reached age 15 had a lower intercept and a steeper age profile than people in the reference group. People whose parents split up when they were ages 15-18 and people whose parents never split up had lower intercepts and steeper age profiles still.

Calculations using the coefficients reveal that men in the "no union" group had about the same incidence of marriage at age 19 as the reference group but a modestly lower incidence of marriage by age 47. For women in the "no union" group, the incidence of marriage was modestly lower than that of the reference group at age 19 and substantially lower by age 47. For men in the early dissolution (ages 1-14) group, marriage rates at age 19 were slightly higher than those of the reference group and higher still at age 47. For women in the early dissolution group, marriage rates turned from being modestly below those of the reference group at age 19 to modestly above them by age 47. For men in the other two groups, marriage rates were modestly lower at age 19 but substantially higher by age 47. Rates for women in these same two groups were also substantially below those of the reference group at age 19. For women whose parents split up when the women were ages 15-18, marriage rates at age 47 are roughly the same as the reference group, while for women whose parents never split up, marriage rates at age 47 are substantially higher than the reference group.

Among our other findings, having more schooling and living outside the northeast of the U.S. are positively associated with marriage, while being black is negatively associated with marriage. The incidence of marriage increases with the mother's level of education but falls with the father's. The incidence of marriage has also been falling for more recent birth cohorts.

In the model of family structure for men, the estimates of the loading parameters for the common unobserved heterogeneity term are all close to zero. The estimates are also individually and jointly insignificant, indicating that there is little selectivity from unobservable characteristics for men's marriage outcomes. For women, the loading parameter on the outcome for dissolution between ages 15-18 is significantly positive. Thus, unobserved characteristics that increase the chances of marriage also appear to increase the chances that a woman grew up with this type of family pattern.

Conclusion

In this study, we use retrospective and prospective longitudinal information from the Panel Study of Income Dynamics to construct lengthy histories of both people's family backgrounds and their socioeconomic attainments. We conduct descriptive and multivariate analyses that focus on how attainments for individuals whose parents dissolved their relationships after the individuals reached age 18 differ from those of individuals whose parents either dissolved there relationship earlier or never dissolved their relationship. We believe that these comparisons are relevant for examining some of the intergenerational implications associated with "staying together for the sake of the children."

The differences that we observe in family structure are not exogenous, in the sense that the outcomes reflect behavior by the parents. Our analysis recognizes that parents' behavior regarding their relationships may be influenced by some of the same factors that influence other aspects of family life, including factors that impact on children's development and successful transition to adulthood. Thus, we estimate multivariate models that jointly consider family structure and socioeconomic attainments.

Our empirical analyses reveal that parents' living arrangements are associated with children's subsequent family incomes, earnings, and marriage behavior. In our multivariate analyses, the variables that we use to measure differences between alternative types of family structures in the age profiles of socioeconomic attainments are consistently significant. The evidence for these associations is strong because they appear in models that control for other observed characteristics and for selectivity associated with family structure.

Less clear, however, is whether any particular family structure conveys a consistent difference relative to the others. Our descriptive analyses indicate that more exposure to both parents living together is associated with better attainments—thus, that staying together for the sake of the children might be worthwhile. However, our multivariate analyses generate a much more varied set of findings. For some outcomes and at some ages, more exposure to parents living together is associated with better outcomes; for other outcomes and other ages, this exposure is associated with worse outcomes.

References

Heckman, James J., and Burton Singer. “A Method for Minimizing the Impact of Distributional Assumptions in Econometric Models for Duration Data.” *Econometrica* 52 (March 1984): 271-320.

Lerman, Robert. “Marriage and the Economic Well-Being of Families with Children: A Review of the Literature.” Working Paper, Washington: Urban Institute, July 2002.

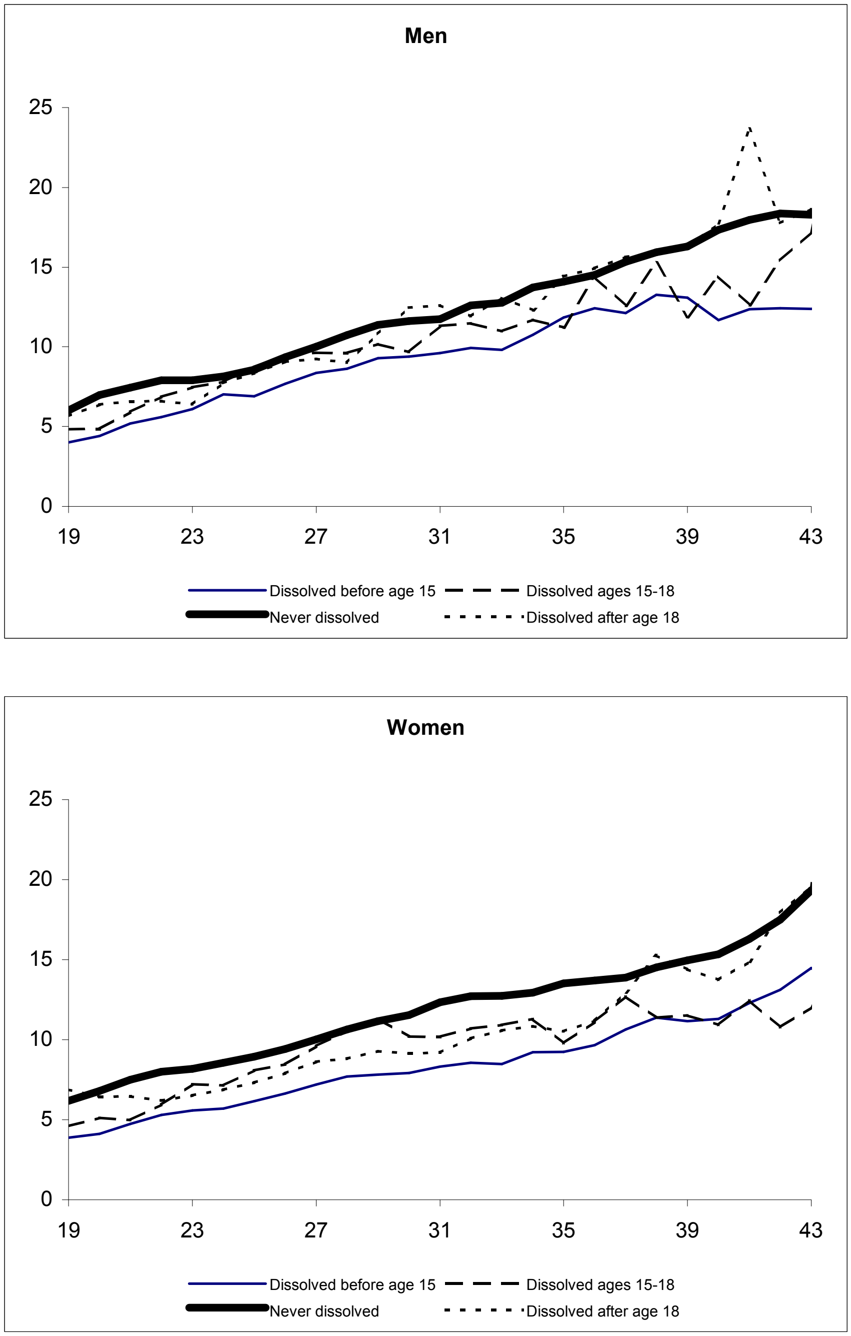
McLanahan, Sara, and Gary Sandefur. *Growing Up with a Single Parent: What Hurts, What Helps*. Boston: Harvard University Press, 1994.

Mroz, Thomas. “Discrete Factor Approximations in Simultaneous Equation Models: Estimating the Impact of a Dummy Endogenous Variable on a Continuous Outcome.” *Journal of Econometrics* 92 (October 1999): 233-275.

Schoeni, Robert, and Karen Ross. “Material Assistance Received from Families During the Transition to Adulthood.” In *On the Frontier of Adulthood: Theory, Research, and Public Policy*, edited by R. Settersten, Jr., F. Furstenberg, Jr., and R. Rumbaut. Chicago: University of Chicago Press, 2005.

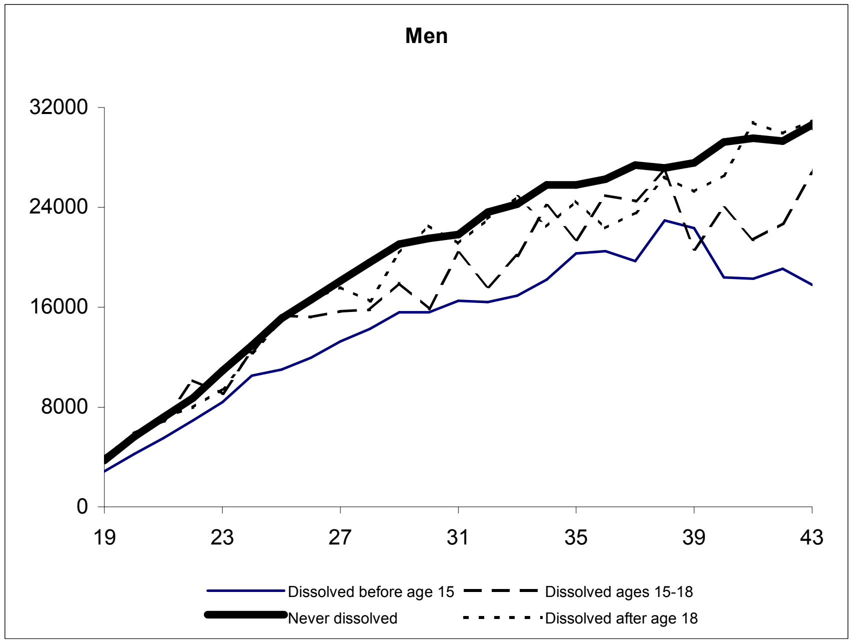
Thomas, Adam, and Isabel Sawhill. “For Love and Money? The Impact of Family Structure on Family Income.” *The Future of Children* 15 (Fall 2005): 57-74.

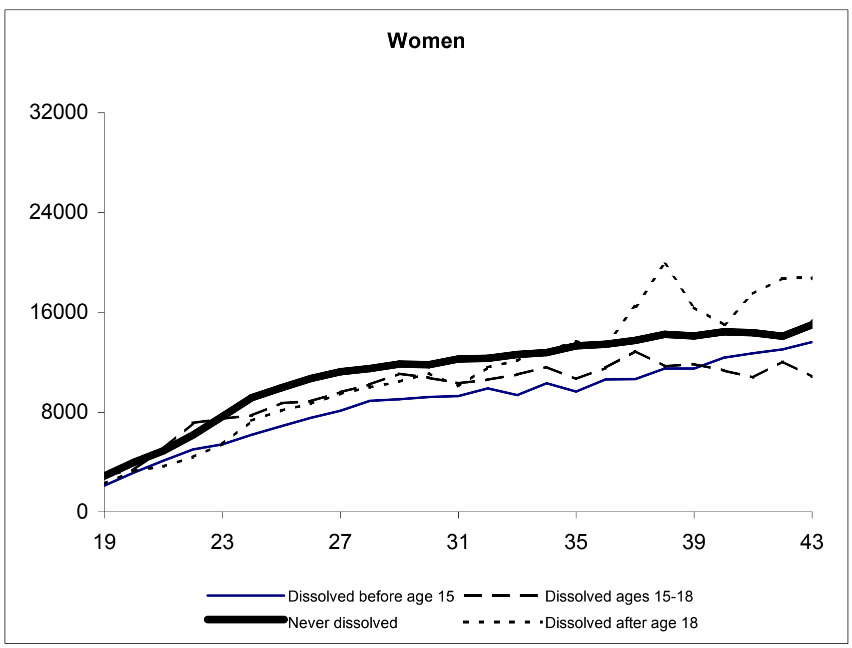
Figure 1. Age-Income-to-Needs Profiles for People with Different Family Histories



Notes: Authors' calculations from the PSID.

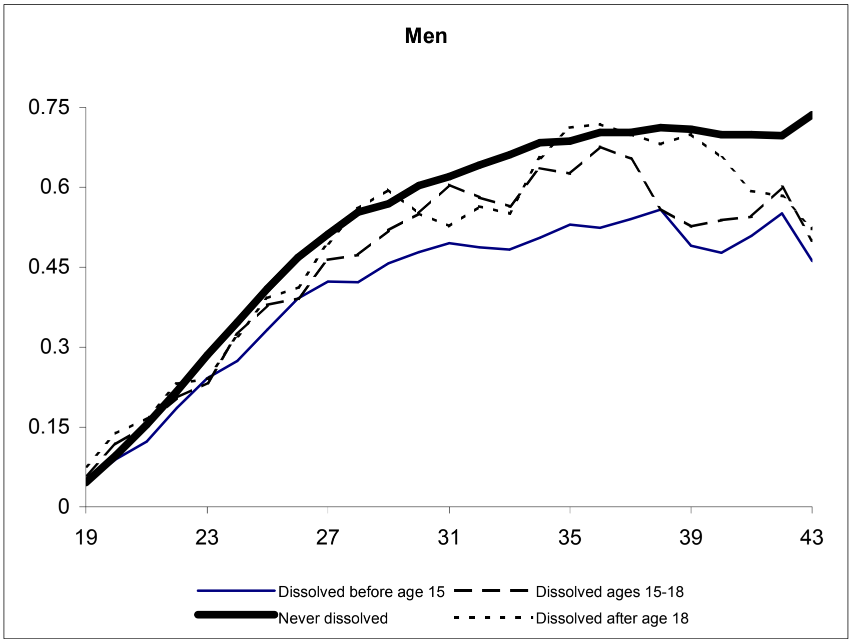
Figure 2. Age-Earnings Profiles for People with Different Family Histories

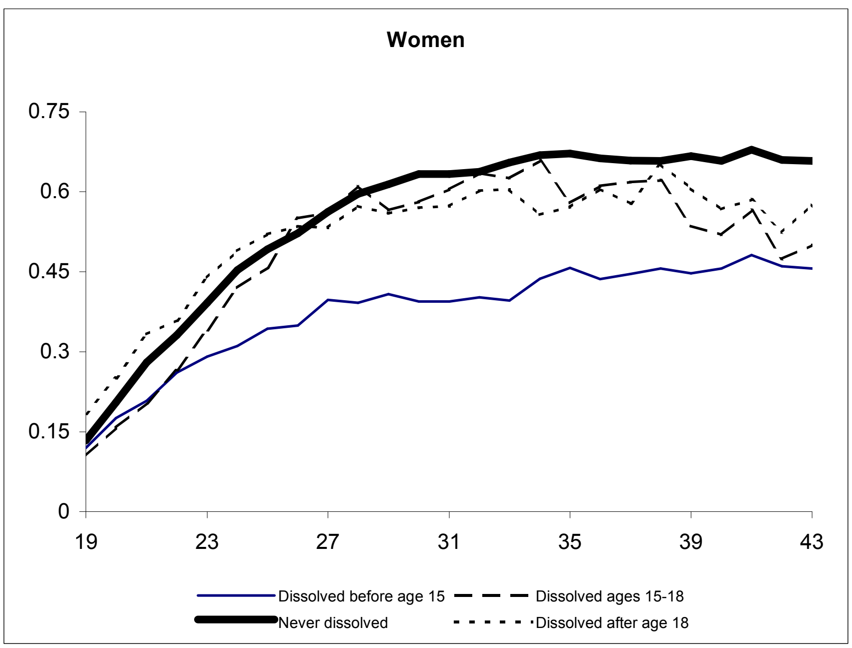




Notes: Authors' calculations from the PSID.

Figure 3. Age-Marriage Profiles for People with Different Family Histories





Notes: Authors' calculations from the PSID.

Table 1. Means of Outcome and Explanatory Variables Conditional on Gender and Family History

	Men					Women				
	Parents' relationship					Parents' relationship				
	Not initially together	Dissolved before child was 15	Dissolved when child was 15-18	Never dissolved	Dissolved after child was 18	Not initially together	Dissolved before child was 15	Dissolved when child was 15-18	Never dissolved	Dissolved after child was 18
Person-level information:										
Black	0.83	0.47	0.41	0.29	0.33	0.86	0.46	0.36	0.32	0.36
Lived in South at age 18	0.59	0.39	0.48	0.41	0.52	0.60	0.38	0.37	0.44	0.51
Lived in Midwest age 18	0.27	0.27	0.24	0.26	0.21	0.23	0.32	0.25	0.23	0.16
Lived in West at age 18	0.08	0.20	0.17	0.14	0.18	0.11	0.19	0.20	0.11	0.22
Mother's education[A]	8.30	9.49	9.15	8.18	8.12	8.67	9.07	9.18	8.27	8.62
Mother's educ. missing	0.02	0.04	0.02	0.01	0.01	0.01	0.05	0.04	0.00	0.02
Father's education[A]	7.81	10.93	9.43	8.39	8.68	8.62	10.21	9.96	8.33	8.84
Father's educ. missing	0.85	0.70	0.39	0.12	0.23	0.88	0.69	0.33	0.12	0.18
Year of birth	1961	1963	1962	1960	1960	1961	1962	1962	1960	1961
Number of observations	375	531	88	1,769	156	352	493	102	1,606	194
Person-year information:										
Income-to-needs ratio	6.41	8.90	9.25	10.95	10.35	5.92	8.30	8.86	10.93	9.39
Annual earnings	10,328	12,829	14,733	17,675	16,123	6,888	8,105	8,806	10,288	9,411
Married	0.30	0.35	0.39	0.46	0.42	0.29	0.38	0.45	0.51	0.49
Age	27.30	26.83	27.52	28.59	27.88	28.15	27.70	28.09	28.84	28.34
Education	11.27	11.98	12.20	12.18	11.74	11.48	12.07	12.02	12.43	11.88
Lives in South	0.62	0.38	0.44	0.42	0.52	0.59	0.36	0.39	0.45	0.52
Lives in Midwest	0.23	0.28	0.22	0.25	0.19	0.24	0.30	0.26	0.22	0.16
Lives in West	0.10	0.20	0.17	0.15	0.21	0.10	0.22	0.17	0.12	0.25
Lives in elsewhere outside NE	0.002	0.009	0.003	0.008	0.009	0.005	0.008	0.004	0.008	0.008
Number of observations	4,861	6,389	1,142	28,926	2,228	5,155	6,784	1,480	27,681	3,128

Notes: Authors' calculations from the PSID.
[A] Means for education levels calculated for people with non-missing data.

Table 2. Estimation Results for Multivariate Models of Adjusted Family Incomes and Family Structure

	Men					Women				
	Income-to-needs ratio	Never married	Dissolved before age 15	Dissolved ages 15-18	Never dissolved	Income-to-needs ratio	Never married	Dissolved before age 15	Dissolved ages 15-18	Never dissolved
Age spline 19-24	0.4278***					0.3323***				
	(0.0194)					(0.0173)				
Age spline 25-34	0.6891***					0.5601***				
	(0.0107)					(0.0103)				
Age spline 35+	0.7309***					0.7703***				
	(0.0104)					(0.0102)				
Never married	8.5863***					5.4469***				
	(0.4092)					(0.3568)				
Dissolved before age 14	5.2044***					0.6113*				
	(0.3558)					(0.3190)				
Dissolved between ages 15 & 18	4.9598***					2.1119***				
	(0.5668)					(0.5544)				
Never dissolved	6.0119***					1.1684***				
	(0.2793)					(0.2594)				
Never married x age	-0.2260***					-0.1725***				
	(0.0118)					(0.0101)				
Dissolved before age 14 x age	-0.0986***					-0.0489***				
	(0.0111)					(0.0090)				
Dissolved between ages 15 & 18 x age	-0.0651***					-0.0505***				
	(0.0187)					(0.0168)				
Never dissolved x age	-0.0444***					-0.0090				
	(0.0081)					(0.0072)				
Education	0.0849***					0.1574***				
	(0.0065)					(0.0066)				
Lives in South	0.5319**					-0.3027				
	(0.2577)					(0.1869)				
Lives in Midwest	-2.1209***					-0.7254***				
	(0.0997)					(0.1160)				
Lives in West	-1.3600***					0.0810				
	(0.1025)					(0.1146)				
Lives in other area	-2.0760***					-0.8841***				
	(0.1161)					(0.1182)				

Black	-2.3056***	1.8694***	0.4650*	0.2594	-0.0884	-2.8000***	1.8863***	0.2759	0.1330	0.0200
	(0.0703)	(0.2609)	(0.2391)	(0.3462)	(0.2182)	(0.0721)	(0.2589)	(0.2167)	(0.3123)	(0.1889)
Lived in South	0.6917***	-0.4642	-1.1208***	-0.6339	-1.1825***	-0.4051***	0.1720	-0.3436	-0.9510**	-0.8163***
at age 18	(0.0895)	(0.4057)	(0.3544)	(0.5076)	(0.3140)	(0.1094)	(0.3710)	(0.3219)	(0.4168)	(0.2732)
Lived in Midwest	0.1454	0.5620	0.0694	0.0049	-0.5504	-0.7373***	0.9065**	0.8434**	-0.1125	-0.3151
at age 18	(0.1055)	(0.4356)	(0.3772)	(0.5381)	(0.3375)	(0.1160)	(0.4152)	(0.3569)	(0.4357)	(0.3089)
Lived in West	1.6100***	-0.3576	-0.1805	-0.2720	-1.0644***	0.8977***	-0.2558	-0.2009	-0.7284	-1.3550***
at age 18	(0.1017)	(0.4664)	(0.3839)	(0.5619)	(0.3368)	(0.1077)	(0.4337)	(0.3621)	(0.4442)	(0.2980)
Mother's education	-0.0119	0.0480	0.0411	0.0616	0.0156	0.0779***	0.0214	-0.0032	-0.0192	0.0229
	(0.0103)	(0.0370)	(0.0363)	(0.0508)	(0.0366)	(0.0089)	(0.0375)	(0.0357)	(0.0462)	(0.0364)
Mother's education	0.1056	2.4353**	3.1916***	1.4180	-1.1833	-0.4411	2.2841**	2.8409***	1.3438	-1.6679**
missing	(0.2479)	(0.9828)	(0.9106)	(1.2148)	(0.9215)	(0.3051)	(0.9591)	(0.7706)	(0.9373)	(0.8461)
Father's education	0.0628***	-0.0967*	0.0128	-0.0592	-0.0133	0.0016	-0.0389	0.0233	0.0482	-0.0216
	(0.0112)	(0.0501)	(0.0473)	(0.0635)	(0.0417)	(0.0098)	(0.0521)	(0.0440)	(0.0554)	(0.0396)
Father's education	0.2606**	2.1826***	2.9207***	0.4468	-1.1330***	-0.6753***	3.2240***	3.1164***	1.4442***	-0.7480**
missing	(0.1132)	(0.4477)	(0.4674)	(0.6253)	(0.3622)	(0.1033)	(0.4988)	(0.4535)	(0.5553)	(0.3769)
Year of birth	0.4219***	0.1165***	0.1471***	0.0771***	-0.0077	0.3331***	0.0779***	0.0930***	0.0400*	-0.0392**
	(0.0058)	(0.0211)	(0.0200)	(0.0274)	(0.0164)	(0.0056)	(0.0206)	(0.0198)	(0.0242)	(0.0159)
Intercept	-826.119***	-230.333***	-289.335***	-152.451***	17.7107	-646.849***	-156.260***	-182.891***	-79.5154*	79.8938**
	(11.3626)	(41.1864)	(39.0806)	(53.5311)	(32.1142)	(10.9723)	(40.2034)	(38.7692)	(47.3064)	(31.0435)
λ_j		-0.0986***	-0.0958***	-0.1124***	-0.1442***		-0.0936***	0.0228	-0.0495	0.0091
		(0.0296)	(0.0257)	(0.0346)	(0.0218)		(0.0347)	(0.0231)	(0.0378)	(0.0191)
Ln likelihood			-144219.84					-146991.23		

Notes: Coefficient estimates from joint multinomial choice models of family structure and longitudinal continuous regression models of adjusted family incomes. The models include a discretely-distributed unobserved variable with four points of support. Estimated standard errors appear in parentheses.

* Significant at .10 level. ** Significant at .05 level. *** Significant at .01 level.

Table 3. Estimation Results for Multivariate Models of Earnings and Family Structure

	Men					Women				
	Earnings	Never married	Dissolved before age 15	Dissolved ages 15-18	Never dissolved	Earnings	Never married	Dissolved before age 15	Dissolved ages 15-18	Never dissolved
Age spline 19-24	0.1672***					0.1268***				
	(0.0051)					(0.0028)				
Age spline 25-34	0.0887***					0.0578***				
	(0.0033)					(0.0017)				
Age spline 35+	-0.0008					0.0600***				
	(0.0035)					(0.0017)				
Never married	0.9883***					1.1923***				
	(0.2977)					(0.2547)				
Dissolved before age 14	-0.6565**					-0.0126				
	(0.2991)					(0.2956)				
Dissolved between ages 15 & 18	0.4036					1.3120***				
	(0.5018)					(0.3978)				
Never dissolved	-2.0096***					-0.2790				
	(0.2388)					(0.2085)				
Never married x age	-0.0356***					-0.0330***				
	(0.0034)					(0.0017)				
Dissolved before age 14 x age	-0.0108***					-0.0206***				
	(0.0032)					(0.0016)				
Dissolved between ages 15 & 18 x age	0.0058					-0.0279***				
	(0.0049)					(0.0027)				
Never dissolved x age	0.0076***					-0.0261***				
	(0.0028)					(0.0014)				
Education	0.1033***					0.0641***				
	(0.0016)					(0.0010)				
Lives in South	0.7872***					-0.3507***				
	(0.0592)					(0.0367)				
Lives in Midwest	-0.2922***					0.0634				
	(0.0805)					(0.0617)				
Lives in West	0.1715**					0.0046				
	(0.0821)					(0.0641)				
Lives in other area	-0.5846***					-0.1147*				
	(0.0970)					(0.0693)				

Black	-1.0518***	1.9834***	0.2957	0.6412	-0.5833**	-0.5092***	2.0786***	0.1118	0.2979	-0.3388
	(0.0682)	(0.2887)	(0.2692)	(0.4148)	(0.2811)	(0.0503)	(0.2938)	(0.2531)	(0.3620)	(0.2373)
Lived in South	0.1085***	0.0835	-1.1931***	-0.1771	-1.3345***	-0.2220***	0.5237	-0.4595	-0.5589	-0.9974***
at age 18	(0.0277)	(0.4467)	(0.3905)	(0.5537)	(0.4021)	(0.0208)	(0.4192)	(0.3405)	(0.4396)	(0.3231)
Lived in Midwest	-0.4515***	0.7063	-0.1671	0.1758	-0.9145**	-0.2271***	1.1702**	0.7852**	0.2673	-0.4676
at age 18	(0.0310)	(0.4661)	(0.4017)	(0.5643)	(0.4140)	(0.0230)	(0.4566)	(0.3653)	(0.4459)	(0.3450)
Lived in West	0.3577***	-0.2702	-0.4708	0.0480	-1.5911***	-0.0098	-0.1315	-0.3262	-0.4682	-1.6405***
at age 18	(0.0278)	(0.5189)	(0.4271)	(0.5981)	(0.4476)	(0.0257)	(0.4815)	(0.3837)	(0.4650)	(0.3611)
Mother's education	-0.0035	0.0581	0.0438	0.0641	0.0226	0.0008	0.0415	-0.0014	-0.0069	0.0311
	(0.0089)	(0.0377)	(0.0380)	(0.0525)	(0.0433)	(0.0063)	(0.0388)	(0.0368)	(0.0475)	(0.0402)
Mother's education	-0.7446***	3.0696***	2.9067***	2.0976	-2.4263**	-0.2273	2.6112**	2.6304***	1.6431	-2.4625**
missing	(0.2062)	(1.0174)	(1.0172)	(1.2939)	(1.2244)	(0.1855)	(1.1097)	(0.9095)	(1.1268)	(1.0339)
Father's education	0.0027	-0.1075**	0.0130	-0.0682	-0.0247	0.0050	-0.0306	0.0229	0.0618	-0.0467
	(0.0100)	(0.0512)	(0.0497)	(0.0667)	(0.0497)	(0.0072)	(0.0555)	(0.0460)	(0.0574)	(0.0447)
Father's education	-0.8955***	2.3605***	2.2181***	1.0059	-2.9288***	-0.5138***	3.7994***	2.5808***	2.0985***	-2.0680***
missing	(0.1290)	(0.5632)	(0.5697)	(0.7637)	(0.5357)	(0.1169)	(0.6787)	(0.5704)	(0.8057)	(0.5156)
Year of birth	-0.0468***	0.1123***	0.1162***	0.0943***	-0.0729***	-0.0136***	0.0742***	0.0716***	0.0540*	-0.0719***
	(0.0053)	(0.0248)	(0.0228)	(0.0327)	(0.0226)	(0.0042)	(0.0235)	(0.0215)	(0.0287)	(0.0197)
Intercept	89.6802***	-222.422***	-227.086***	-187.184***	148.096***	24.4537***	-149.690***	-140.424***	-108.296*	144.931***
	(10.4063)	(48.8227)	(44.8993)	(64.6450)	(44.2940)	(8.2105)	(46.2011)	(42.3705)	(56.7438)	(38.5892)
λ_j		-0.3255	0.9696**	-0.7436	2.1312***		-0.8009	0.9086	-0.9609	1.9481***
		(0.3854)	(0.3922)	(0.6459)	(0.2984)		(0.5336)	(0.6021)	(0.8215)	(0.4374)
Ln likelihood			-73683.06					-58456.06		

Notes: Coefficient estimates from joint multinomial choice models of family structure and longitudinal censored regression models of earnings. The models include a normally-distributed unobserved variable approximated with ten quadrature points. Estimated standard errors appear in parentheses.

* Significant at .10 level.   ** Significant at .05 level.   *** Significant at .01 level.

Table 4. Estimation Results for Multivariate Models of Marriage and Family Structure

	Men					Women				
	Marriage	Never married	Dissolved before age 15	Dissolved ages 15-18	Never dissolved	Marriage	Never married	Dissolved before age 15	Dissolved ages 15-18	Never dissolved
Age spline 19-24	0.2888***					0.2083***				
	(0.0047)					(0.0040)				
Age spline 25-34	0.0654***					0.0170***				
	(0.0030)					(0.0026)				
Age spline 35+	-0.0636***					-0.0580***				
	(0.0035)					(0.0031)				
Never married	0.1474					0.1434				
	(0.1061)					(0.0885)				
Dissolved before	-0.1034					-0.3188***				
age 14	(0.1092)					(0.0877)				
Dissolved between	-0.8191***					-1.1574***				
ages 15 & 18	(0.1913)					(0.1220)				
Never dissolved	-0.8340***					-1.0452***				
	(0.0826)					(0.0722)				
Never married	-0.0068**					-0.0154***				
x age	(0.0032)					(0.0025)				
Dissolved before	0.0089***					0.0101***				
age 14 x age	(0.0032)					(0.0025)				
Dissolved between	0.0310***					0.0246***				
ages 15 & 18 x age	(0.0059)					(0.0034)				
Never dissolved	0.0286***					0.0326***				
x age	(0.0025)					(0.0021)				
Education	0.0526***					0.0362***				
	(0.0022)					(0.0017)				
Lives in South	0.5336***					1.1343***				
	(0.0671)					(0.0726)				
Lives in Midwest	0.4094***					0.1873***				
	(0.0541)					(0.0453)				
Lives in West	0.3539***					0.0573				
	(0.0559)					(0.0491)				
Lives in other	0.1523***					-0.3136***				
area	(0.0577)					(0.0535)				

Black	-0.6346***	2.0120***	0.5932**	0.4016	0.0868	-0.9612***	1.9561***	0.2295	0.2961	0.0122
	(0.0299)	(0.2566)	(0.2341)	(0.3425)	(0.2079)	(0.0279)	(0.2574)	(0.2185)	(0.3106)	(0.1892)
Lived in South	0.1228***	-0.2491	-0.9195***	-0.4233	-0.9366***	0.4286***	0.1084	-0.3469	-0.9263**	-0.8323***
at age 18	(0.0436)	(0.4009)	(0.3503)	(0.5183)	(0.3103)	(0.0374)	(0.3664)	(0.3222)	(0.4261)	(0.2712)
Lived in Midwest	-0.2096***	0.6279	0.1269	0.0640	-0.4843	0.1444***	0.8482**	0.8453**	-0.1215	-0.3285
at age 18	(0.0499)	(0.4286)	(0.3683)	(0.5245)	(0.3293)	(0.0414)	(0.4082)	(0.3544)	(0.4306)	(0.3022)
Lived in West	0.0796*	-0.2479	-0.0904	-0.1763	-0.9492***	0.4193***	-0.3548	-0.1953	-0.7336*	-1.3664***
at age 18	(0.0472)	(0.4671)	(0.3850)	(0.5753)	(0.3403)	(0.0457)	(0.4266)	(0.3555)	(0.4433)	(0.2930)
Mother's education	0.0163***	0.0481	0.0413	0.0610	0.0163	0.0212***	0.0251	-0.0049	-0.0119	0.0219
	(0.0038)	(0.0370)	(0.0362)	(0.0509)	(0.0360)	(0.0032)	(0.0363)	(0.0347)	(0.0452)	(0.0354)
Mother's education	-0.0358	2.6070***	3.3582***	1.5977	-0.9761	0.3901**	2.1303**	2.8750***	1.4219	-1.6703**
missing	(0.1634)	(0.9757)	(0.9336)	(1.2247)	(0.9259)	(0.1590)	(0.9518)	(0.7607)	(0.9451)	(0.8087)
Father's education	-0.0282***	-0.1025**	0.0106	-0.0648	-0.0227	-0.0248***	-0.0478	0.0283	0.0335	-0.0208
	(0.0045)	(0.0497)	(0.0470)	(0.0640)	(0.0411)	(0.0039)	(0.0505)	(0.0419)	(0.0540)	(0.0382)
Father's education	-0.3769***	2.2665***	3.0256***	0.5425	-1.0437***	-0.3390***	3.1528***	3.1433***	1.3800**	-0.7417**
missing	(0.0434)	(0.4457)	(0.4635)	(0.6283)	(0.3516)	(0.0396)	(0.4871)	(0.4385)	(0.5490)	(0.3640)
Year of birth	-0.0344***	0.1124***	0.1423***	0.0735***	-0.0110	-0.0360***	0.0817***	0.0929***	0.0448*	-0.0384**
	(0.0025)	(0.0205)	(0.0198)	(0.0273)	(0.0161)	(0.0024)	(0.0203)	(0.0198)	(0.0240)	(0.0158)
Intercept	59.5435***	-221.852***	-279.638***	-144.885***	24.8152	65.2885***	-162.874***	-182.978***	-88.4515*	78.0878**
	(4.9554)	(40.0987)	(38.8342)	(53.4039)	(31.5497)	(4.6384)	(39.6297)	(38.7812)	(46.9883)	(30.8884)
λ_j		0.0096	-0.0373	-0.0214	0.0133		0.0544	-0.0520	0.2936**	0.0067
		(0.0827)	(0.0784)	(0.1109)	(0.0690)		(0.0834)	(0.0758)	(0.1239)	(0.0638)
Ln likelihood			-19097.49					-20822.98		

Notes: Coefficient estimates from joint multinomial choice models of family structure and longitudinal binary choice models of marriage incomes. The models include a discretely-distributed unobserved variable with four points of support. Estimated standard errors appear in parentheses.

* Significant at .10 level. ** Significant at .05 level. *** Significant at .01 level.