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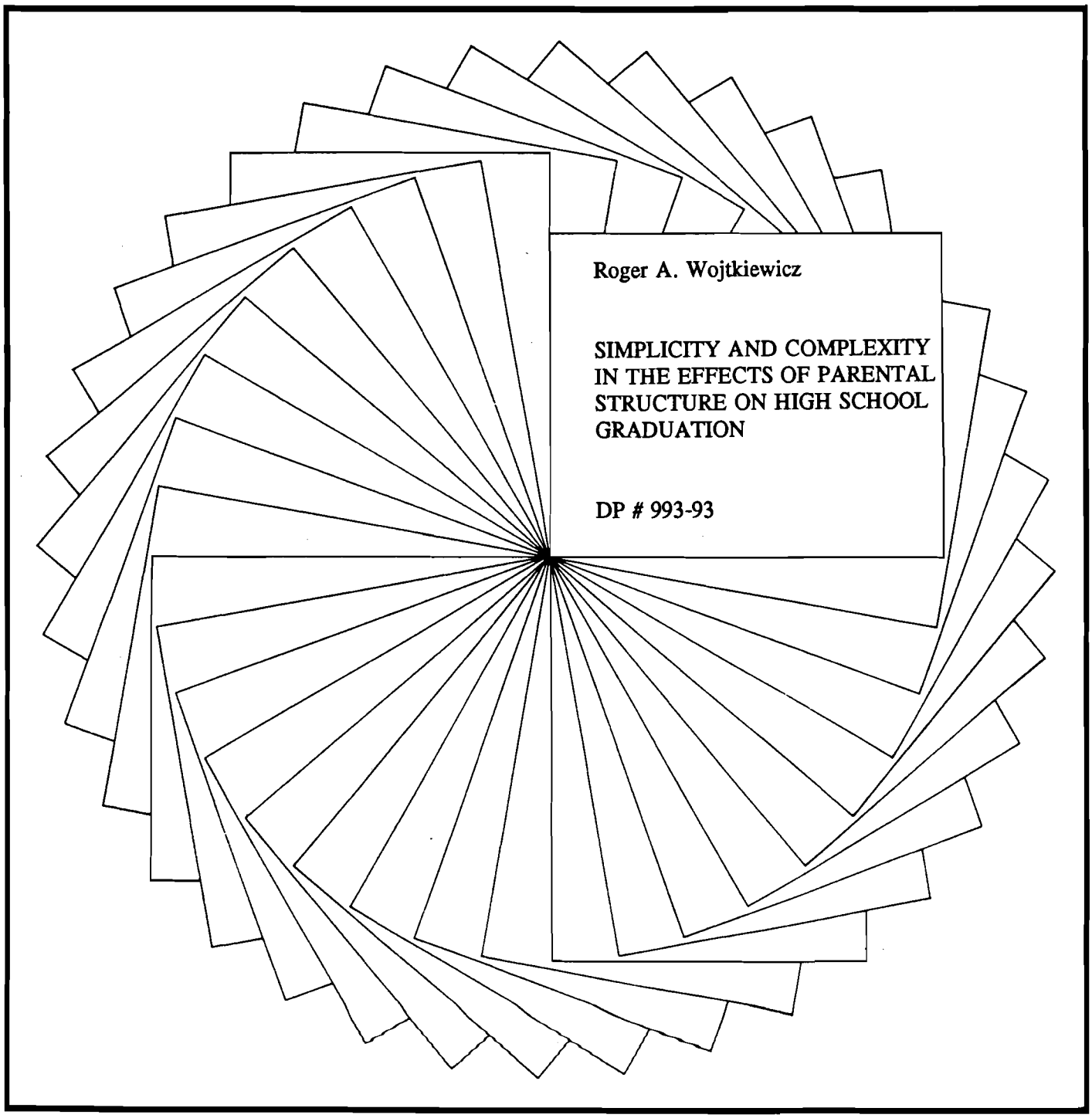

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# SIMPLICITY AND COMPLEXITY IN THE EFFECTS OF PARENTAL STRUCTURE ON HIGH SCHOOL GRADUATION

DP # 993-93

Institute for Research on Poverty
Discussion Paper no. 993-93

# Simplicity and Complexity in the Effects of Parental Structure on High School Graduation

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January 1993

This research was funded by the "Small Grants for Visitors Program," Institute for Research on Poverty, University of Wisconsin-Madison, under Grant Number 144-Z327 87ASPE041A from the U.S. Department of Health and Human Services.

**Abstract**

More and more children are living in broken or single-parent families, and researchers are paying more attention to the effects that living in such families may have on educational attainment. This study uses data from the National Longitudinal Survey of Youth to consider how parental-structure experiences impact chances of high school graduation. On the one hand, its results suggest that the effects of parental structure are simpler than theoretical notions might imply. For example, any year spent in a nonintact family, regardless of family type, lowers chances of high school graduation. On the other hand, the results indicate that some parental-structure effects are indeed complex. For example, it is the transition into, and not the duration in, mother-only families that is negative for educational attainment, while for mother-stepfather families it is the duration, not the transition, that is negative.

**Simplicity and Complexity in the Effects of Parental Structure on High School Graduation**

Research on the effects of parental structure on educational attainment has grown more complex in both issues considered and data used. The present study uses parental-history data from the National Longitudinal Survey of Youth to consider the effects of parental structure on high school graduation. The study uses measures that capture the complexity of parental-structure experiences, but it also considers whether such measures are necessary.

## BACKGROUND

The Occupational Change in a Generation surveys had a simple measure of parental structure. These surveys asked "Were you living with both your parents most of the time up to age 16?" Analysis of these data showed that experiences with broken families or disrupted marriages had an adverse effect on educational attainment (Blau and Duncan 1967; Featherman and Hauser 1978).

Recent research has looked at the nature of these adverse effects in more detail. Some research has considered the effects of different types of nonintact families such as never married, divorced, or widowed (McLanahan 1985) or stepparent (Astone and McLanahan 1991; Li and Wojtkiewicz 1992; Sandefur, McLanahan, and Wojtkiewicz 1992). Other research has examined the effects of years spent in nonintact families (Krein 1986; Krein and Beller 1988; Li and Wojtkiewicz 1992). Research has also considered the effects of the timing, number, and kind of parental-structure changes (Haveman, Wolfe, and Spaulding 1991; Li and Wojtkiewicz 1992; Sandefur, McLanahan, and Wojtkiewicz 1992). Each of these studies supported the basic finding that nonintact-family experiences diminish educational attainment.

This recent research was possible only because better data became available. Some of these studies used longitudinal data from the Panel Study of Income Dynamics (Haveman, Wolfe, and Spaulding 1991; McLanahan 1985), National Longitudinal Surveys (Krein 1986; Krein and Beller

1988; Sandefur, McLanahan, and Wojtkiewicz 1992), and High School and Beyond (Astone and McLanahan 1991). One other study used life-history data from the National Survey of Families and Households (Li and Wojtkiewicz 1992).

Two of these data sources--the National Survey of Families and Households and the National Longitudinal Survey of Youth--include retrospective life-history data on youth's experiences with parental structure from birth to age nineteen. These data allow for modeling of parental-structure experiences in more detail than has been done so far. The present study uses data from the National Longitudinal Survey of Youth to model these experiences. However, it also deals with an overriding question: Is added complexity in the measurement of parental structure necessary? Does more detailed information add to our understanding of the effects of parental structure on educational attainment?

## THEORETICAL MODEL

The simplest model of the effects of parental structure on educational attainment is one which asks whether family disruption occurred or not. However, theory suggests that the impact of parental structure should vary depending on the nature of the experience. The effects should be contingent on the type of parental structures experienced, the amount of time spent in parental structures, the age at which parental structures are experienced, and the kind of parental-structure change which is experienced. In addition, the effect of parental-structure experiences might depend on initial family context. That is, the effects may depend on whether a person started out at birth with mother-father or with mother only.

Type of Parental Structure

Children in families other than mother-father may receive less encouragement, supervision, and control than those in mother-father families (Astone and McLanahan 1991). However, the effect of living in a nonintact family depends on the type of family. Living in a single-parent family should have a more negative effect than living in a stepparent family. Absent parents play only a limited role in the daily lives of their children (Furstenberg and Nord 1985; Seltzer 1991), while single parents have less time to encourage, supervise, and control their children. This occurs not only because there is only one parent but also because household management falls on one person rather than two (Krein and Beller 1988). Less time for supervision and control may mean children more often associate with peers who discourage educational attainment (Demo and Acock 1988; Dornbusch et al. 1985). In addition, parent-child relations are weaker in single-parent families (Hetherington 1987; Wallerstein, Corbin, and Lewis 1988).

Stepparents have weaker relationships with stepchildren than biological parents have, resulting in less encouragement, supervision, and control (Amato 1987; Furstenberg 1987; Zill 1988). However, a stepparent does provide some parenting so that the negative effect from living with a stepparent is less than that from living with one's mother only. Living with only grandparents or other relatives should have the most negative effect on educational attainment because in these situations both biological parents are missing.

Type of family will also affect educational attainment because of income differences. Mother-only families have the lowest incomes (Garfinkel and McLanahan 1986; U.S. Bureau of the Census 1991). Father-only families have higher incomes but still only one earner. Stepparent families have two potential earners but may have obligations to other households which diminishes income available within the household.

Amount of Time Spent in a Particular Parental Structure

The amount of encouragement, supervision, and access to economic resources which a child receives adds up over time. The more of these things children receive, the higher their educational attainment. Since nonintact families offer less of these things than intact families, children who spend more time in nonintact families should have lower educational attainment.

Age at which a Given Parental Structure Is Experienced

The effects of living in nonintact families may depend on the age at which the effects are experienced. Younger children spend most of their time with parents while older children spend much of their time with teachers and peers (Krein 1986; Krein and Beller 1988). Thus, parental absence may be more negative for younger than older children. In addition, younger children are less able to cope with parental marital disruption than older children (Chase-Lansdale and Hetherington 1990).

On the other hand, living in nonintact families at older ages may have a greater effect on educational attainment than at younger ages. Control and supervision of adolescents is difficult in intact families but may be even more difficult in nonintact families (Amato 1987; Dornbusch et al. 1985). In addition, years spent in nonintact families during adolescence are closer in time to the high school years, which increases the impact.

Change in Parental Structure

It may be that it is not the state of being in a nonintact family that leads to diminished educational attainment but the stress of changing from one type to another (McLanahan 1985). The most frequent changes are from mother-father to mother only, from mother-only to mother-stepfather, and mother-stepfather to mother only. The first and third changes involve a loss of a parent while the second change involves the addition of a parent. When compared to no change at all, each change

should have a negative effect on educational attainment. There is stress associated with change that leads to diminished parenting, which in turn leads to diminished educational attainment. However, the stress of losing a parent should be greater than the stress from adding a parent. Thus, the negative effect on educational attainment of change from two-parent to one-parent families should be greater than the effect of change from one-parent to two-parent families.

Change at younger ages may be more negative because younger children are less able to cope with parental-structure change than older children (Chase-Lansdale and Hetherington 1990). On the other hand, family disruption has strong immediate effects which diminish over time (Hetherington, Cox, and Cox 1982). Changes closer to the high school years may thus have a more negative effect on high school graduation.

Parental Structure at Birth

There are two ways that children can get into mother-only or mother-stepfather families. First, they can start out in a mother-father family and then move into a mother-only family with the disruption of their parents' marriage. Second, children can start out in a mother-only family at birth, never living with their biological father. The meaning of parental-structure experiences may be different for those born into mother-only families compared to those born into mother-father families.

The difference is that for those born into mother-father families, the father is more involved in the lives of the children than for those born into mother-only families (Seltzer 1991). This involvement includes both parenting and financial contributions. Although divorced fathers are much less involved than married fathers, they are more involved than absent, unmarried fathers. Thus, in family situations where the father is not coresident, the negative effects should be less for those who were born into mother-father families than for those born into mother-only families.

## DATA AND METHODS

### Data

The National Longitudinal Survey of Youth (NLSY) began in 1979 when 12,686 men and women aged fourteen through twenty-one were interviewed. The sample has been reinterviewed annually since then. The NLSY is a national probability sample with an overrepresentation of blacks, Hispanics, and economically disadvantaged non-Hispanic whites. The original sample also included a subsample of persons serving in the military.

The primary purpose of the NLSY was to collect data on the labor force experiences of youth as they moved into adulthood and to collect data on factors potentially impacting labor market attachment. However, the NLSY serves as a more general social survey because of the variety of information which it contains.

The NLSY has maintained an excellent response rate. Excluding the military samples, 90.2 percent of the respondents interviewed in 1979 were reinterviewed in 1988.

The sample size for the present analysis is 8,404. Of the 12,686 respondents in the original sample in 1979, I excluded 3,885 who were either missing in later waves or in the military or socioeconomically disadvantaged white samples. I retained the disadvantaged black and Hispanic samples. The 253 respondents with missing data on the parental-structure variables were excluded, as were 144 with missing data on the educational attainment variable.

In the 1988 wave, the survey collected data on the childhood living arrangements of each respondent from birth to age nineteen. The survey asked respondents if they lived with their biological mother, biological father, stepmother, stepfather, adoptive mother, or adoptive father in any of the years from birth to age nineteen. If the respondent was not living with one of those parents, the survey asked respondents if they lived with grandparents, other relatives, foster parents,

friends, in a children's home, in a detention center, in other institutions, with other persons, or on their own.

The parental-history data were used to create the following typology at each age:

mother/father
mother only
mother/stepfather
father only
father/stepmother
grandparents
other relatives
adoptive parents
lived on own
foster parents
friends
children's home
group care home
detention center
other institution
lived with other person
mixed
none

Some respondents reported living in two or more types of living situations in one year, probably because they moved from one type to another. These respondents were included in the "mixed" category.

The present analysis only uses information on the living arrangement of children from birth to age fifteen. After age fifteen, the proportion of youths who are living on their own increases. While this proportion is never large, more than half of those who ever live on their own do not graduate from high school. Living on one's own is most appropriately viewed as a living arrangement that goes along with dropping out of high school, rather than as a living arrangement which causes school exit. In order to avoid problems with the endogeneity of living on one's own, I limit the maximum age considered to age fifteen.

Regression Analysis

I use logistic regression to measure the relationship between family structure and educational attainment. The living-arrangement data were used to create a number of different measures of the parental-structure experiences of children. I will discuss the various parental-structure variables as they arise in the discussion of the analysis.

The dependent variable is whether the respondent had graduated from high school by age twenty. I include those who received a General Equivalency Degree. Constructing the dependent variable in this way includes all those who received high school certificates at the typical ages, but excludes those who received a high school certificate after an extended disruption.

Control variables include birth cohort, sex/gender, race/ethnicity, number of siblings, and parental education. Parental education is the education of the parent with the most years of education.

The present analysis does not include a measure for parental income. Parental income is available only for those respondents who were living at home. An appropriate measure of family income for the present analysis would be income during childhood. This information is not available. As a result, the effects of parental structure in the present analysis capture the effects of parental income.

Meaning of Parental-Structure Effects

Parental-structure coefficients in the present study and in earlier studies are like "reduced form" coefficients in path analysis (Duncan 1975). That is, the coefficients capture both the direct and indirect effects of parental structure on educational attainment. The indirect effects are those from the influence of parental structure on parenting practices and family income which then influence educational attainment. The direct effects are those from the head-on influence of parental structure on educational attainment unmitigated by intermediate variables.

However, parental structure is a variable which theoretically does not directly affect educational attainment. It is a variable like race/ethnicity which has theoretical meaning only because it represents a "bundle" of effects of other unmeasured variables (Michael and Tuma 1985). If we had complete measurement of other variables such as parenting practices and family income, there would be no residual effect of parental structure. It is not the physical presence of parents that matters but what they do and what they bring into the household. The measure of physical presence has an effect only because it captures these other effects.

Thus, the present study is not different from earlier work which also looked at parental structure as capturing a bundle of effects of unmeasured variables. The difference between this study and previous ones is that the bundle of effects is bigger than would be the case if family income or some aspect of parenting practices could be controlled.

## RESULTS

I consider two kinds of parental-structure variables: duration and transition. I use these variables to investigate the effects of the five dimensions of parental structure discussed above: type, amount of time, age, change, and parental structure at birth.

### Duration of Parental-Structure Experience

Duration variables measure the number of years spent in particular parental-structure types. In this part of the analysis and in the remainder, the "other" category includes foster parents, friends, children's home, group care home, detention center, other institution, lived with other person, mixed, and none.

Model 1.1 in Table 1 shows the effects of years spent in parental-structure types between birth and age fifteen on chances of high school graduation. Years spent with mother only, mother-

**TABLE 1**
**Logistic Regression for the Effects of Years in Parental-Structure Type on High School Graduation**

| Variable | Model 1.1 Log-Odds Coeff. | Model 1.1 Standard Error |
|---|---|---|
| Birth Cohort | | |
| 1957 | -.054 | .128 |
| 1958 | -.101 | .126 |
| 1959 | -.089 | .125 |
| 1960 | -.134 | .118 |
| 1961 | -.117 | .118 |
| 1962 | .016 | .118 |
| 1963 | -.117 | .117 |
| 1964 | contrast | |
| Sex/Gender | | |
| Male | contrast | |
| Female | .428** | .059 |
| Race/Ethnicity | | |
| White | contrast | |
| Black | .069 | .078 |
| Hispanic | -.492** | .081 |
| Other | -.282** | .141 |
| Number of Siblings | | |
| 1 | .279 | .107 |
| 2 | contrast | |
| 3 or more | -.396** | .068 |
| Parental Education | | |
| 0-11 | -.980** | .070 |
| 12 | contrast | |
| 13-15 | .567** | .129 |
| 16 or more | 1.395** | .160 |
| Missing | -1.453** | .134 |
| Years in Parental Structure | | |
| Mother-father | contrast | |
| Mother only | -.037** | .007 |
| Mother-stepfather | -.036** | .011 |
| Father only | -.098** | .025 |
| Father-stepmother | -.039 | .029 |
| Grandparents | -.050** | .016 |
| Other relatives | -.035 | .035 |
| Adoptive parents | .012 | .025 |
| On own | -1.891** | .498 |
| Other | -.083** | .017 |
| Intercept | 2.261 | |
| N | 8404 | |
| -2 log likelihood | 7257.13 | |
| Degrees of freedom | 8377 | |

**Source:** National Longitudinal Survey of Youth.
* $p <= .10$.
** $p <= .05$.

stepfather, father only, grandparents, on own, and in other types lower chances of graduating from high school. The effects of living with father only, on own, and other are most strongly negative.

Table 1 also shows the effects of the control variables. These coefficients do not change very much from model to model as different parental-structure variables are used. Thus, while the control variables are always included in the models, the coefficients for these variables are not shown in the remainder of the tables.

Model 1.1 allows the effects of duration to be different for each parental-structure type. Is this complexity necessary or would a simpler model describe the data just as well? Model 2.1 in Table 2 constrains the effects of the six most common parental-structure types to be equal. This model says that a year in one of these types of nonintact families, no matter which one, will have the same effect on high school graduation. This is a much simpler model than Model 1.1. The difference in -2 log likelihood between Model 1.1 and Model 2.1 is not significantly large. This indicates that the less complex model fits as well as the model where all the coefficients were allowed to differ.

The most important finding from the first two models is that one coefficient describes the effects of the six most common parental-structure types. In particular, the effects of mother only and mother-stepfather, the two most frequent situations, are not significantly different. This finding says that a year in a mother-stepfather family is just as negative for educational attainment as a year in a mother-only family.

The effects for duration in Model 1.1 are not as straightforward as they might seem. The underlying assumption is that the effects of years spent in parental-structure types increase linearly. Is this a legitimate assumption? To answer this question we first need a model which has a weaker assumption about the effects of parental structure.

**TABLE 2**

**Logistic Regressions for Testing Equality in the Effects of Years in Parental-Structure Types on High School Graduation**

| Model | Constraint | -2 Log L | DF | Difference from Model 1.1 -2 Log L | Difference from Model 1.1 DF |
|---|---|---|---|---|---|
| 1.1 | [M MSF F FSM GRA REL]:free | 7257.13 | 8377 | - | - |
| 2.1 | [M MSF F FSM GRA REL]:equal | 7263.27 | 8382 | 6.14 | 5 |

**Source**: National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

M: mother only; MSF: mother-stepfather; F: father only; FSM: father-stepmother; GRA: grandparents; REL: other relatives.

Model 3.1 in Table 3 includes variables for each parental-structure type as in Model 1.1, but these variables are for whether a respondent ever lived in a particular parental-structure type. These coefficients represent the average effect of living in a particular parental-structure type. Notice that only the coefficients for years spent with mother only, father only, on own, and other are significantly different from zero.

Table 4 shows six models. In each model, three coefficients are estimated to capture the effects of years spent in parental-structure types. Each coefficient indicates the effect of a dummy variable which represents a different length of time spent in that particular type. If the effect of duration in parental-structure type is linear, then the coefficients should get increasingly negative as one goes from 1-5 years to 6-10 years to 11-16 years. In addition, using three variables to describe parental-structure experiences instead of one should significantly improve the fit of the model. The model with three variables describing parental-structure type is nested within the model with one variable since the sum of the three variables equals the one variable.

Model fit is significantly improved by using three variables to describe the effects of years spent with mother-stepfather, father only, and grandparents. The model with three variables for years spent with mother only does not fit better than the model with one variable.

These models provide information for interpreting the significant linear effects in Model 1.1. The linear effect for years in a mother-only family is significant but only because any kind of experience in a mother-only family is negative. The significant linear effects for living with mother-stepfather, father only, or grandparents are so because of the strong negative effects for those who live in these types for long durations.

The duration variables can be used to consider whether the effects of parental structure depend on age at experience and initial family context at birth. Table 5 shows six models. In each model, instead of one variable representing years in a parental-structure type, there are three variables

**TABLE 3**

**Logistic Regression for the Effects of Ever Lived in Parental-Structure Type on High School Graduation**

| Variable | Model 3.1 Log-Odds Coeff. | Standard Error |
|---|---|---|
| Ever in Parental Structure | | |
| Never in nonintact | contrast | |
| Mother only | -.405** | .071 |
| Mother-stepfather | -.060 | .105 |
| Father only | -.302* | .171 |
| Father-stepmother | -.081 | .217 |
| Grandparents | -.188 | .168 |
| Other relatives | -.196 | .240 |
| Adoptive parents | .173 | .306 |
| On own | -2.350** | .558 |
| Other | -.740** | .145 |
| N | 8404 | |
| -2 log likelihood | 7258.01 | |
| Degrees of freedom | 8377 | |

**Source**: National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

Model includes variables for birth cohort, sex/gender, race/ethnicity, number of siblings, and parental education.

**TABLE 4**

**Logistic Regressions for the Effects of Years Lived in Parental-Structure Type on High School Graduation**

| Model | Parental Structure | -2 Log L | DF | Difference from Model 3.1 -2 Log L | Difference from Model 3.1 DF | Years in Parental Structure 1-5 | 6-10 | 11-16 |
|---|---|---|---|---|---|---|---|---|
| 3.1 | Baseline | 7258.01 | 8377 | - | - | | | |
| 4.1 | M | 7257.87 | 8375 | 0.14 | 2 | - | - | - |
| 4.2 | MSF | 7252.73 | 8375 | 5.28* | 2 | -.015 | .168 | -.372** |
| 4.3 | F | 7252.27 | 8375 | 5.74* | 2 | -.114 | -.290 | -1.261** |
| 4.4 | FSM | 7257.36 | 8375 | 0.65 | 2 | - | - | - |
| 4.5 | GRA | 7252.89 | 8375 | 5.12* | 2 | .379 | -.153 | -.544** |
| 4.6 | REL | 7257.71 | 8375 | 0.30 | 2 | - | - | - |

**Source**: National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

M: mother only; MSF: mother-stepfather; F: father only; FSM: father-stepmother, GRA: grandparents; REL: other relatives.

**TABLE 5**

**Logistic Regressions for the Effects of Number of Years in Parental-Structure Type, by Age, on High School Graduation**

| Model | Parental Structure | -2 Log L | DF | Difference from Model 1.1 -2 Log L | Difference from Model 1.1 DF | Age at Experience of Parental Structure 0-5 | 6-10 | 11-15 |
|---|---|---|---|---|---|---|---|---|
| 1.1 | Baseline | 7257.13 | 8377 | - | | | | |
| 5.1 | M | 7250.37 | 8375 | 6.76** | 2 | .003 | -.022 | -.089* |
| 5.2 | MSF | 7256.22 | 8375 | 0.91 | 2 | - | - | - |
| 5.3 | F | 7251.62 | 8375 | 5.51* | 2 | -.158* | .093 | -.228** |
| 5.4 | FSM | 7256.75 | 8375 | 0.38 | 2 | - | - | - |
| 5.5 | GRA | 7257.11 | 8375 | 0.02 | 2 | - | - | - |
| 5.6 | REL | 7257.00 | 8375 | 0.13 | 2 | - | - | - |

**Source**: National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

M: mother only; MSF: mother-stepfather; F: father only; FSM: father-stepmother; GRA: grandparents; REL: other relatives.

representing years spent from birth to age five, ages six through ten, and ages eleven through fifteen. These add up to the overall duration variable, so the model with three variables is nested within the model with one variable.

Only for years spent with mother only and with father only does the model with age-specific variables fit better than the model with one variable. For years spent with mother only, the improvement in fit occurs because of the stronger effect for years spent between the ages of eleven and fifteen. For years spent with father only, the improvement in fit occurs because the effects for the youngest and oldest ages are significantly negative, but the effects for intermediate ages are not significantly different from zero.

The duration variables can also be used to consider the effects of initial context. Initial context refers to whether a respondent started out in a mother-only family or in a mother-father family. In order to determine if the effects of parental-structure experiences depend on initial context, I first created dummy variables for three initial contexts: mother-father at birth and later disruption, mother only at birth, and other family type at birth. I then interacted each of these initial context variables with the duration variables. The idea is that the effect of time spent in a particular parental-structure type might depend on the initial context which preceded it. If initial context matters, then the model with three variables describing the effect of a particular parental-structure type will fit the data better than the model with one variable.

Table 6 shows the results from six logistic regressions. In each model, one parental-structure variable was allowed to differ across initial contexts. None of the models using three variables to capture differential effects across initial contexts resulted in a better-fitting model. This indicates that the effects of years spent with mother only or with mother-stepfather are the same no matter how one started out at birth.

**TABLE 6**

**Logistic Regressions for the Effects of Number of Years in Parental-Structure Type, by Type at Birth, on High School Graduation**

| Model | Parental Structure | -2 Log L | DF | Difference from Model 1.1 -2 Log L | Difference from Model 1.1 DF | Parental-Structure Type at Birth M-F | Parental-Structure Type at Birth M Only | Parental-Structure Type at Birth Other |
|---|---|---|---|---|---|---|---|---|
| 1.1 | Baseline | 7257.13 | 8377 | - | - | | | |
| 6.1 | M | 7257.06 | 8375 | 0.07 | 2 | - | - | - |
| 6.2 | MSF | 7253.13 | 8375 | 4.00 | 2 | - | - | - |
| 6.3 | F | 7256.18 | 8375 | 0.95 | 2 | - | - | - |
| 6.4 | FSM | 7255.48 | 8375 | 1.65 | 2 | - | - | - |
| 6.5 | GRA | 7255.74 | 8375 | 1.39 | 2 | - | - | - |
| 6.6 | REL | 7256.40 | 8375 | 0.73 | 2 | - | - | - |

**Source**: National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

M: mother only; MSF: mother-stepfather; F: father only; FSM: father-stepmother; GRA: grandparents; REL: other relatives.

Transition from One Parental Structure to Another

The analysis up to this point has focused on durations, time spent in parental-structure types. The second part of the analysis looks at parental-structure experiences from a different perspective. It considers transitions from a parental-structure type in one year to a different parental-structure type in the next year. The ten parental-structure types which I have used in the first part of the analysis allow for a large number of different possible transitions. The analysis reported here focuses on three of the most frequently occurring transitions: from mother-father to mother only, from mother only to mother-stepfather, and from mother-stepfather to mother only. The first transition is a disruption of a two-parent family, as is the third. The second transition involves family reconstitution.

Model 7.1 in Table 7 shows that those who experienced a transition from mother-father to mother only have lower chances of graduating from high school than those who did not experience any change. The effects of the other two transitions are not significant.

Model 7.1 tests whether the effect of each kind of change is different from zero; it does not test whether the coefficients are significantly different from each other. Model 8.1 in Table 8 makes the latter test by constraining the effects of change from mother-father to mother only, mother only to mother-stepfather, and mother-stepfather to mother only to be equal. This constraint does not result in a significant reduction in the fit of the model. In results not shown, the combined effect was significantly negative. This means that experiencing any one of the three changes lowers chances of high school graduation.

The effect of a transition may depend on the age at which the change occurs. The model in Table 9 allows the effect of transition type to vary by age at the start of the transition. There are three age-categories: 1-5, 6-10, and 11-15. Allowing the effect of each change to vary by age does not significantly improve the model fit.

**TABLE 7**

**Logistic Regression for the Effects of Parental-Structure Transitions on High School Graduation**

| Variable | Model 7.1 Log-Odds Coeff. | Standard Error |
|---|---|---|
| Parental-Structure Transition | | |
| No change | contrast | |
| Mother-father to mother only | -.326** | .081 |
| Mother only to mother-stepfather | -.062 | .135 |
| Mother-stepfather to mother only | .269 | .293 |
| Other change | -.622** | .083 |
| N | 8404 | |
| -2 log likelihood | 7298.57 | |
| Degrees of freedom | 8382 | |

**Source:** National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

Model includes variables for birth cohort, sex/gender, race/ethnicity, number of siblings, and parental education.

**TABLE 8**

**Logistic Regressions for Testing Equality in the Effects of Parental-Structure Transitions on High School Graduation**

| Model | Constraint | -2 Log L | DF | Difference from Model 7.1 -2 Log L | Difference from Model 7.1 DF |
|---|---|---|---|---|---|
| 7.1 | [MF-M, M-MSF, MSF-M]:free | 7298.57 | 8382 | - | - |
| 8.1 | [MF-M, M-MSF, MSF-M]:equal | 7301.34 | 8384 | 2.77 | 2 |

**Source**: National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

MF-M: mother-father to mother only; M-MSF: mother only to mother-stepfather; MSF-M: mother-stepfather to mother only.

**TABLE 9**

**Logistic Regression for the Effects of Parental-Structure Transition, by Age Experienced, on High School Graduation**

| Model | Parental-Structure Transition | -2 Log L | DF | Difference from Model 7.1 | | Age at Experience of Parental-Structure Transition | | |
|---|---|---|---|---|---|---|---|---|
| | | | | -2 Log L | DF | 1-5 | 6-10 | 11-15 |
| 7.1 | Baseline | 7298.57 | 8382 | - | - | | | |
| 9.1 | MF-M | 7296.13 | 8380 | 2.44 | 2 | - | - | - |
| 9.2 | M-MSF | 7295.28 | 8380 | 3.29 | 2 | - | - | - |
| 9.3 | MSF-M | 7294.91 | 8380 | 3.66 | 2 | - | - | - |

**Source**: National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

MF-M: mother-father to mother only; M-MSF: mother only to mother-stepfather; MSF-M: mother-stepfather to mother only.

The effects of parental-structure transitions may not be additive. That is, the effect of one transition may depend on whether other changes have been experienced. Thus, it may not be appropriate to examine transitions separately since they are so interrelated. In addition, initial context may be important. For example, a transition from mother only to mother-stepfather may have a different meaning for those who started out in mother-only families at birth compared to those who started out in mother-father families.

Model 10.1 in Table 10 takes into account the interrelationship among transitions and between transitions and initial context. In this model there are six combinations of transitions and initial contexts. For those who started out in mother-father families, there are categories for those who experienced one, two, or three transitions. For those who started out in mother-only families, there are categories for those who experienced none, one, or two transitions. There is also a category for those who experienced other combinations of transitions.

Before drawing any conclusions about strength and significance of the effects of these transition combinations, we need to determine if this complexity is necessary. Model 11.1 in Table 11 constrains the six detailed changes in Model 10.1 to be equal. There is no significant difference in fit between Models 10.1 and 11.1. In results not shown, the combined effect is significantly negative. Thus, experiencing any one of the changes has a negative effect on high school graduation; the particular type of change does not make a difference, at least among the six combinations considered in Model 10.1.

Combined Model

In the analysis above, the effects of transitions were estimated without including the duration variables in the model. It may be that the transition variables are picking up the same effects for parental structure that the duration variables picked up. In order to assess the unique effects of duration and transition, Model 12.1 in Table 12 includes both types of variables.

**TABLE 10**

**Logistic Regression for the Effects of Parental-Structure Transition Combinations on High School Graduation**

| Variable | Model 10.1 Log-Odds Coeff. | Standard Error |
|---|---|---|
| Parental-Structure Transition | | |
| No change | contrast | |
| MF birth, MF to M | -.489** | .095 |
| MF birth, MF to M, M to MSF | -.393** | .174 |
| MF birth, MF to M, M to MSF, MSF to M | .270 | .574 |
| M birth, no change | -.659** | .135 |
| M birth, M to MSF | -.342 | .227 |
| M birth, M to MSF, MSF to M | -.540 | .499 |
| Other changes | -.762** | .082 |
| N | 8404 | |
| -2 log likelihood | 7262.26 | |
| Degrees of freedom | 8379 | |

**Source**: National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

Model includes variables for ever lived in other parental-structure types as well as for birth cohort, sex/gender, race/ethnicity, number of siblings, and parental education.

MF: mother-father; M: mother only; MSF: mother-stepfather.

**TABLE 11**

**Logistic Regression for Testing Equality in the Effects of Parental-Structure Transitions on High School Graduation**

| Model | Constraint | -2 Log L | DF | Difference from Model 10.1 -2 Log L | Difference from Model 10.1 DF |
|---|---|---|---|---|---|
| 10.1 | [All Changes]:free | 7262.26 | 8379 | - | - |
| 11.1 | [All Changes but Other Changes]:equal | 7266.78 | 8384 | 4.52 | 5 |

**Source**: National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

**TABLE 12**

**Logistic Regressions for the Effects of Initial Context, Parental-Structure Transition, and Years in Parental-Structure Type on High School Graduation**

| Variable | Model 12.1 Log-Odds Coeff. | Model 12.1 Standard Error |
|---|---|---|
| Initial Context | | |
| Mother only at birth | -.388* | .206 |
| Parental-Structure Transition | | |
| Mother-father to mother only | -.418** | .125 |
| Mother only to mother-stepfather | .390** | .185 |
| Mother-stepfather to mother only | .288 | .298 |
| Other change | -.190 | .121 |
| Years in Parental Structure | | |
| Mother only | -.009 | .014 |
| Mother-stepfather | -.042** | .015 |
| Father only | -.081** | .028 |
| Father-stepmother | -.022 | .031 |
| Grandparents | -.037** | .017 |
| Relatives | -.009 | .037 |
| Adoptive parents | .017 | .025 |
| On own | -1.813** | .506 |
| Other | -.068** | .019 |
| Combined | - | |
| Intercept | 2.305 | |
| N | 8404 | |
| -2 log likelihood | 7237.41 | |
| Degrees of freedom | 8372 | |

**Source:** National Longitudinal Survey of Youth.

* $p <= .10$.
** $p <= .05$.

Model includes variables for birth cohort, sex/gender, race/ethnicity, number of siblings, and parental education.

Significance among the duration variables does not change much except that the effect for years spent with mother only is not significant in Model 12.1 while it was in Model 1.1. However, this does not mean that experiences with mother-only families do not have negative effects. There are negative effects for both starting out in a mother-only family at birth and for the transition from mother-father to mother-only families. Thus, there are negative effects for the two ways a person can enter a mother-only family. However, there is no added effect for the number of years spent in that parental-structure type. This finding is congruent with the finding of nonlinearity in the mother-only effect found in Table 4. It does not matter how much time was spent in a mother-only family; what does matter is whether or not one experienced that kind of parental structure.

Experiencing the transition from mother-only to mother-stepfather family increases chances of high school graduation. This coefficient basically counteracts the negative effect from entering a mother-only family, whether at birth or from a mother-father family. What is negative about experiencing a mother-stepfather family is spending a lot of years in that parental-structure type.

## DISCUSSION

On the one hand, the analysis reported here suggests that the relationship between parental structure during childhood and adolescence and educational attainment is simpler than our theoretical notions might imply. In considering duration in nonintact families, any year spent in a nonintact family had a negative effect. The analysis also showed that the effects of parental structure did not depend on initial family context. Also, when transitions were considered separately, the type and timing of transitions did not make a difference.

The study did uncover some complexity in the effects of parental structure on chances of high school graduation. While the effects for duration in mother-only and mother-stepfather families were statistically equal, further examination showed that the underlying structure of these effects was

different. Duration in mother-only families was negative because any duration spent in those families was negative, whether long or short. Duration in mother-stepfather families was negative because of negative effects of long durations.

Two of the duration variables varied by age. Years spent in mother-only or father-only families between the ages of eleven and fifteen were much more negative than years spent at younger ages. This finding for mother-only families contradicts findings by Krein and Beller (1988) and Krein (1986), who found more negative effects for years spent at younger ages.

The combined analysis included the duration and transition variables in one model in order to determine each one's unique effect. Starting out in a mother-only family is negative, as is the transition from mother-father to mother only. There is no additional effect for the number of years spent in mother-only families. The transition from mother only to mother-stepfather was positive and canceled out the negative effects for the two types of transitions into mother-only families. However, children who lived in mother-stepfather families were still adversely affected, since there was a negative effect on educational attainment for years spent in mother-stepfather families. Years spent in father-only families also had a negative effect on educational attainment, as did years spent with grandparents or on one's own.

The combined model suggests that the effects of experiences with mother-only families are event-dependent, while the effects of experiences with mother-stepfather families are duration-dependent. It does not matter how long one is in a mother-only family; the negative effect comes from moving into that family type. In contrast, how long one lives in a mother-stepfather family determines the degree of its negative effect.

The main limitation of this study is its inability to examine what factors contribute to the parental-structure effects which were found. The NLSY collected parental-history data but did not collect history information on family income or parenting practices. The parental-structure effects

capture a variety of characteristics of family situations. Thus, while this study has much to say about how different parental-structure situations lead to lower chances of high school graduation, it does not say much about the underlying nature of these situations.

An implication of the present study for other research on the effects of parental structure on life course statuses, whether education, fertility, marriage, or divorce, is that complex measures of parental structure must be justified. The present study has shown that while in some instances more complex measures of parental structure have explanatory power, in other instances more complex measures did not contribute to a better explanation.

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