Is Timing Everything?
Parental Unemployment and Children's Educational Attainment

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ABSTRACT

Drawing from research on parental unemployment, sibling differences and life course theories, I consider whether (and how) the timing of a parent's job loss moderates the impact of the event on children's educational attainment in adulthood. Life course and child development theories lead to a hypothesis that the timing of family events in each child's life may lead to long-term differences in educational attainment. Using the Panel Study of Income Dynamics, I examine the educational attainment at age 25 of siblings born where the parent experienced a job loss. Using fixed effects models to control for family contexts at the time of parental unemployment, I find little difference in siblings' educational attainment at age 25 based on children's age when the parent lost his or her job. I discuss two possible ways to understand these counter-theoretical results.

Life course theories about the timing of events in lives (e.g. Elder 1999 [1974]; Heckman and Borjas 1980) and cumulative disadvantage (e.g. Dannefer 2003) predict that *when* events happen in an individual's life course moderates the impact of the event. In considering how parental job loss influences children, timing may provide important insights into the severity of the consequences on children. Hence, the timing of a parent's involuntary job loss should help capture the potential consequences of parent job loss on children's educational attainment. Prior research has paid little attention to the life course features of parental unemployment, such as the timing of job loss in the child's life. In this research, I aim to fill this void.

When considering the impact of parental job loss on children, siblings provide an excellent comparison. Siblings in a family experience the same events at different ages, thus providing an excellent comparison for the impact of age at parent job loss (Conley, Pfeiffer and Velez 2007; Ermisch and Wright 1991; Ermisch, Francesconi and Pevalin 2004). At the individual family level, family dynamics can differentiate the impact of events on children. However, a general pattern in the age-specific impact of parental unemployment across a large number of families provides valuable evidence about the timing of parental unemployment on children's educational attainment.

In this paper, I bring life course and sibling difference perspectives together to further research on the ways parental unemployment is associated with children's educational outcomes. To do so, I ask: **How does the timing of the parental job loss influence children's educational attainment at age 25?** In the following sections I argue that the cumulative disadvantage and timing perspectives present compelling reasons for why age at the time of parental unem-

ployment likely leads to differences in the effects of the job loss on children. I estimate the effects of the timing of parental unemployment on the child's adult educational attainment; using both OLS regressions and sibling fixed effects models to control for family context at the time of parental unemployment.

The results I present rely on variation in educational attainment to identify life course differences in the effect of parental unemployment. My results show that even if the process or reasons that parental unemployment reduces educational attainment in children vary, the impact on children's educational attainment is relatively consistent regardless of the timing of parental unemployment in a child's life.

THEORETICAL AND EMPIRICAL PERSPECTIVES

Research on Parental Unemployment

Prior research on the consequences of parental unemployment has examined children's short- and long-term outcomes, but has done little to differentiate the consequences of parental unemployment based on the timing in children's lives. Additionally, prior research focuses on children compared to their peers, not their siblings. This section reviews the existing research on the consequences of parental unemployment and highlights gaps in the literature that my research addresses.

In the short-term, parental unemployment causes delays in children's behavioral growth, cognitive development, educational ambitions, self-concept, self-esteem, classroom behavior and educational progress (Andersen 2013; Farrell and Ortiz 1993; Hill et al. 2011; Jackson 2003; Kalil and Ziol-Guest 2005; Kalil and Ziol-Guest 2008; McLoyd 1989; McLoyd et al. 1994; Stevens and Schaller 2011). Mother's unemployment during preschool is associated with children's problem behavior in late elementary school (Hill et al. 2011). For children already in

school, the probability of grade retention increases as a consequence of the parental head of household's unemployment for children from all socioeconomic backgrounds (Stevens and Schaller 2011). Mother's job instability is also associated with behavior problems in children (Johnson, Kalil and Dunifon 2012). These effects may not be limited to children whose experience the parental job loss, particularly for older children (Ananat, Gassman-Pines and Gibson-Davis 2011). However, some evidence exists that short-term cognitive growth may not be impacted by parental unemployment (Levine 2011). These short-term consequences of job loss, specifically social and emotional problems and grade repetition, are associated with lower levels of educational attainment (e.g. McLeod and Kaiser 2004; Rumberger 1990) Thus, these short-term consequences highlight the link between parental unemployment and educational outcomes.

In the longer term, parental unemployment during childhood or adolescence is associated with lower earnings, and an increase in months unemployed and/or receiving unemployment benefits in early adulthood for *men* in Canada and Great Britain (Gregg, Macmillan and Nasim 2012; O'Neill and Sweetman 1998; Oreopoulos, Page and Stevens 2008), although this result does not hold for Norway (Bratberg, Nilsen and Vaage 2008). In the United States, for middle class children and the children of single mother's parental job loss during childhood is associated with a decreased likelihood of college attendance compared to peers who did not experience a parental job loss (Brand and Simon Thomas Forthcoming; Kalil and Wightman 2011). Brand and Simon Thomas (forthcoming) find that the timing of parental unemployment matters, with adolescent's outcomes harmed the most. This detrimental effect of parental job loss on post-secondary attendance is not explained by parental education, attitudes, cognitive ability or unobserved characteristics (Wightman 2012). All of this research focuses on the generally negative effects of parental unemployment on children.

Most of the research on parental unemployment focuses on peers, not siblings. These studies also either focus on children at specific developmental stages or do not examine timing as a possible mediating factor. Only one paper examines the effect of parental unemployment on siblings, and does so in the British context. Ermish, Francesconi and Pevalin (2004) use sibling models and find that parental unemployment in early childhood (before age 5) and in the early teenage years (11-15) have qualitatively similar (negative) associations with completing "A level" educational qualifications at age 18. That is, they find little quantitative differences in the educational outcomes of children based on the age when parental unemployment occurred. These results provide a strong motivation to extend this line of research to the American setting and educational outcomes to age 25. Importantly, these findings are counter to the theories of timing discussed below.

Theories of Timing

A life course approach provides several frames for thinking about how the timing of parental unemployment impacts children. The life course perspective emphasizes that children are part of a family system where family events impact children differentially based on how old the child is when the event occurs (Mayer 2009). Thus, parent's unemployment influences children because their lives are linked (Elder 1994). The concept of linked lives complements the principle of the timing of events in a person's life, as many events that happen to parents change the lives of children as well. "Timing" refers to developmental contexts and when events occur in lives emphasizing the importance of age for understanding the way unemployment impacts children (Elder 1998:3).

The consequences of similar events may vary based on when they occur in a child's life. For example, economic hardship later in adolescence is associated with lower educational attainment than if the same events happen earlier in life (Sobolewski and Amato 2005). The effect of parental unemployment on children is likely analogous to the effects of parent divorce or poverty, in that the timing of the event in the child's life will moderate the consequences of the job loss. Brand and Simon Thomas' (forthcoming) finding that maternal unemployment harms older children more than younger children fits with this theoretical prediction, but they test one specific case. Applying general life course theory leads to a hypothesis that the consequences of similar events should vary based on when they occur in a child's life, yet it does not lead to a specific prediction about the relationship between the child's ages at the time of parental unemployment and his or her educational attainment.

Cumulative Disadvantage

Theories of cumulative disadvantage[1] argue that disadvantages accumulate over the life course such that early life setbacks in schooling, health or work strongly influence later life experiences (Dannefer 2003; DiPrete and Eirich 2006; Elman and O'Rand 2004; Grieger and Danziger 2011; O'Rand 1996; Schafer, Ferraro and Mustillo 2011). Specifically, theories of cumulative advantage posit that if two children experience a disadvantage of similar magnitudes the child who experienced the disadvantage at a younger age will ultimately be more disadvan-

[1] Cumulative advantage, cumulative disadvantage and cumulative stratification all refer to the concepts discussed in this paragraph. In this paper, I primarily refer to this theory as cumulative disadvantage since parental job loss is considered a disadvantage.

taged than the child who experienced it at an older age(DiPrete and Eirich 2006). Thus, the cumulative disadvantage perspective provides a mechanism for understanding how seemingly small differences in developmental progress or educational achievement at earlier life stages become large gaps as people age.

Consistent with cumulative disadvantage theory, researchers in economics, child development, and policy have focused on the importance of early childhood contexts on later life outcomes. Recent research highlights the detrimental effects of early exposure to poverty on later life attainments such as health, employment and income (Duncan et al. 1998; Duncan, Ziol-Guest and Kalil 2010; Duncan et al. 2012; Wagmiller et al. 2006). Skills learned prior to kindergarten (also referred to as early childhood human capital accumulation or school readiness) continues to influence children's educational attainment years later (Almond and Currie 2011; Cunha and Heckman 2010; Farber 2010). Family transitions at early ages also impact children's education, for example when parents get divorced before a child enters school, the child has lower educational expectations than a child who experiences the event later (Heard 2007).

Applied to parental unemployment, the cumulative disadvantage perspective predicts that (small) gaps in educational progress as a result of a parent's unemployment spell may lead to larger differences in educational outcomes (such as attainment) later in life. Cumulative disadvantage theory thus would posit that the short-term harm to children's development caused by parental unemployment manifests as larger educational attainment gaps in early adulthood, consistent with the prior research on other areas. Several mechanisms predict this, first because smaller disadvantages become larger over time, children who experience parental unemployment

at younger ages should experience more disadvantage in educational outcomes than an older sibling. Second, children at earlier developmental stages may be more vulnerable to negative events.

These theories make a convincing case for why the timing of parental unemployment in a child's life should moderate educational attainment. Yet what if timing is not a primary predictor? While the mechanisms that cause lower educational attainment may vary by age/developmental stage, the effects of those mechanisms may be more similar than different for children. For example, a younger child's entire educational trajectory may be stunted by the experience, but a teenager may choose to work instead of attend college in response to the job loss.

Research on Sibling Educational Attainment

Research on parental unemployment has paid little attention to siblings. Yet looking at siblings provides ways to both control for stable family level differences, and provides an opportunity to identify life course features that may also moderate the effect of parental unemployment. Sibling research considers similarities in educational attainment, effects of sibship size (the number of siblings), birth order and the gender composition of sibling groups.

Similarities in siblings' educational attainment make family-level comparisons an excellent avenue for examining timing. Approximately 40%-50% of the variance in educational attainment is within families (Hauser, Sheridan and Warren 1999; Hauser and Wong 1989). If families generally account for half of the variance in educational attainment, it should be possible to examine some of the within-family determinants, in this case, a child's age at the time of parental unemployment.

Children's gender, as well as the gender composition of siblings, may also impact educational attainment. While the results generally point to relatively small differences in educational

attainment based on the gender composition of a sibling group, studies emphasize the importance of including the child's gender. For example, using the WLS, Kuo and Hauser (1997) find that the gender is the most significant predictor of within-family variance in educational attainment, but that gender effects do not vary based on birth order or sibship size. Conley and Glauber (2008) find that gender composition of families does not change the correlation between siblings educational attainment for children in the PSID. The existing research on sibling differences in educational attainment provides additional information on family level processes, which I consider further in the methods section.

Contributions

My project contributes to sociological knowledge by applying life course theories of timing to develop a better understanding of the effects of involuntary parental unemployment on children's educational attainment. One theoretical perspective strongly suggests that parental unemployment disrupts children's educational growth and thus constitutes a form of cumulative disadvantage, even for children from advantaged homes prior to their parent's job loss. Life course theory more generally predicts that the consequences of parental unemployment may vary depending on when in a child's life the disruption occurs. This project extends the research on sibling educational attainment by looking at the timing of family events in children's lives, specifically parent job loss. If timing of parental unemployment is not a significant predictor of educational attainment for siblings, then other characteristics of parental unemployment may be more important than timing OR the general association of parental job loss is similar for children even if the processes varies by the child's age.

DATA, MEASURES, AND METHODS

Data

Using the Panel Study of Income Dynamics (PSID)(2013), I look at the educational attainment at age 25 or 26 of children born between 1968 and 1984. The PSID started in 1968 with approximately 5,000 families from a nationally representative sample with an oversample of low-income respondents (the Survey of Economic Opportunity, or SEO sample). As children in PSID families start their own households they continue to participate in the PSID as new households (Holland 1986). In the late 1990s over 500 immigrant families were added to improve the national representation of the study. As of 2009 the PSID contains around 9,000 families (Killewald, Andreski and Schoeni 2011). Because the PSID follows families over time, it provides information on parents' occupational trajectories as well as children's educational and occupational attainment. The University of Michigan collected data annually until 1997 and biannually thereafter.

The high sample attrition in the PSID requires that I weight the data[2]. Almost half of the PSID sample individuals left the study between 1968 and 1989 (Fitzgerald, Gottschalk and Moffitt 1998a). While the attrition looks uneven by race and class, the between group differences are not statistically significant and the data remain representative, particularly when weighted (Fitzgerald, Gottschalk and Moffitt 1998a; Fitzgerald, Gottschalk and Moffitt 1998b). The longi-

[2] More information on the weighting scheme is available upon request from the author.

tudinal weights in the PSID are designed for analyses like mine, which take responses from multiple years and account for panel attrition. All of the descriptive statistics and models use the longitudinal weight for the year each R turned 25[3].

I focus on two samples, a full sample and a sibling sample[4]. The full sample includes all children born into a PSID family between 1968 and 1984, who have parent employment/unemployment data for at least 13 years between birth and age 20, and have educational attainment data at age 25. There are 3150 children from 1944 families in this "full sample." The "sibling sample," used in the fixed effects models, contains 850 sample individuals in 356 families where two or more siblings born between 1968 and 1984 experienced a head job loss. Table 1 contains the descriptive statistics for both of these samples and is discussed below.

Measures

I use the terms "parental unemployment" or "parent job loss" to refer to any situation in which a previously working parental head of household reports an *involuntary* end of employment. The PSID defines the "head" as the man in a two-parent household and only includes women when there is no man to be the head of household. While far from ideal, the PSID did not

[3] I have built a small correction into the weight to capture panel members who had data but do not have a valid weight at age 25, generally due to re-entry into the survey. Only 179 of the 3150 members of my sample had 0 or missing weights for the wave they turned 25. The 179 missing cases have weights taken from the following wave, or the prior wave, depending on availability.

[4] The results for a third sample, of individuals with siblings is presented in Appendix B, section four. The results for this sample are similar to those presented in the core of the paper.

consistently collect data on "wives" employment status until 1979. The definition of unemployment encompasses two primary reasons for parental unemployment: layoff (generally due to economic conditions, work place restructuring or business closure) or firing (when an employee is let go due to job performance, behavioral issues or workplace politics).[5]Laid off or fired employees generally have no choice as to when and whether they exit the company, and have often little warning.

There are three ways to operationalize parental unemployment: using the first spell of parental unemployment, creating a measure where children who experienced multiple job losses were included in all of the groups, or using the longest parental unemployment spell as the reference. I choose to operationalize the timing of parental unemployment by focusing on the first spell of unemployment for several reasons. Most importantly, that the results are substantively similar to the measure including all of the parental job losses a child experiences, and the first job loss measure has better model fit when measured by BIC'. (See Table 3 for the comparison of the models. Results for the alternative measures of parental unemployment are in Appendix B). Additionally, the first spell of unemployment serves as an important marker as it is the child's first exposure to the family level effects of unemployment, and prior research finds that an unemployment spell increases the likelihood of unemployment in the short term (Fallick 1996; Stevens 1997). Using the first spell of parental unemployment fits well with cumulative disadvantage theory since that theory is concerned with early life experiences. In order to prevent age at the time of parental unemployment for potentially serving as a proxy for number of spells

[5] Unfortunately, unless the firm closed, the PSID does not give detail about whether an individual was part of a larger layoff or was fired.

experienced by the child, I control for the number of parental unemployment spells the child experienced from birth to age 19.

In this paper, I compare three separate strategies for measuring timing. In most life course and developmental social-psychology research, the authors measures timing by dividing the ages of children into 5 categories roughly corresponding to developmental stage. These categories are young children (aged 0-5), older children (6-10), early adolescence (11-15), later adolescence (16-18) and did not experience parental unemployment (for the models which include this group it is the reference category) (e.g. Ermisch and Wright 1991; Ermisch, Francesconi and Pevalin 2004). These categories are potentially problematic as siblings aged 6 and 9 fall into the same category, eliminating some variation within families. Table A1 presents the model fit for both of these specifications along with continuous, cubic and quartic measures. To address this concern, and because they were the best fitting models, I use a categorical variable with a three-year age gradient instead, as the models have substantively similar results[6].

I measure educational attainment as years of education completed. This continuous measure ranges from 11 (less than HS) to 17 (more than a BA, top coded by the PSID)**.** Since siblings tend to be more similar (even accounting for unobserved family characteristics) than a random sample, measuring years of school completed will capture smaller differences in educational attainment that would otherwise be lost using a categorical analysis. For example, two sisters who both have attended "some college" have the same outcome in a categorical analysis, even though the older sister persisted for 3 years before leaving and the younger sister left after her first year.

[6] I include models using this specification in part 1 of Appendix B. The results do not differ substantially based on how age is measured.

Children in smaller families tend to have higher levels of educational attainment (Felmlee 1988; Rich and Kim 1999), although the levels of educational attainment are more heterogeneous in smaller families (Kuo and Hauser 1997). In the OLS regression portion of the paper, I include number of siblings as a control for family size. While important to note, research on family size does not provide any potential for predicting within family differences, only between family differences[7].

I also include a several controls. First, I control for gender in all of my models. This is particularly important as sisters in this cohort have higher educational attainment than their brothers do. In the OLS models, I also control for race, parent education (measured the same way as the dependent variable), year of birth[8], and female headed households at the time of the job loss. There is no need to control for these variables in the fixed effects equations since they measure family level characteristics.

Methods

I begin by presenting tables describing and figures illustrating the educational attainment of children who experience parental unemployment compared to those who do not, with a focus on age at the time of the job loss. Then I provide a base set of descriptive OLS regression analyses with clustered standard errors to correct for siblings correlations. Finally, I use the sibling

[7] I chose not to control for birth order because controlling for the oldest child may be over controlling as many of the older children at the time of the first job loss may indeed by oldest children. However, when the variable is included in the models the substantive results do not change.

[8] Year of Birth is not multi-collinear with age at parental unemployment or birth order and the OLS results are similar with and without this variable.

data more fully by using family fixed effects models to estimate the impact of parental unemployment timing on a child's adult educational attainment. All models are weighted.

Family fixed effects models allow me to control for unmeasured family effects to better tease out the specific effect of the age of the children at the time of parental unemployment (Allison 2009; Conley, Pfeiffer and Velez 2007). The fixed effects model controls for (time invariant) family-specific contexts, such as the duration of the unemployment spell, parental stress, financial strain, coping mechanisms and other unmeasured differences that vary between families. A fixed effects model is analogous to an OLS regression but with dummy variables for each family group (in this case with clustered standard errors, as discussed above)[9].

Thus:

$$Y = \beta_0 + \beta_1(Child\ Age) + \beta_{2\ldots7}(Controls) + \beta_n(Family\ Level\ Dummy) + u$$

Where:

Y= Educational attainment in years at age 25*;*

$\beta_1(Child\ Age)$ = The age of the child the first time he or she experiences a parental job loss*;*

$\beta_{2\ldots7}(Controls)$ = The child level covariates for each child. The control variables are gender, a dummy for oldest child in the family, year of birth, and number of job losses experienced;

$\beta_n(Family\ Level\ Dummy)$=The family level fixed effect which controls for differences between families; and

[9] For an in depth discussion of why I choose fixed effects models over random effects see Appendix B.

u =The residual or error, which is assumed to be normally distributed and uncorrelated with the family specific residual. This contains the variation caused by unobserved factors (anything not in the model).

Fixed effects models control for time invariant family contexts. Fixed effects models do not control for dynamic changes over time within families and thus do not perfectly control for family context, specifically dynamic changes (such as marital dissolution) within families. However, they do provide the best available controls for family specific contexts, allowing me to focus on the child's age at the time of job loss. Additionally, within-family differences remain, specifically children specific attributes such as intelligence, work ethic, personality etc.

RESULTS

TABLES 1 and 2 GO HERE

On average, individuals in the full sample attend school for thirteen and a half year before age 25. The children who did not experience a parental head losing a job attended, on average, 14.1 years of school, approximately one year of schooling more than children who had a parent lose his or her job at least once (with a mean of 13 years of school). Aside from that, the characteristics of the children are similar, with slightly more than half of the respondents being young women, one third are oldest siblings, and the mean year of birth is 1976. Forty-five percent of children who experienced parental job loss did so before the age of six, with a mean age of seven. In general the sample containing 857 siblings who had a parent lose his or her job (the right column), is similar to the sample of 1398 children with parental job loss in the main sample. There are some differences between the children's families. Children who have a parent lose

a job are slightly more likely to be black than white and to have parents with slightly lower educational attainment.

Table 2 focuses on the mean educational attainment for each of the groups described in Table 1. (Figure 1 represents this graphically.) Descriptively, there is little difference in the educational attainment of children for children under the age of 15 at the time of the first parental unemployment spell[10]. Importantly, there appears to be no relationship between age at time of parent job loss and educational attainment. This suggests that there is likely no relationship between age at the time of parental unemployment and that if there is a relationship, it is non-linear. Cumulative disadvantage theory predicts either a linear relationship or between age at parental job loss and educational attainment since the relationship between age at first parental job loss is not linear, this provides evidence that cumulative disadvantage theory likely does not explain differences in educational attainment for children who experience parental unemployment.

The descriptive results indicate that age/life course stage may not be a major reason for within-group difference in educational attainment and thus the family (fixed effects) results may not support the hypotheses about age and life course effects of parental job loss on children. It is important to continue examining the relationship between educational attainment and age at parental job loss because of the strong predictions of general life course theory.

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[10] An unweighted test of the mean differences (pwmean in stata) showed significant differences between children who did not experience a parental unemployment spell and those who did experience a parental unemployment spell. There was no significant difference in educational attainment for any group compared to any other based on age at the time of first parental unemployment for children who experienced parental unemployment. This test is only descriptive here since I used unweighted data.

TABLE 3 and FIGURE 1 about here

TABLE 4 GOES HERE

In table 3 I present the adjusted R^2 and BIC' for each OLS regression (Raftery 1995). This allows me to compare model fit across models. Adding age increases the adjusted r-squared values, (percentage of educational attainment explained) increases by .030 or .035, or 3 or 3.5 percentage points. The BIC' measure of model fit suggests that age at the time of first parental unemployment improves model fit for both the OLS and sibling fixed effects models compared to models with only controls. The fit statistics suggest that including age at the time of first parental unemployment improves the overall model fit of educational attainment. In the next few paragraphs, I examine the models in more detail.

TABLES 4 and 5 GO HERE

Table 4 includes the results of traditional OLS regressions of educational attainment regressed on age at the time of parental job loss and controls for children's and family characteristics. The left columns in Table 4 compare child age at parental job loss to children whose parents never experienced unemployment. Prior to adding controls, experiencing any parental job loss predicts 1.2 years less educational attainment for children aged 9-11 and 12-14, compared with children who do not experience job loss. In these full sample models (on the left) children who did not experience a parental job loss are the reference category. Since prior research has shown

that parental unemployment is associated with lower educational attainment, in these full OLS models it is not surprising that age at job loss is significant since the comparison group are children with no parental job loss. After adding controls, age at any parental job loss shows smaller differences in attainment. After controlling for child gender, age, year of birth, number of job losses experienced[11], parental education and family race the differences age at job loss is no longer a significant predictor of educational attainment

The right columns of Table 4 present the educational attainment of children (with siblings in the sample), who experienced parental unemployment. These models show that there is no statistically significant difference in educational attainment based on age at the time of parental unemployment.

Table 5 provides the results of the fixed effects regression equations of age at the time of job loss for children within families. Age at the time of parental unemployment generally does not have a statistically significant effect on educational attainment in years for siblings[12]. Gender is the only consistently significant predictor of educational attainment in the model, indicating that on average sisters in the sample attended school for a .4 of a year more than their brothers.

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[11] The inclusion of number of job losses may cause concern about multicolinearity in my model. After examining the variable inflation factor (using estat vif in Stata), I find that this variable does not cause issues in the model. Conceptually I include number of job losses as not to conflate age at the time of parental unemployment with experiencing parental unemployment at all.

[12] These results are consistent using alternative measures of age at the time of parental unemployment. See the appendices for more details.

The fixed effects findings are this consistent with the OLS findings that age at parental unemployment is not a primary predictor of educational attainment. All of the models describe about 73 percent of the within-family variation in educational attainment. Unfortunately, using the PSID, I do not have access to individual level social-psychological characteristics, such as ability or achievement (prior to job loss), motivation, or personality measures.

DISCUSSION

Life course and cumulative disadvantage theories strongly predict that the timing of parental unemployment in a child's life should moderate children's educational attainment. That is, some of the within group difference in educational attainment for children who have a parent lose his or her job is likely related to the development of the child, of which age is the primary measure. Cumulative disadvantage specifies that younger children at the time of parental unemployment experience more detrimental consequences in the long-term. Evidence for cumulative disadvantage theory would come from a linear or non-linear relationship where younger children at parental unemployment have lower educational attainment.

Counter to both life course and cumulative disadvantage theories, my findings suggest that for children in families who have experienced a parent's job loss, age at the time of the job loss does not moderate their educational attainment compared to their siblings. Regardless how I defined age at parental unemployment—using linear, four or 7 age categories, first or any job loss (see appendices for details)—the models show little to no effect of age at parental unemployment on siblings. The adjusted R-squared of the models, or the percent of variation described by each model and "corrected" for the number of variables in the models—is generally not higher for the age models than for models that only include the control variables. The "best"

model, the seven-category measure of age first parental unemployment spell improves model fit by .004, or .4 percentage points, a very small amount.

In addition to the theoretical implications, my results are interesting for several reasons. First the finding that age at parental unemployment is not significant indicates that either there are few to no differences in the long term educational impacts of parental unemployment that while the net association between age at parental unemployment and education is similar, but the underlying processes differ. Future research may want to address the mechanisms by which parental unemployment harms educational attainment clarify if these mechanisms vary (by age).

Several less established perspectives are consistent with the possibility that the net association between age at parental job loss and educational attainment is similar although the underlying processes are likely different. Qualitative findings by Conley (2004) and Newman (1988) suggest that older children at the time of job loss or other negative family changes experience more of a negative impact because of their ability to take on more responsibility in the family. When a parent loses his or her job, teenagers may be pressured to take on adult roles inside and outside the home, and often voluntarily forgo higher education to enter the labor market to help their families (Coelli 2011). Thus, the process of educational disadvantage for children who experience a parental job loss may be distinct by age, even if the long-term educational consequences are the same.

My analyses are limited by a lack of information on children's abilities, achievement, and social-psychological characteristics prior to and post unemployment. This limitation means I cannot control for individual differences between children, although that would likely not change my results. The small sample size (857 children in 359 families, with half of them under 5 at the

time of the first job loss) may also be a reason why the models are not significant, but this does not explain the low R-squared or model-fit values.

Other factors, aside from life course and age, may be useful in examining the association between parent job loss and children's lower educational attainment. One of these is similar to research on poverty and educational attainment in that it addresses the duration and number of unemployment spells. I will explore this further in future work. In future research I will examine if family socioeconomic status prior to the unemployment spell focusing on family poverty status and parent education moderate the impact of parental unemployment on children's long-term educational attainment.

APPENDIX A: FULL MODELS

Appendix A contains the full OLS models summarized in Table 3 and discussed in the main body of the paper.

APPENDIX B: ALTERNATIVE MODEL SPECIFICATIONS/ROBUSTNESS CHECKS

This appendix contains a series of alternative model specifications that serve as robustness checks of the models in the main paper. None of these models changes the substantive results, although the point estimates are slightly different. Section 1 discusses four alternatives for how to measure age at parental job loss and provides the results testing these models. The second section presents random effects (RE) versions of the main models in the paper and explains why fixed effects are more appropriate models for this paper. For each of these sections I provide a short description of the robustness check, a series of tables presenting the results, and a very short discussion of the results.

TABLE B.1 GOES HERE

Section 1: Alternative Age Measures

In the main paper, I operationalize age at parental job loss as a categorical measure of the child's age the first time a parental head of household loses his or her job. The first job loss measure is a series of seven dummy variables measuring age at first job loss where each child is counted once. Here I discuss three alternative ways to measure age at parental job loss: a 5-category model of age at first job loss, age at any job loss, and continuous measures (Table B.1 presents the descriptive statistics). I discuss each of these in detail, then present the results (Tables B.2-B.6) including comparing the model fit (Table B.2).

Age at first job loss: 5-category model

Prior life course and developmental social psychology research generally measures timing by dividing child ages into 5 categories roughly corresponding to developmental stage. These categories are young children (aged 0-5), older children (6-10), early adolescence (11-15), and

later adolescence (16-19) (e.g. Ermisch and Wright 1991; Ermisch, Francesconi and Pevalin 2004). In this paper, these categories are potentially problematic as siblings aged 6 and 9 fall into the same category, eliminating some variation within families. Figure B.1 and Table B.1. Present the mean years of education for children using this measure and Table B.3. presents the OLS regression results for these models.

FIGURE B.1 GOES HERE

Age at any job loss

The cumulative measure summarizes at what age(s) a child experiences a parental job loss considering all unemployment spells. For this measure, I use a series of dummy variables where children are coded as 1 in ALL age categories in which they experienced parental unemployment. This operationalization allows children with multiple exposures to job loss to be counted as many times as they experienced a parent with a job loss. Table B. 4 presents the OLS regression results for these models.

For example, two brothers Sam and Bill's mother (the head of household) loses her job twice, once when they boy are two and five and again when they are 10 and 13. When measuring the first job loss, Sam is coded as a 1 in the 0-2 category and 0 for all other age categories. Likewise, Bill is coded 1 in the 3-5 age category and 0 in all of the others. Under the any job loss measure, Sam is coded as a 1 in both the 0-2 and 9-11 categories and a 0 in the other categories. Bill would be coded as a 1 in the 3-5 and 12-14 category. Thus, this measure captures all of the age ranges when a child experiences a parental job loss. Figure B.2 and Table B.1 present the mean years of education for children using this measure.

FIGURE B.2 GOES HERE

A continuous measure of age

Alternatively, utilizing age as a continuous variable, including a square and a cubic term, allows for finer grained distinctions in the data while also allowing for non-linear relationships. It is likely that the linear/square/and cubic terms may not capture the true shape of the distribution and thus not be very useful. Figure B.1.3 illustrates this challenge: there is no strong linear trend.

FIGURE B.3 GOES HERE

Choosing a measure

Like figure 1 in the paper. Figures B.1 through B.3 show children's mean educational attainment by age at the time of the first parental job loss. Figure B.1, presents the mean educational attainment using a continuous measure (each age) of age at parental unemployment. The trends displayed in the pattern are not statistically significant, nor are they linear for boys of girls. Similar to Figure 1, Figure B.2 shows educational attainment by age category, also with no trend.

TABLE B.2 GOES HERE

In the main body of the paper, I present a 7-category model of child age at first job loss. In addition to the reasons listed in the main text, I chose to use first job loss because the results are substantively similar and it is simpler to discuss the first job loss than any job loss. For the final paper, I choose to use the seven-category model for three related reasons. First, they have better model fit for the fully controlled OLS model based on BIC' than the larger age ranges or a continuous measure (see Table B.2). Second, the descriptive statistics indicate that this age at parental job loss is not a continuous predictor (see Figure B.1). The sample size is too small to include a dummy at each age, so I need to group the ages. While I need groupings, smaller age

ranges preserve a larger amount of the variation between children. By breaking age into 3 year age groupings instead of 5 year groupings fewer siblings are likely to be in the same age category at the time of the first parental job loss. Finally (and most importantly), as the models presented in Tables B.1.3-B.1.5 show, the substantive results are equivalent so the models are interchangeable.

TABLES B.1.3-B.1.5 GO HERE

Section 2: Random Effects Models

Over the course of this project, it has been suggested that random effects models may be preferable to fixed effects models. While I conceptually prefer fixed effects models, I also show results of random effects models and Hausman tests comparing the fixed and random effects models. Consistent with prior robustness checks the results of random effects models are consistent with the results from the models presented in the paper. More importantly, the Hausman test indicates that the fixed effects model is mathematically more appropriate than the random effects model

Table 1: Descriptive Statistics for Key Variables

	Full Sample			Siblings and
	No Job Loss	Job Loss	All	Job Loss
Educational Attainment				
Years of Ed	14.1	13.0	13.6	13.0
sd	1.9	1.7	1.9	1.7
Age at First Job Loss (categorical)				
[None]	100.0	0.0	57.8	0.0
Age 0-2	0.0	22.6	9.5	21.6
Age 3-5	0.0	22.0	9.3	22.2
Age 6-8	0.0	16.5	7.0	17.8
Age 9-11	0.0	13.5	5.7	14.9
Age 12-14	0.0	12.2	5.2	12.6
Age 15-19	0.0	13.3	3.5	11.0
Gender				
Men	51.6	50.4	51.1	50.1
[Women]	48.4	49.6	48.9	50.0
Year of Birth				
Year Born	1976	1976	1976	1976
sd	5.0	5.0	4.7	4.7
Number of Job Losses from Age 0-18				
Number of Job Losses	0.0	1.8	0.8	1.9
sd	0.0	1.1	1.1	1.1
Sibship Size				
Number of Siblings in Family	2.1	2.2	2.2	2.4
sd	1.8	1.6	1.7	1.4
Parent Educaton				
Years of Ed	14.1	13.0	13.6	12.9
sd	2.1	1.7	2.1	1.6
Family Race				
[White]	80.0	76.9	78.7	77.7
Black	14.3	17.5	15.7	16.0
Other	5.6	5.6	5.6	6.3
Parent Who Lost Job				
[None]	100.0	0.0	57.8	--
Father	0.0	80.8	34.1	84.0
Mother	0.0	19.2	8.1	16.0
N				
Families	1,126	900	1,938	359
Children	1,754	1,398	3,152	857

Notes: The left columns present data for individuals born into the PSID between 1968 and 1984, with educational attainment measured at age 25 or 26. These are weighted samples using listwise deletion.

Table 2: Educational Attainment at Age 25 by Other Characteristics

	Full Sample			Experienced Head Job Loss w/Sib in Sample		
	Mean	SD	Percent	Mean	SD	Percent
Gender						
Men	13.4	1.8	51.1	12.7	1.5	50.1
Women	13.8	1.9	48.9	13.2	1.8	50.0
Birth Order						
Not Oldest Sibling	13.6	1.9	65.7	13.0	1.7	67.2
Oldest Sibling	13.7	1.9	34.3	12.9	1.6	32.8
Number of Siblings						
0	13.7	1.9	5.3			
1	14.0	1.8	33.9	13.2	1.7	27.4
2	13.6	1.9	31.4	12.8	1.6	33.6
3	13.3	1.9	18.0	12.8	1.8	23.2
4	13.2	1.8	5.5	13.4	1.7	8.9
5 or more	12.8	1.5	5.9	12.8	1.4	4.7
Age at First Job Loss						
[None]	14.1	1.9	57.8			
Age 0-2	13.2	1.8	9.5	13.0	1.8	21.6
Age 3-5	12.9	1.7	9.3	12.9	1.7	22.2
Age 6-8	12.9	1.6	7.0	12.9	1.6	17.8
Age 9-11	12.8	1.5	5.7	12.8	1.3	14.9
Age 12-14	12.8	1.7	5.2	12.9	1.7	12.6
Age 15-19	13.5	1.8	3.5	13.4	1.8	11.0
Number of Job Losses						
[None]	14.1	1.9	58			
1	13.4	1.8	21.9	13.3	1.8	46.2
2	12.8	1.6	12.1	12.9	1.6	30.7
3	12.5	1.4	5.3	12.6	1.4	15.0
4 or more	12.3	1.4	3.1	12.2	1.3	8.1
N						
Children			3152			857
Families			1938			359

Notes: This table presents the years of education completed for individuals born into the PSID between 1968 and 1984, with educational attainment measured at age 25 or 26. These samples use listwise deletion, and are weighted.

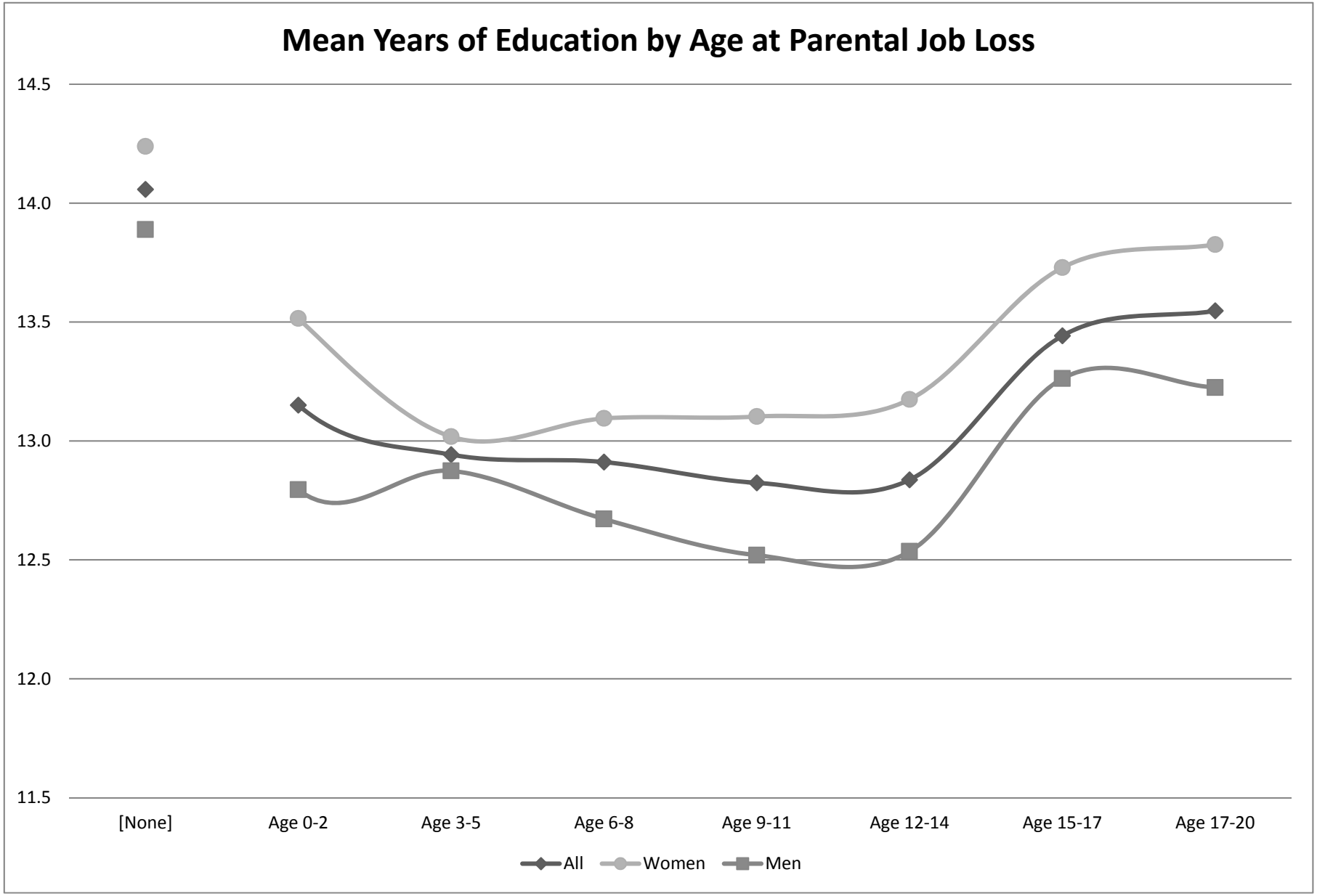
Mean Years of Education by Age at Parental Job Loss
14.5
14.0
13.5
13.0
12.5
12.0
11.5
[None]
Age 0-2
Age 3-5
Age 6-8
Age 9-11
Age 12-14
Age 15-17
Age 17-20
All
Women
Men

Table 3. Fit Statistics for OLS Models of Age at Parental Unemployment

	Full Model		***Siblings Only***	
	R-Squared	*BIC'*	*R-Squared*	*BIC'*
Controls Only				
Sex and Ever Had JL	0.083	-840	0.028	-32
Sex and Number of JL	0.091	-924	0.067	-156
Child Controls	0.098	-1498	0.071	-252
Family Controls	0.313	-7220	0.279	-1816
Family and Child Controls	**0.343**	**-14134**	**0.314**	**-3368**
Age and Controls				
Age at JL	0.076	-2334	0.006	-66
Age and Child Controls	0.107	-5023	0.278	-2930
Age and Family Controls	0.327	-19108	0.080	-1042
Full Model	**0.344**	**-26534**	**0.315**	**-5578**

Notes: Numbers in Bold represent the 2 best fitting models in each column. Full models presented in Tables A1 and A2. All OLS regressions run using standard errors clustered by family. BIC' and Adjusted R-squared calculated as per Raftery (1995). All sample members born into PSID families between 1968 and 1984. These results reflect the use of longitudinal weights and listwise deletion.

Table 4. Age at Job loss and Seleted Controls for Full and Sibling Samples

	Full Sample (n=3152)				Sibling Sample (N=857)			
	Age at JL	**Age and Child Controls**	**Age and Family Controls**	**Full Model**	**Age at JL**	**Age and Child Controls**	**Age and Family Controls**	**Full Model**
Age at Parent Job Loss [None]								
Age 0-2	-0.907(***)	-0.143	-0.342(**)	0.204	0.139	0.301	0.156	0.253
	[0.149]	[0.195]	[0.130]	[0.167]	[0.229]	[0.216]	[0.191]	[0.184]
Age 3-5	-1.115(***)	-0.455(*)	-0.518(***)	-0.052	Reference			
	[0.142]	[0.184]	[0.120]	[0.149]				
Age 6-8	-1.147(***)	-0.586(**)	-0.513(***)	-0.129	-0.009	-0.183	0.054	-0.058
	[0.161]	[0.192]	[0.138]	[0.161]	[0.212]	[0.202]	[0.172]	[0.169]
Age 9-11	-1.234(***)	-0.702(***)	-0.539(***)	-0.168	-0.129	-0.212	0.034	-0.008
	[0.156]	[0.170]	[0.131]	[0.143]	[0.222]	[0.206]	[0.163]	[0.159]
Age 12-14	-1.221(***)	-0.663(**)	-0.644(***)	-0.274	-0.036	-0.209	-0.074	-0.180
	[0.190]	[0.206]	[0.157]	[0.174]	[0.293]	[0.285]	[0.223]	[0.219]
Age 15-19	-0.576(**)	-0.136	-0.332	0.057	0.526	0.303	0.130	0.033
	[0.195]	[0.203]	[0.175]	[0.221]	[0.322]	[0.328]	[0.256]	[0.266]
Gender [Women]								
Men		-0.400(***)		-0.375(***)		-0.584(***)		-0.562(***)
		[0.078]		[0.066]		[0.132]		[0.113]
Num Head JL to age 20		-0.337(***)		-0.243(***)		-0.329(***)		-0.179(**)
		[0.051]		[0.047]		[0.069]		[0.057]
Parental Head [Father]								
Mother							-0.219	-0.305
							[0.177]	[0.186]
Constant	14.058(***)	-42.701(*)	7.834(***)	-11.361	12.888(***)	-34.028	6.354(***)	-2.132
	[0.066]	[17.090]	[0.309]	[14.367]	[0.166]	[35.256]	[0.583]	[29.116]
df	6	9	10	13	5	8	10	13
Observations	3,152	3,152	3,152	3,152	857	857	857	857
R-squared	0.078	0.110	0.329	0.347	0.012	0.285	0.091	0.325
Adjusted R-S	0.076	0.107	0.327	0.344	0.006	0.278	0.080	0.315
BIC'	-2334	-5023	-19108	-26534	-66	-2930	-1042	-5578

Notes: All OLS regressions run using standard errors clustered by family. BIC' and Adjusted R-squared calculated as per Raftery (1995). All sample members born into PSID families between 1968 and 1984. These results reflect the use of longitudinal weights and listwise deletion. Full models presented in Tables A1 and A2. *** p<0.001, ** p<0.01, * p<0.05

Table 5. Sibling Fixed Effects Coefficients for Age and Sex at Parent Job Loss

	Gender	Age	Age and Gender
Gender [Women]			
Men	-0.412(**)		-0.416(**)
	[0.132]		[0.134]
Age at Parent Job Loss [Age 3-5]			
Age 0-2		0.231	0.254
		[0.211]	[0.212]
Age 6-8		0.1	0.059
		[0.176]	[0.175]
Age 9-11		0.053	0.077
		[0.222]	[0.216]
Age 12-14		-0.122	-0.107
		[0.256]	[0.247]
Age 15-19		-0.265	-0.228
		[0.357]	[0.351]
Constant	13.156(***)	12.919(***)	13.120(***)
	[0.078]	[0.135]	[0.135]
N			
Children	857	857	857
Families	359	359	359
R-squared	0.728	0.722	0.731
BIC	2214	2261	2239

Notes: Fixed effects regression models run using the areg command in Stata. All sample members born into PSID families between 1968 and 1984. These results reflect the use of longitudinal weights and listwise deletion. *** p<0.001, ** p<0.01, * p<0.05

Table A1. Comparing Model Fit for 5 Different Operationalizations of Age at Parental Job Loss

	Full Sample		**Sibling Sample**	
	Adjusted R-Squared	**BIC'**	**Adjusted R-Squared**	**BIC'**
Child Controls				
Controls Only	0.098	-1498	0.071	-252
Age at First Job Loss (7 Cat)	0.107	**-5023**	0.278	-2930
Age at First Job Loss (5 Cat)	0.106	-3831	0.081	-596
Age at Any Job Loss (7 Cat)	0.100	-4685	**0.279**	**-3693**
Age Squared at First Job Loss	**0.108**	-2764	0.085	-515
Age Cubic at First Job Loss	**0.108**	-3349	0.084	-618
Family Controls				
Controls Only	0.313	-7220	**0.279**	-1816
Age at First Job Loss (7 Cat)	0.327	-19108	0.080	-1042
Age at First Job Loss (5 Cat)	0.327	-15287	0.278	**-2930**
Age at Any Job Loss (7 Cat)	**0.329**	**-19251**	0.069	-809
Age Squared at First Job Loss	0.327	-11422	0.278	-2553
Age Cubic at First Job Loss	0.328	-13376	0.278	-2553
Family and Child Controls (Full Model)				
Controls Only	0.343	-14134	0.314	-3368
Age at First Job Loss (7 Cat)	**0.344**	**-26534**	**0.315**	**-5578**
Age at First Job Loss (5 Cat)	**0.344**	-22371	0.314	-4684
Age at Any Job Loss (7 Cat)	**0.344**	**-26534**	0.311	-5494
Age Squared at First Job Loss	**0.344**	-18304	**0.315**	-4258
Age Cubic at First Job Loss	**0.344**	-20337	**0.315**	-4258
Age Measures Only (Cannot compare across models)				
Age at First Job Loss (7 Cat)	0.076	-2334	0.006	-66
Age at First Job Loss (5 Cat)	0.076	-1535	0.008	-36
Age at Any Job Loss (7 Cat)	0.074	-2271	0.013	-105
Age at First Job Loss (continuous)	0.034	-166	0.001	-2
Age Squared at First Job Loss	0.067	-675	0.010	-26
Age Cubic at First Job Loss	0.072	-1089	0.009	-40

Notes: Adjusted R-squared and BIC' calculated as per Raftery (1995). Bolded values are the best fitting values in comparison to the "controls only" model. Complete models can be found in Tables A.2, A.3., and B.2-B.5.

Table A2: Full Models for the Full Sample (Table 4)

	Base Model	Gender & Num JL	Child	Family	Family & Child	Age at JL	Age & Child	Age & Family	Full Model
Age at Parent Job Loss [None]									
Age 0-2						-0.907(***)	-0.143	-0.342(**)	0.204
						[0.149]	[0.195]	[0.130]	[0.167]
Age 3-5						-1.115(***)	-0.455(*)	-0.518(***)	-0.052
						[0.142]	[0.184]	[0.120]	[0.149]
Age 6-8						-1.147(***)	-0.586(**)	-0.513(***)	-0.129
						[0.161]	[0.192]	[0.138]	[0.161]
Age 9-11						-1.234(***)	-0.702(***)	-0.539(***)	-0.168
						[0.156]	[0.170]	[0.131]	[0.143]
Age 12-14						-1.221(***)	-0.663(**)	-0.644(***)	-0.274
						[0.190]	[0.206]	[0.157]	[0.174]
Age 15-19						-0.576(**)	-0.136	-0.332	0.057
						[0.195]	[0.203]	[0.175]	[0.221]
Child Level Controls									
Parent Job Loss [No Job Loss]									
Job Loss	-1.036(***)								
	[0.095]								
Num Head JL to age 20		-0.475(***)	-0.472(***)		-0.243(***)		-0.337(***)		-0.243(***)
		[0.035]	[0.035]		[0.032]		[0.051]		[0.047]
Gender [Women]									
Men	-0.401(***)	-0.389(***)	-0.388(***)		-0.371(***)		-0.400(***)		-0.375(***)
	[0.079]	[0.079]	[0.079]		[0.067]		[0.078]		[0.066]
Year of Birth			0.030(***)		0.011		0.029(***)		0.010
			[0.009]		[0.007]		[0.009]		[0.007]
Family Level Controls									
Highest Parent Ed (median)				0.490(***)	0.451(***)			0.456(***)	0.448(***)
				[0.020]	[0.020]			[0.020]	[0.020]
Family Race [White]									
Black/African American				-0.258(*)	-0.247(*)			-0.273(**)	-0.246(*)
				[0.104]	[0.100]			[0.099]	[0.099]
Hispanic, Asian, and Other				0.066	0.124			0.033	0.099
				[0.160]	[0.146]			[0.149]	[0.148]
Number of siblings				-0.099(**)	-0.100(**)			-0.095(**)	-0.098(**)
				[0.033]	[0.032]			[0.032]	[0.032]
Constant	14.265(***)	14.183(***)	-44.467(**)	7.177(***)	-14.147	14.058(***)	-42.701(*)	7.834(***)	-11.361
	[0.077]	[0.072]	[17.075]	[0.290]	[14.194]	[0.066]	[17.090]	[0.309]	[14.367]
df	2	2	3	4	7	6	9	10	13
Observations	3,152	3,152	3,152	3,152	3,152	3,152	3,152	3,152	3,152
R-squared	0.084	0.092	0.099	0.314	0.344	0.078	0.110	0.329	0.347
Adjusted R-S	0.083	0.091	0.098	0.313	0.343	0.076	0.107	0.327	0.344
BIC'	-840	-924	-1498	-7220	-14134	-2334	-5023	-19108	-26534
BIC' Compared to Control		-84	-573		-12636		-2689	-16775	-24200
Model compared		1	2		3		6	6	6

Notes: All OLS regressions run using standard errors clustered by family. BIC' and Adjusted R-squared calculated as per Raftery (1995). All sample members born into PSID families between 1968 and 1984. These results reflect the use of longitudinal weights and listwise deletion. *** p<0.001, ** p<0.01, * p<0.05

Table A3: Full Models for the Sibling Sample (Table 4)

	Gender	Gender & Num JL	Child	Family	Family & Child	Age at JL	Age & Child	Age & Family	Full Model
Age at Parent Job Loss [Age 3-5]									
Age 0-2						0.139	0.301	0.156	0.253
						[0.229]	[0.216]	[0.191]	[0.184]
Age 6-8						-0.009	-0.183	0.054	-0.058
						[0.212]	[0.202]	[0.172]	[0.169]
Age 9-11						-0.129	-0.212	0.034	-0.008
						[0.222]	[0.206]	[0.163]	[0.159]
Age 12-14						-0.036	-0.209	-0.074	-0.180
						[0.293]	[0.285]	[0.223]	[0.219]
Age 15-19						0.526	0.303	0.130	0.033
						[0.322]	[0.328]	[0.256]	[0.266]
Child Level Controls									
Num Head JL to age 20		-0.306(***)	-0.299(***)		-0.143(*)		-0.329(***)		-0.179(**)
		[0.064]	[0.065]		[0.056]		[0.069]		[0.057]
Gender [Wome									
Male	-0.573(***)	-0.537(***)	-0.555(***)		-0.549(***)		-0.584(***)		-0.562(***)
	[0.133]	[0.133]	[0.134]		[0.113]		[0.132]		[0.113]
Year of Birth			0.025		0.008		0.024		0.005
			[0.018]		[0.014]		[0.018]		[0.015]
Family Level Controls									
Highest Paren				0.516(***)	0.494(***)			0.514(***)	0.489(***)
				[0.042]	[0.043]			[0.041]	[0.042]
Family Race [White]									
Black/Afric				-0.281	-0.183			-0.289	-0.195
				[0.155]	[0.154]			[0.156]	[0.157]
Hispanic, A				-0.299	-0.211			-0.309	-0.236
				[0.227]	[0.237]			[0.241]	[0.252]
Number of sibli				0.011	-0.015			0.013	-0.018
				[0.060]	[0.057]			[0.061]	[0.059]
Which Parent is Head [Father]									
Mother				-0.240	-0.342			-0.219	-0.305
				[0.177]	[0.183]			[0.177]	[0.186]
Constant	13.237(***)	13.798(***)	-36.309	6.391(***)	-9.274	12.888(***)	-34.028	6.354(***)	-2.132
	[0.126]	[0.194]	[36.125]	[0.553]	[28.314]	[0.166]	[35.256]	[0.583]	[29.116]
df	1	2	3	5	8	5	8	10	13
Observations	857	857	857	857	857	857	857	857	857
R-squared	0.029	0.069	0.074	0.283	0.320	0.012	0.285	0.091	0.325
Adjusted R-Sc	0.028	0.067	0.071	0.279	0.314	0.006	0.278	0.080	0.315
BIC'	-32	-156	-252	-1816	-3368	-66	-2930	-1042	-5578
BIC' Compared to Controls		-124	-96		-1552		-2864	-976	-5512
Model compared		1	2		3		6	6	6

Notes: All OLS regressions run using standard errors clustered by family. BIC' and Adjusted R-squared calculated as per Raftery (1995). All sample members expereineced a parental job loss, were born into PSID families between 1968 and 1984

with at least one sibling born durring those years . These results reflect the use of longitudinal weights and listwise deletion.
*** p<0.001, ** p<0.01, * p<0.05

Table B.1: Descriptive Statistics for 3 Measures of Age at Parental Job Loss

	Full Sample				Experienced Head Job Loss w/Sib in Sample			
	Mean	SD	Percent	N	Mean	SD	Percent	N
7 Category								
[None]	14.1	1.9	57.8	1821				
Age 0-2	13.2	1.8	9.5	301	13.0	1.8	21.6	185
Age 3-5	12.9	1.7	9.3	292	12.9	1.7	22.2	190
Age 6-8	12.9	1.6	7.0	219	12.9	1.6	17.8	153
Age 9-11	12.8	1.5	5.7	180	12.8	1.3	14.9	127
Age 12-14	12.8	1.7	5.2	162	12.9	1.7	12.6	108
Age 15-19	13.5	1.8	3.5	177	13.4	1.8	11.0	94
5 Category								
[None]	14.1	1.9	57.8	1821				
Age 0-5	13.0	1.7	18.8	593	13.0	1.7	43.8	375
Age 6-10	12.9	1.6	11.4	360	12.8	1.5	29.3	251
Age 11-15	12.9	1.6	7.7	243	12.9	1.7	18.9	162
Age 16-20	13.6	1.9	4.3	136	13.5	1.9	8.1	69
Age at ANY job Loss (Does not sum to 100%)								
[None]	14.1	1.9	57.8	1821				
Age 0-2	13.0	1.7	9.6	302	13.0	1.8	21.7	186
Age 3-5	12.9	1.6	12.2	385	12.8	1.6	29.8	256
Age 6-8	12.9	1.7	10.8	341	12.9	1.7	28.5	244
Age 9-11	12.7	1.5	9.9	312	12.7	1.4	26.6	228
Age 12-14	12.8	1.6	8.8	277	12.8	1.7	22.5	193
Age 15-19	13.1	1.8	10.2	322	13.0	1.8	23.4	200
N								
Children				3152				857
Families								

Notes: This table presents the years of education completed for individuals born into the PSID between 1968 and 1984, with educational attainment measured at age 25 or 26. These samples use listwise deletion, where the parental head's employment status was available for at least 10 years.

Figure B.1.1. Mean Educational Attainment by Age at First Parental Job Loss, 5 Category

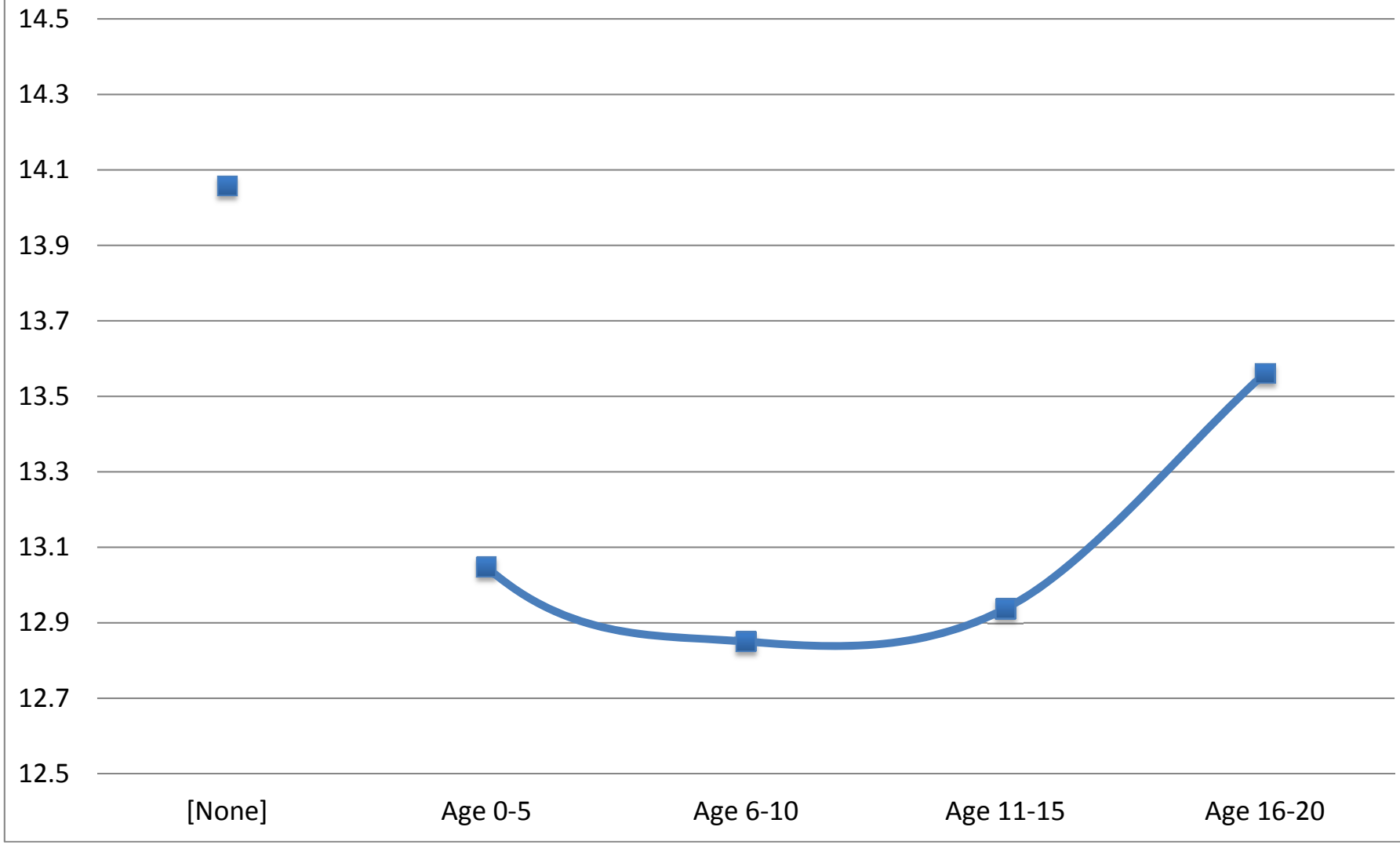

Figure B.1.1. Mean Educational Attainment by Age at ANY Parental Job Loss

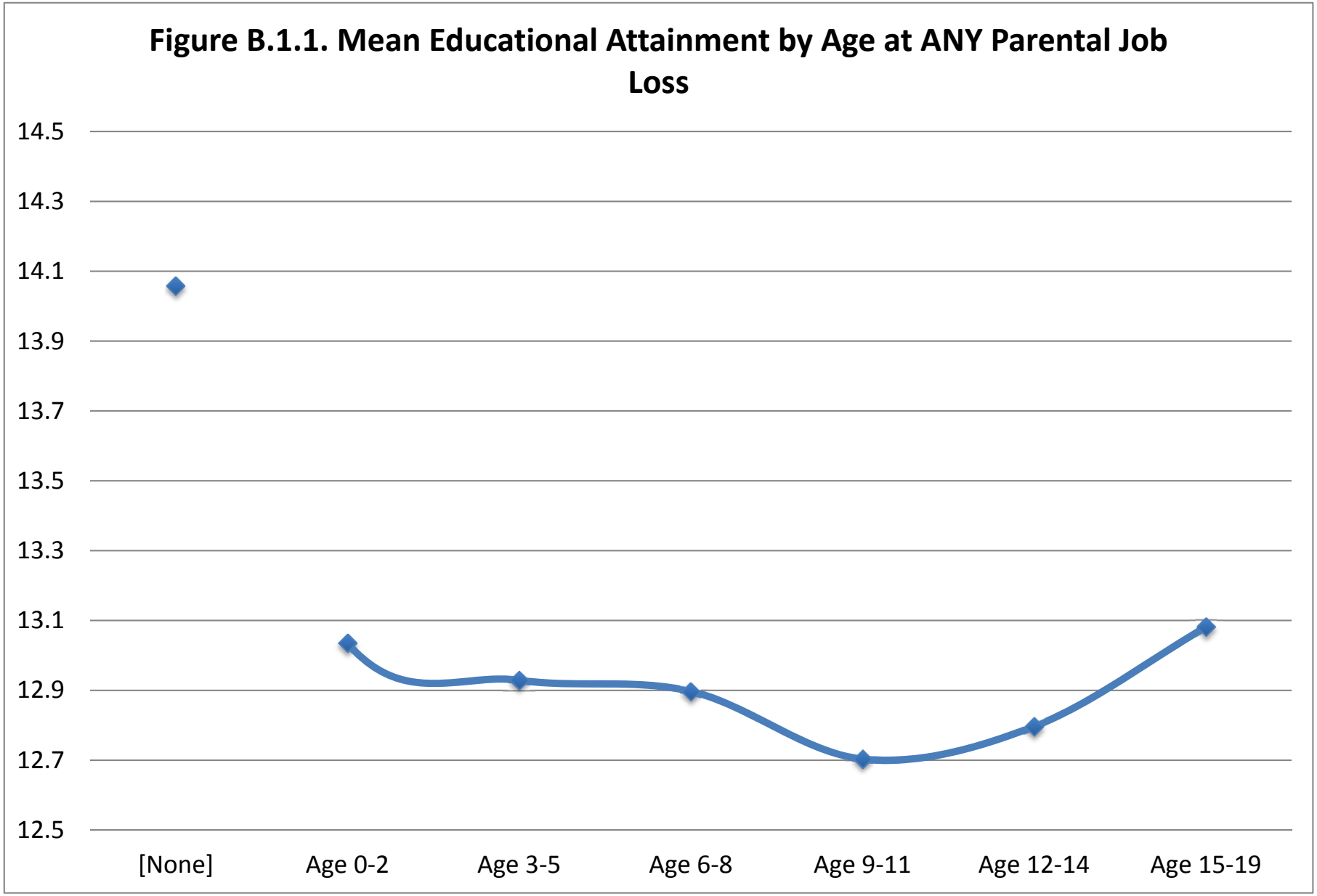

Figure B.1.3. Mean Educational Attainment by Age at First Parental Job Loss

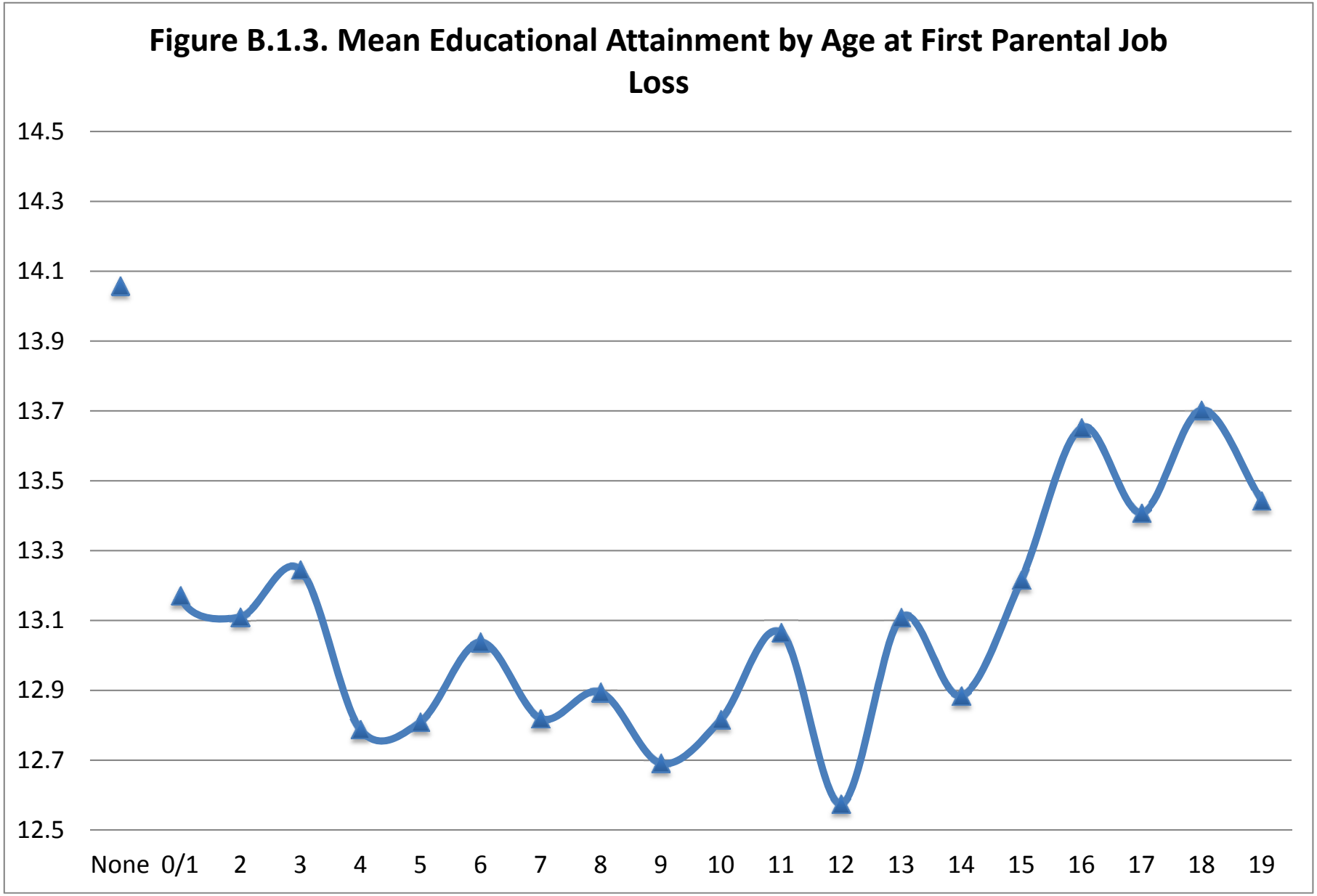

Table B.2. OLS Regression Results for the 5 category measure of age

	Full Sample				Sibling Sample			
	Age only	Child Controls	Family Controls	Full Model	Age only	Child Controls	Family Controls	Full Model
Age at Parent Job Loss								
Age 0-5	-1.010(***)	-0.326	-0.429(***)	0.052				
	[0.116]	[0.168]	[0.099]	[0.139]				
Age 6-10	-1.208(***)	-0.680(***)	-0.533(***)	-0.174	-0.159	-0.366(*)	-0.035	-0.163
	[0.129]	[0.161]	[0.112]	[0.135]	[0.165]	[0.157]	[0.138]	[0.134]
Age 11-15	-1.120(***)	-0.590(***)	-0.604(***)	-0.250	-0.011	-0.246	-0.136	-0.257
	[0.162]	[0.176]	[0.128]	[0.145]	[0.237]	[0.233]	[0.184]	[0.185]
Age 16+	-0.497(*)	-0.100	-0.257	0.009	0.533	0.251	0.153	0.030
	[0.224]	[0.228]	[0.209]	[0.213]	[0.345]	[0.349]	[0.296]	[0.307]
Child Level Controls								
Gender [Women]								
Men		-0.400(***)		-0.373(***)		-0.582(***)		-0.557(***)
		[0.078]		[0.066]		[0.132]		[0.112]
Num Head J		-0.324(***)		-0.231(***)		-0.315(***)		-0.164(**)
		[0.050]		[0.047]		[0.068]		[0.057]
Year of Birth		0.029(***)		0.010		0.025		0.006
		[0.009]		[0.007]		[0.018]		[0.015]
Family Controls								
Highest Pare			0.456(***)	0.447(***)			0.514(***)	0.489(***)
			[0.020]	[0.020]			[0.042]	[0.043]
Family Race								
Black			-0.277(**)	-0.254(*)			-0.293	-0.202
			[0.099]	[0.099]			[0.159]	[0.159]
Hispanic, As			0.032	0.093			-0.316	-0.252
			[0.149]	[0.148]			[0.238]	[0.249]
Number of s			-0.094(**)	-0.097(**)			0.014	-0.014
			[0.032]	[0.032]			[0.061]	[0.058]
Parental Head at 1st Job Loss [Father]								
Mother							-0.220	-0.306
							[0.180]	[0.189]
Constant	14.058(***)	-43.334(*)	7.832(***)	-11.634	12.956(***)	-35.907	6.439(***)	-3.889
	[0.066]	[17.074]	[0.308]	[14.338]	[0.128]	[35.275]	[0.565]	[29.150]
df	4	7	8	11	3	6	8	11
N	3,152	3,152	3,152	3,152	857	857	857	857
R-squared	0.077	0.108	0.329	0.346	0.011	0.087	0.285	0.323
Adjusted R-Sq	0.076	0.106	0.327	0.344	0.008	0.081	0.278	0.314
BIC'	-1535	-3831	-15287	-22371	-36	-596	-2930	-4684

Notes for Tables B.1.3-B.1.6: Notes: All OLS regressions run using standard errors clustered by family. BIC' and Adjusted R-squared calculated as per Raftery (1995). All sample members born into PSID families between 1968 and 1984. These results reflect the use of longitudinal weights and listwise deletion. *** p<0.001, ** p<0.01, * p<0.05

Table B.3 OLS Regression Results for the age at ANY job loss measure

	Full Sample				Sibling Sample			
	Age	Child	Family	Full	Age	Child	Family	Full
Age at ANY Job Loss [None]								
Age 0-2	-0.262	0.229	-0.039	0.339(*)				
	[0.140]	[0.164]	[0.121]	[0.142]				
Age 3-5	-0.602(***)	-0.077	-0.242(*)	0.150	-0.329	-0.118	0.038	0.054
	[0.119]	[0.146]	[0.104]	[0.124]	[0.176]	[0.148]	[0.190]	[0.158]
Age 6-8	-0.613(***)	-0.072	-0.283(**)	0.121	-0.233	-0.044	0.072	0.096
	[0.128]	[0.162]	[0.108]	[0.136]	[0.178]	[0.148]	[0.185]	[0.159]
Age 9-11	-0.818(***)	-0.316(*)	-0.409(***)	-0.035	-0.450(**)	-0.176	-0.105	-0.012
	[0.118]	[0.132]	[0.111]	[0.125]	[0.163]	[0.157]	[0.166]	[0.161]
Age 12-14	-0.768(***)	-0.252	-0.407(***)	-0.047	-0.302	-0.159	-0.018	-0.051
	[0.135]	[0.154]	[0.116]	[0.134]	[0.190]	[0.155]	[0.204]	[0.173]
Age 15-19	-0.540(***)	-0.057	-0.348(**)	-0.004	-0.104	-0.185	0.238	-0.016
	[0.137]	[0.153]	[0.118]	[0.135]	[0.203]	[0.159]	[0.214]	[0.178]
Child Level Controls								
Gender [Women]								
Men		-0.392(***)		-0.370(***)			-0.567(***)	-0.545(***)
		[0.079]		[0.066]			[0.135]	[0.114]
Num Head JL to age 20		-0.416(***)		-0.313(***)			-0.304(***)	-0.156(*)
		[0.065]		[0.057]			[0.074]	[0.063]
Year of Birth		0.028(**)		0.009			0.028	0.006
		[0.009]		[0.007]			[0.018]	[0.015]
Family Controls								
Highest Parent Ed (median)			0.458(***)	0.451(***)		0.512(***)		0.496(***)
			[0.020]	[0.020]		[0.041]		[0.042]
Family Race								
Black			-0.257(**)	-0.241(*)		-0.254		-0.185
			[0.100]	[0.100]		[0.160]		[0.155]
Hispanic, Asian and Other			0.073	0.112		-0.268		-0.213
			[0.148]	[0.148]		[0.242]		[0.247]
Number of siblings			-0.098(**)	-0.099(**)		-0.001		-0.017
			[0.032]	[0.032]		[0.061]		[0.057]
Parental Head at 1st Job Loss [Father]								
Mother						-0.260		-0.332
						[0.180]		[0.184]
Constant	13.991(***)	-41.283(*)	7.790(***)	-9.414	13.326(***)	6.641(***)	-41.996	-4.017
	[0.062]	[17.181]	[0.302]	[14.387]	[0.183]	[0.570]	[36.384]	[29.004]
	6	9	10	13	5	10	9	13
Observations	3,152	3,152	3,152	3,152	857	857	857	857
R-squared	0.076	0.103	0.331	0.347	0.019	0.287	0.079	0.321
Adjusted R-Squa	0.074	0.100	0.329	0.344	0.013	0.279	0.069	0.311
BIC'	-2271	-4685	-19251	-26534	-105	-3693	-809	-5494

Notes: All OLS regressions run using standard errors clustered by family. BIC' and Adjusted R-squared calculated as per Raftery (1995). All sample members born into PSID families between 1968 and 1984. These results reflect the use of longitudinal weights and listwise deletion. *** p<0.001, ** p<0.01, * p<0.05

Table B.4. OLS Regression Results for Continunous Measures of Age at Parental Unemployment, Full Sample (N=3,152)

	Age	Age Squared	Child Controls	Family Controls	Full Model	Age Cubed	Child Controls	Family Controls	Full Model
				Age Squared				Age Cubed	
Age at first jo	-0.069(***)	-0.281(***)	-0.146(***)	-0.122(***)	-0.050	-0.434(***)	-0.164(*)	-0.192(***)	-0.036
	[0.010]	[0.027]	[0.030]	[0.024]	[0.027]	[0.061]	[0.074]	[0.051]	[0.061]
Age Squared		0.015(***)	0.008(***)	0.006(***)	0.002	0.042(***)	0.011	0.018(*)	0.000
		[0.002]	[0.002]	[0.002]	[0.002]	[0.010]	[0.011]	[0.008]	[0.009]
Age Cubed						-0.001(**)	-0.000	-0.000	0.000
						[0.000]	[0.000]	[0.000]	[0.000]
Gender [Women]									
Men			-0.395(***)		-0.373(***)		-0.396(***)		-0.372(***)
			[0.078]		[0.066]		[0.078]		[0.066]
Num Head JL to age 20			-0.332(***)		-0.191(***)		-0.325(***)		-0.196(***)
			[0.038]		[0.037]		[0.043]		[0.040]
Year of Birth			0.028(***)		0.011		0.029(***)		0.010
			[0.009]		[0.007]		[0.009]		[0.007]
Highest Parent Ed (median)				0.460(***)	0.446(***)			0.459(***)	0.446(***)
				[0.020]	[0.020]			[0.020]	[0.020]
Family Race									
Black				-0.273(**)	-0.255(**)			-0.267(**)	-0.256(**)
				[0.099]	[0.099]			[0.099]	[0.099]
Hispanic, Asian and Other				0.017	0.088			0.027	0.088
				[0.153]	[0.147]			[0.150]	[0.147]
Number of siblings				-0.093(**)	-0.097(**)			-0.094(**)	-0.097(**)
				[0.033]	[0.032]			[0.032]	[0.032]
Constant	13.841(***)	13.982(***)	-41.865(*)	7.744(***)	-12.644	14.018(***)	-42.302(*)	7.786(***)	-12.312
	[0.060]	[0.062]	[16.952]	[0.303]	[14.281]	[0.064]	[17.052]	[0.305]	[14.283]
DF	1	2	5	6	9	3	6	7	10
R-squared	0.034	0.068	0.109	0.328	0.346	0.073	0.110	0.329	0.346
Adjusted R-Square	0.034	0.067	0.108	0.327	0.344	0.072	0.108	0.328	0.344
BIC'	-166	-675	-2764	-11422	-18304	-1089	-3349	-13376	-20337

Notes: All OLS regressions run using standard errors clustered by family. BIC' and Adjusted R-squared calculated as per Raftery (1995). All sample members born into PSID families between 1968 and 1984. These results reflect the use of longitudinal weights and listwise deletion. *** p<0.001, ** p<0.01, * p<0.05

Table B.5 OLS Regression Results for Continunous Measures of Age at Parental Unemployment, Sibling Sample (N=857)

	Age	Age Squared	Child Controls	Family Control	Full Model	Age Cubed	Child Controls	Family Control	Full Model
				Age Squared				Age Cubed	
Age at first jo	0.015	-0.101	-0.154(**)	-0.036	-0.069	-0.050	-0.158	-0.023	-0.093
	[0.019]	[0.055]	[0.053]	[0.048]	[0.047]	[0.149]	[0.145]	[0.127]	[0.126]
Age Squared		0.007(*)	0.008(**)	0.002	0.003	-0.000	0.009	0.000	0.007
		[0.003]	[0.003]	[0.003]	[0.003]	[0.020]	[0.019]	[0.016]	[0.016]
Age Cubed						0.000	-0.000	0.000	-0.000
						[0.001]	[0.001]	[0.001]	[0.001]
Child Level Controls									
Gender [Women]									
Men			-0.570(***)		-0.551(***)		-0.570(***)		-0.552(***)
			[0.131]		[0.112]		[0.132]		[0.113]
Num Head JL			-0.328(***)		-0.176(**)		-0.328(***)		-0.176(**)
			[0.070]		[0.057]		[0.070]		[0.057]
Year of Birth			0.024		0.005		0.024		0.005
			[0.018]		[0.015]		[0.018]		[0.015]
Family Controls									
Highest Paren				0.513(***)	0.488(***)			0.513(***)	0.488(***)
				[0.041]	[0.042]			[0.041]	[0.042]
Family Race									
Black				-0.284	-0.189			-0.285	-0.186
				[0.158]	[0.157]			[0.159]	[0.160]
Hispanic, Asi				-0.322	-0.251			-0.322	-0.250
				[0.239]	[0.250]			[0.238]	[0.249]
Number of sit				0.011	-0.018			0.012	-0.018
				[0.061]	[0.058]			[0.061]	[0.058]
Parental Head at 1st Job Loss [Father]									
Mother				-0.225	-0.312			-0.224	-0.314
				[0.181]	[0.187]			[0.182]	[0.190]
Constant	12.842(***)	13.156(***)	-33.814	6.540(***)	-2.418	13.079(***)	-33.877	6.522(***)	-2.706
	[0.159]	[0.210]	[35.458]	[0.561]	[29.473]	[0.291]	[35.463]	[0.599]	[29.470]
Observations	1	2	5	7	10	3	6	7	10
	0.002	0.012	0.090	0.284	0.323	0.012	0.090	0.284	0.323

	0.001	0.010	0.085	0.278	0.315	0.009	0.084	0.278	0.315
	-2	-26	-515	-2553	-4258	-40	-618	-2553	-4258

Notes: All OLS regressions run using standard errors clustered by family. BIC' and Adjusted R-squared calculated as per Raftery (1995). All sample members experienced parental job loss, and were born into PSID families between 1968 and 1984 with at least one sibling born in the same time span These results reflect the use of longitudinal weights and listwise deletion. *** p<0.001, ** p<0.01, * p<0.05

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