The Lasting Effects of Parent Job Loss on Sibling's Educational Attainment

Caren Arbeit
Department of Sociology
University of Minnesota

Abstract

In this paper I examine sibling differences in educational attainment, focusing on the timing of parent job loss in children's lives. Drawing from research on parent unemployment, life course theories and sibling differences, I argue that the timing of parent job loss in a child's life moderates the impact of the event on children's educational attainment in adulthood. 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 look at the educational attainment at age 25 of siblings born between 1968 and 1984 where the parent who is the head of household experienced a job loss. Using family fixed effects models to control for family contexts at the time of parent unemployment I find little difference in siblings educational attainment at age 25 based on child age when the parent lost his or her job.

The "Great Recession" sparked a wave of involuntary job loss, with workers laid off due to corporate downsizing, plant closings, and public budget cuts. While traditional unemployment figures focus on the individuals who experience the job loss, the economic and non-economic consequences of unemployment extend beyond the individual to the larger family (e.g. Elder, Conger, Foster, and Ardelt 1992; Moen 1983). In 2010, 12 percent of families with children had an unemployed family member, an increase of six percentage points from 2007 (Bureau of Labor Statistics 2008; Bureau of Labor Statistics 2011). With so many children experiencing parental unemployment during the great recession, it is critical to understand the long-term consequences that parental job loss has on children. Looking back at the lives of young adults who had previously experienced parental unemployment (many of whom did so in prior recessions) provides information about the long-term impact a parent's job loss[1] has on children.

Research suggests that children who have an unemployed parent experience both short-term and long-term detrimental outcomes due to economic and non-economic consequences of job loss on families (Ermisch, Francesconi, and Pevalin 2004; Kalil and Wightman 2011; Kalil and Ziol-Guest 2008). Children in families where a parent is unemployed have been found to be more disruptive in school, show signs of cognitive distress, have an increased likelihood of repeating a grade and indicate higher levels of stress (Flanagan and Eccles 1993; Kalil and Ziol-Guest 2008; McLoyd, Jayaratne, Ceballo, and Borquez 1994; Perrucci 1994; Stevens and Schaller 2011). Thus the negative influence of parental job loss spans cognitive, socio-emotional, and educational domains of children's lives. Even as adults, those

[1] The Bureau of Labor Statistics (BLS; 2011) considers an individual unemployed he or she is not currently working, looking for work and available for work. Unemployment importantly includes not just the event, but the time when someone is out of work. Job loss usually refers to an individual's involuntary departure from an employer or employment situation.

Thus, while unemployment and job loss are technically different, I use these terms interchangeably in the paper to refer to any situation where a parent experiences a separation from a job but does not make the choice to leave a job (i.e. fired or laid off), and the resulting time spent without a job. Other reasons for unemployment, such as choosing to leave a job, are outside the scope of this project.

who have previously (as children) experienced parental unemployment earn less than their peers (Oreopoulos, Page, and Stevens 2008). The detrimental influence of parent unemployment on children continues to be evident long after the unemployment ends.

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. Yet life course theories about the timing of events in lives (e.g. Elder 1999 [1974]) and cumulative disadvantage (e.g. Dannefer 2003) predict that when events happen in an individual's life course moderates the impact of the event. Hence the timing of parent job loss should help capture the potential consequences of parent job loss on children's educational attainment.

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; Duncan, Yeung, Brooks-Gunn, and Smith 1998; Ermisch, Francesconi, and Pevalin 2004). While family dynamics may differentiate the impact of parent unemployment on children within a family, the age and gender trends which exist across a large number of families provide valuable evidence about the effect of timing of parent unemployment on children's educational attainment.

In this project I bring life course and sibling difference perspectives together to further research on parental unemployment. To do so, I ask: **How does the timing of the parental head of household's (mother's and/or father's) first job loss influence their children's long-term educational attainment? How does the timing of any job loss by the parental head of household's (mother's and/or father's) influence children's long-term educational attainment?** In the following sections I argue that the cumulative disadvantage and timing perspectives present compelling reasons for why age at the time of parent unemployment likely leads to differences in the effects of the job loss on children. Methodologically, I use sibling fixed effects models to control for family context at the time of parent unemployment.

Research on Parent Unemployment

Prior research on the consequences of parent unemployment has examined children's short- and long-term outcomes, but has done little to differentiate the consequences of parent unemployment based on the timing in children's lives, or within families. Most of the research in this area defines parent unemployment as the household head ever experiencing job loss (e.g.Kalil and Wightman 2011). Some research specifies which parent (usually fathers in two-parent families and mother in single parent families) experiences the job loss (e.g. Kalil and Ziol-Guest 2005; Oreopoulos, Page, and Stevens 2008). Researchers also consider the mediating influences of household structure and access to resources on the detrimental impacts of job loss (Dumais 2009; Kalil 2009). This section reviews the existing research on the consequences of parent unemployment and highlights the gaps in the literature that this proposed project will address.

In the short-term, parental unemployment causes delays in children's behavioral growth, cognitive development, self-concept, classroom behavior and educational progress (Farrell and Ortiz 1993; Hill, Morris, Castells, and Walker 2011; McLoyd 1989; McLoyd, Jayaratne, Ceballo, and Borquez 1994; Stevens and Schaller 2011). For example, 8th graders who experience parent unemployment generally have lower test scores than their peers who did not experience parent unemployment; little difference between the groups exists for 4th graders (Ananat, Gassman-Pines, Francis, and Gibson-Davis 2011). Mother's unemployment during preschool is associated with children's problem behavior in late elementary school (Hill, Morris, Castells, and Walker 2011). These short-term consequences highlight the link between parent unemployment and educational outcomes.

Parent displacement from work has consequences for children long after the unemployment spell ends (either because of a new job, or a long-term change in family work arrangement). In the longer term, parent unemployment during childhood or adolescence is associated with lower earnings

between the ages 25 and 33, months unemployed and/or receiving unemployment benefits as an adult [2] for men in Canada and Great Britain. (O'Neill and Sweetman 1998; Oreopoulos, Page, and Stevens 2008) In the United States, among middle class children in the PSID, parent job loss during childhood is associated with a decreased likelihood of college attendance (Kalil and Wightman 2011). These studies however do not sufficiently address whether features of parent unemployment, such as the timing in a child's life.

Theories of Timing

A life course research provides several frames for thinking about how the timing of parent unemployment impacts children. From a life course perspective children are part of a family system where events and contexts—such as job loss, siblings, or decreases in available economic resources—in families impact children in the long- and short-term, with the effect moderated by the timing of events in the child's life (Mayer 2009). Parent unemployment influences children because their lives are interdependent (also called linked lives) (Elder 1994). The concept of linked lives complements the principle of the timing of events in a person's life, as many events which happen to parents change the lives of children as well. The theoretical and empirical definition of timing comes from Elder's (1998; 1994) principal of "timing in lives," or "the developmental impact of a succession of life transitions or events is contingent on when they occur in a person's life" (Elder 1998: 3). Since timing refers to developmental contexts and when events occur in lives, it emphasizes the important of age for understanding the way unemployment impacts children. The consequences of similar events may vary based on when they occur in a child's life.

For example, children whose parents get divorced prior to entering school have lower educational expectations than children who experience the event later (Heard 2007), while experiencing

[2] The research from Canada and Great Britain on adult income and unemployment of children who experienced parent unemployment has only looked at sons (O'Neill and Sweetman 1998; Oreopoulos, Page, and Stevens 2008).

poverty later in childhood increases the likelihood of high school dropout (Kalmijn 1994). The effect of parent unemployment on children is likely analogous to parent divorce or poverty, since the parent unemployment may shift resources, and/or lead to other changes in family dynamics. Thus the consequences of similar events may vary based on when they occur in a child's life, but the theory does not lead to a specific prediction of at which ages children's eventual educational attainment will be most affected by parent unemployment.

Cumulative Disadvantage

Theories of cumulative advantage, disadvantage and stratification[3] argue that advantages or disadvantages accumulate over the life course such that early life experiences in terms of family, schooling, health and work strongly influence later life experiences (Dannefer 2003; DiPrete and Eirich 2006; Elman and O'Rand 2004; O'Rand 1996; Warren, Raymo, Halpern-Manners, and Goldberg 2010). Specifically, theories of cumulative advantage posit that levels of accumulation at Time 1 (T_1) are directly and causally connected to levels of accumulation at T_2 (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. Applied to research on parent unemployment, this theory 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.

For children who experience parent unemployment, the short-term consequences of parent job loss tend to be associated with educational attainment in adulthood. Research on the short- and medium-term consequences of parent unemployment identify parent unemployment as leading to less

[3] Cumulative advantage, cumulative disadvantage and cumulative stratification all refer to the concepts discussed in this paragraph. In the paper I primarily refer to this theory as cumulative disadvantage since parent job loss has been found to be a disadvantage.

growth in cognitive development, and/ or impeding educational progress[4] (Hill, Morris, Castells, and Walker 2011; Jackson 2003; McLoyd 1989; McLoyd, Jayaratne, Ceballo, and Borquez 1994; Stevens and Schaller 2011). Yet these short-term consequences of job loss, specifically social and emotional problems and grade reputation, are associated with lower levels of educational attainment (e.g. McLeod and Kaiser 2004; Roderick 1994). These linked findings illustrate the process of cumulative disadvantage as related parent unemployment. Thus cumulative disadvantage theory thus would expect that short-term harm to children's cognitive, social-emotional and school outcomes caused by parent unemployment manifest as larger educational attainment gaps in early adulthood, particularly for children who experience parent unemployment at younger ages.

Research on parent unemployment has paid little attention to siblings. Yet looking at siblings provides ways to both control for family level differences, and provides an opportunity to identify life course features which may also moderate the effect of parent unemployment. In a British context, Ermish, Francesconi and Pevalin (2004) used sibling models and found that parent unemployment in early childhood (before age 5) and in early teenage years (11-15) have similar (negative) associations with completing A level educational qualifications at age 18. These results provide a strong motivation to extend this line of research to the American setting.

Research on Sibling Educational Attainment

Turning to research on sibling educational attainment, approximately 40%-50% of the variance in educational attainment is within-families (Hauser and Wong 1989; Hauser, Sheridan, and Warren 1999). If families generally account for half of the variance in educational attainment, it should be possible to control for the between family variance to closely examine some of the within-family determinants, in this case, child age at the time of parent unemployment.

[4] These studies follow children's educational progress for 3-5 years, identifying the differences in educational outcomes by parent unemployment status over that time.

Theoretically, much of the research on siblings focuses on confluence theory and/or resource availability/dilution theory. Confluence theory argues that the intellectual environment of the home molds children's development, such that oldest children experience a more intellectually stimulating development at a young age which advantages them (Steelman, Powell, Werum, and Carter 2002). More important to this paper, resource availability theory argues that the positive resources available to children vary by birth order or sibship size, and these resources are both directly and indirectly related to children's educational attainment (Steelman, Powell, Werum, and Carter 2002). In this paper, the resource theory is of particular interest since unemployment is generally associated with a temporary decline in resources. Research on family size and birth order generally test one of both of these theories.

Much of the research on sibling educational attainment focuses on either family size or birth order. Children in smaller families tend to have higher levels of educational attainment (Blake 1989; Jæger 2008), although the levels of educational attainment are more heterogeneous in smaller families (Kuo and Hauser 1997). One explanation for the difference in educational outcomes based on family size is related to resources. For example, in larger families children receive fewer resources than in smaller but otherwise similar families leading which has negative consequences on educational performance (Downey 1995). While important to note, research on family size does not provide any potential for predicting within family differences, only between family differences.

Birth order may also influence educational attainment, although the research on birth order is not conclusive (de Haan 2010; Hauser and Sewell 1985; Kantarevic and Mechoulan 2006). Most sociological research in the twentieth century found birth order to have very small, if any effects, on educational attainment (Steelman, Powell, Werum, and Carter 2002). For example, using the Wisconsin Longitudinal Survey (WLS), Hauser and Sewell (1985) found that after controlling for birth year and parent education birth order was not significantly associated with educational attainment. Conversely, more recent (economic) research finds a negative birth order effect, such that older children tend to

complete more schooling than their younger siblings (Booth and Kee 2009; de Haan 2010; Kantarevic and Mechoulan 2006). When thinking about birth order and the effects of parent job loss on children, it is important to note that older children may bear the most responsibilities during times of unemployment (Conley 2004; Newman 1988).

Children's gender, as well as the gender composition of siblings, may also impact educational attainment. Using the WLS, Kuo and Hauser (1997) find that the gender is the most salient 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. While the results generally point to relatively small differences in educational attainment based on the gender composition of a sibling group, these studies emphasize the importance of including the child's gender. The existing research on sibling differences in educational attainment provides additional information on family level processes which must be considered in the methods section.

Contributions

My project contributes to the sociological literature by applying the theories of timing and linked lives (Elder 1998) along with cumulative disadvantage theory (O'Rand 1996) to examine the effects of involuntary parent unemployment on children's educational attainment. I contend that parent unemployment disrupts children's educational growth and thus constitutes a form of cumulative disadvantage, even for children who were otherwise advantaged prior to their parent's job loss. The consequences of parental unemployment may vary depending on when in a child's life the disruption occurs, along with the duration of the unemployment.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.

Data and Methods

Using the Panel Study of Income Dynamics (PSID), 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 and 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 (2011). 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. Only families that meet the following three qualifications are included in my sample: a parent who is the head of household became unemployed while two children aged 0-20 were living at home; the oldest child was born after 1967; and the youngest child was born before 1985.

In this project I use the terms "parent unemployment" or "parent job loss" to refer to any situation in which a previously working parent reports an *involuntary* end of employment. This definition encompasses two primary reasons for parent 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] Employees who get laid off or let go generally have no choice as to when and if they exit the company, and have often little warning. I chose a definition of job loss that excludes time out of work caused by voluntary departures from a job, as workers and their families have time to prepare for voluntary separations from work, and thus may take steps to minimize the time unemployed (by searching for jobs in advance), or may deliberately choose

[5] Unfortunately the PSID does not contain detailed enough data to identify if an individual was part of a larger layoff or fired.

to leave a job for personal reason (family is moving to further the spouse's career). While interesting, unemployment due to a voluntary departure is outside the scope of this project.

The timing of parent unemployment can refer to either the first spell of unemployment, the longest spell of unemployment, and a cumulative measure of all unemployment spells. 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 increases the likelihood of unemployment in the future. In this paper I focus on the first unemployment spell and a cumulative measure of unemployment spells experienced in a family.

Child's age at parent job loss refers to when in the child's life the parent becomes unemployed. This variable represents the onset of unemployment[6]. I seek to identify the relationship between timing of unemployment and educational attainment, so a single continuous measure assuming a linear relationship will not be appropriate. In this paper I use three separate strategies for measuring timing. First, building off prior life course and developmental social-psychology research I measure 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),and later adolescence (16-18) (e.g. Duncan, Yeung, Brooks-Gunn, and Smith 1998; Ermisch, Francesconi, and Pevalin 2004). For children over the age of 18 with a sibling under the age of 18, a 6th category of "Over 18" will be included in the analyses in order to compare them with younger siblings. These categories are potentially problematic as siblings aged 6 and 9 fall into the same category, eliminating some variation within families. Alternatively, utilizing age as a continuous variable, including a square and (if needed) a cubic term, allows for finer grained distinctions in the data while also allowing for non-linear relationships, yet may not capture the true shape of the distribution. As part of the analyses I use all three measures and compare the model fit to determine which one better represents the data.

[6] Measuring timing at the start of the unemployment spell aligns with prior (sociological) research on timing of life course events, allowing a better dialog between this paper and prior research.

In this paper 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.

As discussed in the literature review, family size may impact children's educational attainment. The potential for birth order to influence educational attainment within a family (specifically, first children may have higher educational attainment) provides a compelling reason to include a model controlling for birth order. It is not necessary to explicitly control for family size, as the fixed effect model controls for this family level variation. Thus, I include dummy variable for oldest sibling to control for birth order.

The sibling model focuses on child age at the time of parent job loss, so this model only includes children in families where a parent lost a job. For example in a family with three children aged 14, 16 and 19 at the time of parent job loss the entire family will be included in the model even though the oldest child is over 18 (and is thus not included in the baseline models as experiencing parent unemployment.

Family fixed effects models allow me to control for unmeasured (fixed effects, FE) family effects and focus on the age of the children at the time of parent unemployment (Allison 2009; Snijders and Bosker 1999). Thus the FE 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. Fixed effects models do not perfectly control for family context, specifically dynamic changes over time within families, they do provide the best controls

for family specific contexts in order 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.

I estimate a series of nested models to best identify the importance of timing of parent unemployment on children's educational attainment. First I estimate a model with only age, directly addressing the research question with no additional controls. I then add child gender, both because women from this cohort have higher educational attainment than men (Buchmann and DiPrete 2006), and since gender is a major cause of within family differences in educational attainment (as discussed above) . The third model contains an interaction of child age at the time of parent unemployment and child gender (the sample equation). I include an interaction between age and gender to understand if any systematic age specific gender differences exist, such as those related to family responsibilities. The fourth model adds a dummy variable indicating the oldest child in the family to control for the potential that oldest children have the highest educational attainment.

A fixed effects model is analogous to an OLS regression with dummy variables for each family group (in this case with clustered standard errors, as discussed above). Thus:

$Y_{ij} =$
$\beta_0 + \beta_1(Age\ Categories) + \beta_2(Sex) + \beta_3(Age\ Categories * Sex) + \beta_n(Family\ Level\ Dummy) + u$ Is the OLS version of the fixed effects equation of:

$Y_{ij} = \beta_1(Age\ Categories) + \beta_2(Sex) + \beta_3(Age\ Categories * Sex) + \alpha_j + u_{ij}$

Where:

Y_{ij} = Educational attainment in years at age 25 for child *i* in family *j;*

$\beta_1(Age\ Categories) + \beta_2(Sex) + \beta_3(Age\ Categories * Sex)$ = The child level covariates for child *i* in family *j*. Since fixed effects are a difference model these terms contain the deviation of child *i*'s age from the average age of all children in family j or $\beta_1\left(\overline{Age\ Categories_j} - Age\ Categories_i\right)$;

α_j=The family level fixed effect which controls for differences between families; and

u_{ij} =The residual or error, which is assumed to be normally distributed and uncorrelated with the family specific residual.

If parent unemployment interrupts the process of accumulating advantages (or provides an additional disadvantage) the timing in a child's life will be significant even after controlling for family effects. Or to state it differently, if age when parent unemployment occurs produces significant differences in children's educational attainment across families, then some children are more vulnerable to the negative consequences of parent unemployment just based on developmental stage.

Findings

The unweighted sample for these models contains 2087 siblings in 881 families and 850 children in 356 families where at least 2 children experienced unemployment, with all of the children were born between 1968 and 1984. Table 1 contains the descriptive statistics for the sibling sample.

The sample has, on average, thirteen and a half years of education at age 25 with the children who did not experience a parental head losing a job earned approximately one year of schooling more than children who had a parent lose his or her job. Aside from that, the characteristics of the children are similar, with slightly more than half of the respondents as women, one third are oldest siblings, and the mean year of birth is 1976. Half of children who experienced parental job loss did so before the age of 6, with a mean age of 7.

If parent unemployment interrupts the process of accumulating advantages (or provides an additional disadvantage) the timing in a child's life will be significant even after controlling for family effects. Or to state it differently, if age when parent unemployment occurs produces significant differences in children's educational attainment across families, then some children are more vulnerable to the negative consequences of parent unemployment just based on developmental stage. Yet, Table 2 shows that there is little difference in the educational attainment based on age at the time of parent unemployment.

Table 3 provides the preliminary results of the fixed effects regression equations. Age at the time of parent unemployment does not have a statistically significant effect on educational attainment in years. This is true both for the first unemployment spell as for any unemployment spell. There is a

small magnitude difference in educational attainment for children under 15, compared to those who are 16 and older at the time of first parent unemployment, which may suggest that for older children, some within family difference in educational attainment occurs.

Future versions of this paper will include additional models to verify that age at the time of parent unemployment does not significantly moderate educational attainment in adulthood controlling for family factors. Specifically, I will examine alternative age specifications (smaller age groups, school based age groupings) to ensure that the finding is not an artifact of measurement.

Conclusion

Life course theories predict that age at the time of parent unemployment 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.

Yet 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 differentially moderate their educational attainment. If this is the case, then most of the variation is likely between families.

My analyses are limited by a lack of information on children's abilities prior to unemployment. This limitation means I cannot control for individual differences between children.

Taking the life course and sibling perspectives together to address the long term consequences of parent unemployment extends all of these research strands. The findings will address theories of cumulative disadvantage and timing of events in lives by looking at children who experienced the same event at different times in their lives. These findings will extend the research on parent unemployment by considering within group differences in how parent unemployment affects children. Finally this project extends research on sibling educational attainment by looking at how potentially disrupting events, such as parent job loss, impact siblings differently based on birth order, sex and age.

Table 1: Proportions, Means, and Standard Deviations for Key Variables

	Born 1968-1984, Educational Attainment at Age 25			
	With Sibiling in Sample			
	No Job Loss	Job Loss	All	Siblings and Job Loss
Educational Attainment				
Years of Ed	13.8	12.9	13.4	12.9
sd	2.0	1.7	1.9	1.7
Sex				
Male	48.6	47.0	47.9	46.8
[Female]	51.4	53.0	52.1	53.2
Birth Order				
[Not Oldest]	66.6	66.3	66.5	68.4
Oldest Sib	33.4	33.7	33.5	31.7
Sibship Size				
Number of Siblings	2.4	2.6	2.3	2.6
sd	1.7	1.7	1.2	1.7
Family Size in Sample				
Number in Sample				
sd				
Age at First Job Loss (categorical)				
[None]	100.0	0.0	55.9	0.0
Age 0-5	0.0	49.8	22.0	48.8
Age 6-10	0.0	26.4	11.6	27.7
Age 11-15	0.0	15.1	6.7	16.0
Age 16-20	0.0	8.7	3.8	7.5
Age at Job Loss (continuous)				
Age At JL	0.0	6.9	0.8	6.9
sd	0.0	5.2	1.1	5.0
Number of Job Losses from Age 0-18				
Number of JL	0.0	1.9	0.8	1.9
sd	0.0	1.1	1.2	1.1
Year of Birth				
Year Born	1977.0	1976.5	1976.8	1976.6
sd	4.7	4.7	4.7	4.7
N				
Families			881	356
Children	1,167	920	2,087	850

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 unweighted samples using list wise deletion.

Table 2: Educational Attainment at Age 25 by Other Characteristics

	All w/Sib in Sample			Experienced Head Job Loss w/Sib in Sample		
	Mean	SD	N	Mean	SD	N
Gender						
Men	13.2	1.9	999	12.7	1.6	398
Women	13.6	1.9	1,088	13.1	1.7	452
Birth Order						
Not Oldest Sib	13.3	1.9	1,387	12.9	1.7	581
Oldest Sib	13.6	1.9	700	13.0	1.7	269
Number of Siblings						
1	13.9	1.9	573	13.2	1.7	206
2	13.4	1.9	749	12.8	1.6	286
3	13.1	1.9	469	12.8	1.7	213
4	13.1	1.8	144	13.2	1.7	75
5 or more	12.7	1.6	152	12.5	1.5	70
Age at Job Loss						
None	13.8	2.0	1,167			
0-5	12.9	1.7	458	12.9	1.7	415
6-10	12.9	1.6	243	12.9	1.6	235
11-15	12.8	1.6	139	12.9	1.6	136
16 and older	13.2	1.8	80	13.1	1.8	64

Notes: The left columns present years of education completed for individuals born into the PSID between 1968 and 1984, with educational attainment measured at age 25 or 26. The right hand columns present data for individuals born into the PSID between 1968 and 1980, with educational attainment measured at age 29 or 30. These are unweighted samples using list wise deletion.

Works Cited

2011. "Panel Study of Income Dynamics, public use dataset." edited by S. R. C. Institute for Social Research, University of Michigan. Ann Arbor, MI: Institute for Social Research, Survey Research Center, University of Michigan.

Allison, Paul D. 2009. *Fixed Effects Regression Models*. Thousand Oaks, CA: Sage.

Ananat, Elizabeth Oltmans, Anna Gassman-Pines, Dania V. Francis, and Christina M. Gibson-Davis. 2011. "Children Left Behind: The Effects of Statewide Job Loss on Student Achievement." *National Bureau of Economic Research Working Paper Series* No. 17104.

Blake, Judith. 1989. "Number of siblings and educational attainment." *Science* 245:32-36.

Booth, Alison and Hiau Kee. 2009. "Birth order matters: the effect of family size and birth order on educational attainment." *Journal of Population Economics* 22:367-397.

Buchmann, Claudia and Thomas DiPrete. 2006. "The Growing Female Advantage in College Completion: The Role of Family Background and Academic Achievement." *American Sociological Review* 71:515-541.

Bureau of Labor Statistics, (BLS). 2008. "Employment Characteristics of Families--2007." U.S. Department of Labor, Washington, D.C.

—. 2011. "Employment Characteristics of Families--2010." U.S. Department of Labor, Washington, D.C.

Conley, Dalton. 2004. *The Pecking Order: Which Siblings Succeed and Why*: Pantheon.

Conley, Dalton and Rebecca Glauber. 2008. "All in the family?: Family composition, resources, and sibling similarity in socioeconomic status." *Research in Social Stratification and Mobility* 26:297-306.

Conley, Dalton, Kathryn M. Pfeiffer, and Melissa Velez. 2007. "Explaining sibling differences in achievement and behavioral outcomes: The importance of within- and between-family factors." *Social Science Research* 36:1087-1104.

Dannefer, Dale. 2003. "Cumulative Advantage/Disadvantage and the Life Course: Cross-Fertilizing Age and Social Science Theory." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 58:S327-S337.

de Haan, Monique. 2010. "Birth order, family size and educational attainment." *Economics of Education Review* 29:576-588.

DiPrete, Thomas A. and Gregory M. Eirich. 2006. "Cumulative Advantage As a Mechanism for Inequality: A Review of Theoretical and Empirical Developments." *Annual Review of Sociology* 32:271-297.

Downey, Douglas B. 1995. "When Bigger Is Not Better: Family Size, Parental Resources, and Children's Educational Performance." *American Sociological Review* 60:746-761.

Dumais, Susan A. 2009. "The academic attitudes of American teenagers, 1990-2002: Cohort and gender effects on math achievement." *Social Science Research* 38:767-780.

Duncan, Greg J., W. Jean Yeung, Jeanne Brooks-Gunn, and Judith R. Smith. 1998. "How Much Does Childhood Poverty Affect the Life Chances of Children?" *American Sociological Review* 63:406-423.

Elder, Glen H. 1998. "The Life Course as Developmental Theory." *Child Development* 69:1-12.

Elder, Glen H., Rond D. Conger, E. M. Foster, and M. Ardelt. 1992. "Families Under Economic Pressure." *Journal of Family Issues* 13:5-37.

Elder, Glen H. Jr. 1999 [1974]. *Children of the Great Depression*. Boulder, CO: Westview Press.

Elder, Glen H., Jr. 1994. "Time, Human Agency, and Social Change: Perspectives on the Life Course." *Social Psychology Quarterly* 57:4-15.

Elman, Cheryl and Angela M. O'Rand. 2004. "The Race Is to the Swift: Socioeconomic Origins, Adult Education, and Wage Attainment." *American Journal of Sociology* 110:123-160.

Ermisch, John, Marco Francesconi, and David J. Pevalin. 2004. "Parental Partnership and Joblessness in Childhood and Their Influence on Young People's Outcomes." *Journal of the Royal Statistical Society: Series A* 167:69-101.
Farrell, Michael P. and Larry Paul Andres Ortiz. 1993. "Father's unemployment and adolescent's self-concept." *Adolescence* 28:937+.
Flanagan, Constance A. and Jacquelynne S. Eccles. 1993. "Changes in Parents' Work Status and Adolescents' Adjustment in School." *Child Development* 64:246-257.
Hauser, Robert M and William H Sewell. 1985. "Birth Order and Educational Attainment in Full Sibships." *American Educational Research Journal* 22:1-23.
Hauser, Robert M. and Raymond Sin-Kwok Wong. 1989. "Sibling Resemblance and Intersibling Effects in Educational Attainment." *Sociology of Education* 62:149-171.
Hauser, Robert, Jennifer T. Sheridan, and John Robert Warren. 1999. "Socioeconomic achievements of siblings in the life course - New findings from the Wisconsin Longitudinal Study." *Research on Aging* 21:338-378.
Heard, Holly E. 2007. "Fathers, Mothers, and Family Structure: Family Trajectories, Parent Gender, and Adolescent Schooling." *Journal of Marriage and Family* 69:435-450.
Hill, Heather D., Pamela A. Morris, Nina Castells, and Jessica Thornton Walker. 2011. "Getting a job is only half the battle: Maternal job loss and child classroom behavior in low-income families." *Journal of Policy Analysis and Management* 30:310-333.
Jackson, Aurora P. 2003. "Mothers' Employment and Poor and Near-Poor African-American Children's Development: A Longitudinal Study." *Social Service Review* 77:93-109.
Jæger, Mads Meier. 2008. "Do Large Sibships Really Lead to Lower Educational Attainment? New Evidence from Quasi-Experimental Variation in Couples' Reproductive Capacity." *Acta Sociologica* 51:217-235.
Kalil, Ariel. 2009. "Joblessness, Family Relations and Children's Development." *Family Matters*:15-22.
Kalil, Ariel and Patrick Wightman. 2011. "Parental Job Loss and Children's Educational Attainment in Black and White Middle-Class Families." *Social Science Quarterly* 92:57-78.
Kalil, Ariel and Kathleen M. Ziol-Guest. 2005. "Single Mothers' Employment Dynamics and Adolescent Well-Being." *Child Development* 76:196-211.
—. 2008. "Parental employment circumstances and children's academic progress." *Social Science Research* 37:500-515.
Kalmijn, Matthijs. 1994. "Mother's Occupational Status and Children's Schooling." *American Sociological Review* 59:257-275.
Kantarevic, Jasmin and Stéphane Mechoulan. 2006. "Birth Order, Educational Attainment, and Earnings." *Journal of Human Resources* XLI:755-777.
Killewald, Alexandra, Patti Andreski, and Robert F. Schoeni. 2011. "Trends in Item Non-Response in the PSID, 1968-2009." University of Michigan, Ann Arbor, MI.
Kuo, Hsiang-Hui Daphne and Robert M. Hauser. 1997. "How does size of sibship matter? Family configuration and family effects on educational attainment." *Social Science Research* 26:69-94.
Mayer, Karl Ulrich. 2009. "New Directions in Life Course Research." *Annual Review of Sociology* 35:413-433.
McLeod, Jane D. and Karen Kaiser. 2004. "Childhood Emotional and Behavioral Problems and Educational Attainment." *American Sociological Review* 69:636-658.
McLoyd, Vonnie C. 1989. "Socialization and development in a changing economy: the effects of paternal job and income loss on children." *American Psychologist* 44:293-302.
McLoyd, Vonnie C., Toby Epstein Jayaratne, Rosario Ceballo, and Julio Borquez. 1994. "Unemployment and Work Interruption among African American Single Mothers: Effects on Parenting and Adolescent Socioemotional Functioning." *Child Development* 65:562-589.

Moen, Phyllis. 1983. "Unemployment, Public Policy, and Families: Forecasts for the 1980s." *Journal of Marriage and Family* 45:751-760.
Newman, Katherine S. 1988. *Falling From Grace*. New York: Free Press.
O'Neill, Donal and Olive Sweetman. 1998. "Intergenerational Mobility in Britain: Evidence from Unemployment Patterns." *Oxford Bulletin of Economics and Statistics* 60:431-447.
O'Rand, Angela M. 1996. "The Precious and the Precocious: Understanding Cumulative Disadvantage and Cumulative Advantage Over the Life Course." *The Gerontologist* 36:230-238.
Oreopoulos, Philip, Marianne Page, and Ann Huff Stevens. 2008. "The Intergenerational Effects of Worker Displacement." *Journal of Labor Economics* 26:455-000.
Perrucci, Carolyn C. 1994. "Economic Strain, Family Structure and Problems with Children among Displaced Workers." *Journal of Sociology and Social Welfare* 21:79-91.
Roderick, Melissa. 1994. "Grade Retention and School Dropout: Investigating the Association." *American Educational Research Journal* 31:729-759.
Snijders, Tom and Roel Bosker. 1999. *Multilevel Analysis: An introduction to basic and advanced multilevel modling*, vol. 1. Thousand Oaks, CA: Sage Publications.
Steelman, Lala Carr, Brian Powell, Regina Werum, and Scott Carter. 2002. "Reconsidering the Effects of Sibling Configuration: Recent Advances and Challenges." *Annual Review of Sociology* 28:243-269.
Stevens, Ann Huff and Jessamyn Schaller. 2011. "Short-run effects of parental job loss on children's academic achievement." *Economics of Education Review* 30:289-299.
Warren, John Robert, James M. Raymo, Andrew Halpern-Manners, and Julia Goldberg. 2010. "The Impact of Work and Family Trajectories on Economic Well-Being at Older Ages: New Insights on Cumulative Stratification." University of Wisconsin-Madison, Madison, WI.