

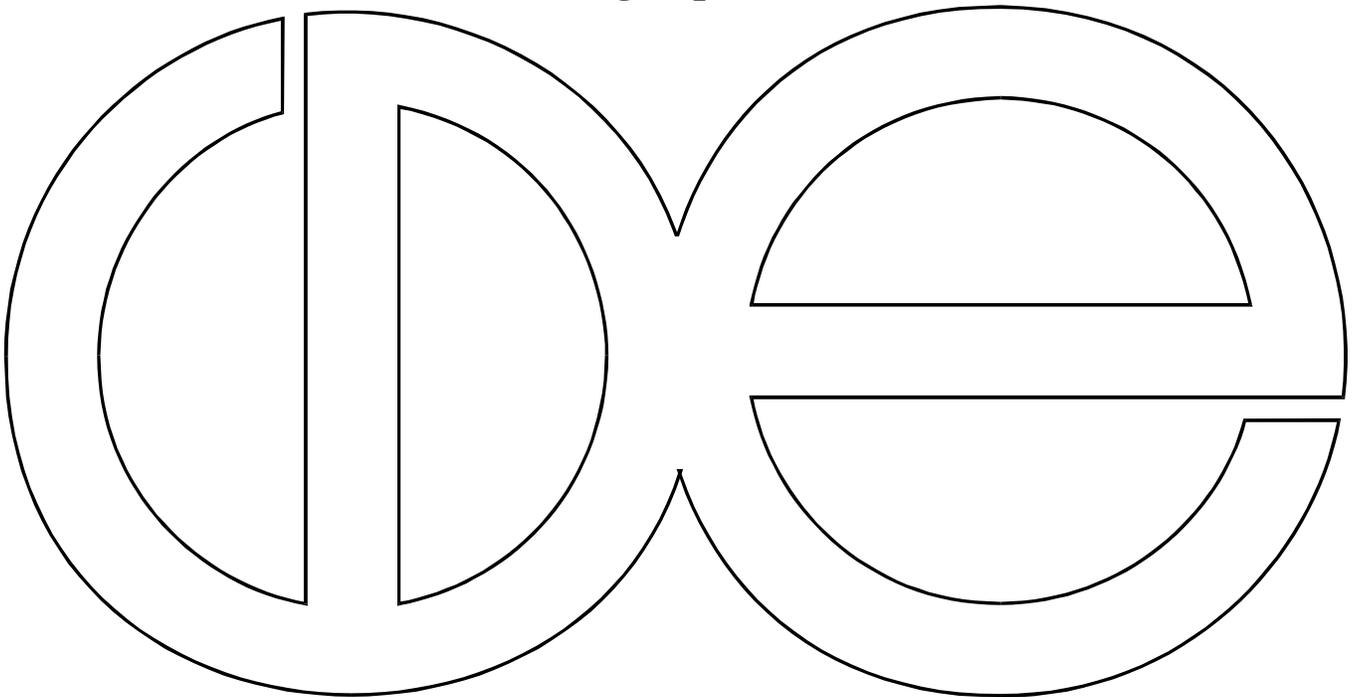
**Center for Demography and Ecology  
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**Early Parental Death:  
Parental SES and Achieved SES at Midlife**

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## **Early Parental Death, Parental SES, and Midlife Status Attainment**

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## **Early Parental Death, Parental SES, and Midlife Status Attainment**

### **Abstract:**

Status attainment models indicate that one of the predictors of lifetime education, income and wealth is parental education. Education is also correlated with mortality rates. We examine how parental mortality may influence lifetime education, income and wealth of offspring, after controlling for parental education. We use the Health and Retirement Study (HRS), a nationally representative sample of 9,678 men and women born 1931-1941. Using covariance matrices and LISREL 8.3 we fit a series of recursive structural models to estimate the direct and indirect effects of early parental death and parental education on later life SES. The best model differs by gender. For men, early parental death exerts no additional effect on lifetime SES. In agreement with the status attainment literature, we find that parental education exerts its effect on lifetime SES via education. For women, however, we find that early parental death is an independent factor that predicts lower wealth accumulation and educational attainment. For women, the influence of parent's education is felt through educational attainment as well as via direct effects on income and wealth. The results indicate that early parental death is especially detrimental to women's lifetime SES.

## **Early Parental Death, Parental SES, and Midlife Status Attainment**

### **Introduction**

In this analysis we investigate the complex linkages between parental death, parental socioeconomic status, and achieved socioeconomic status of offspring at midlife. We know that parental SES, sometimes referred to as ascribed status, is linked to achieved SES of the child (Blau and Duncan 1967; Sewell and Hauser 1975). There also is a large body of literature that describes the links between SES and health (see Feinstein 1993 for a review; also Ross and Wu 1996) and mortality (again—a large body of literature is available; see for example Kitagawa and Hauser 1973; Silver 1972; Feldman, Makuc, and Kleinman 1989).

Over the last thirty years, demographers and sociologists have been concerned with the processes that shape the socioeconomic and mortality outcomes of individuals over the life course. Generally, those researchers focused on the intergenerational transmission of socioeconomic status attainment (Blau and Duncan 1967; Duncan, Haller, and Portes 1971; Hauser, Tsai, and Sewell 1983) have not examined the transmission of longevity. Likewise, researchers focused on the intergenerational transmission of longevity, both in the historical (Beeton and Pearson 1899; Pearl and Pearl 1934) and modern era (Wyshak 1978; Philippe 1980; Glasser 1981; Vaupel 1988) have not examined the transmission of socioeconomic status. We posit that health, longevity and socioeconomic status may be transmitted from parents to children in concert. According to the life course perspective, the events in a person's life take place in the context of all other previous events in that person's life. Among those "life events"

previously described by social scientists is the loss of a parent (Duncan and Morgan 1976). Here, we model the influence of parental death during childhood on lifetime socioeconomic status.

There has been some previous research on vital events, outside of family processes, and the intergenerational transmission of socioeconomic status. Researchers in this area have usually concentrated on fertility rather than mortality. The focus on fertility makes logical sense since having more or fewer children has been directly linked with socioeconomic status. Mare (1996) reports that in the recent demographic history of the United States, lower SES women tended to have more children. This finding could partly explain the cross-sectional association of more siblings with lower intellectual ability (Alwin 1991; Blake 1989; Downey 1995; Guo and VanWey 1999a; Powell and Steelman 1993; Retherford and Sewell 1991, 1992). Preston (1974) also considered in detail the implications of differential fertility for occupation differentials by race. Alone among the researchers focused on fertility, Mare (1996) also examines the influence of differential mortality on educational outcomes. However, he argues that “mortality differentials should favor higher attainment because women who have more poorly educated children are *less likely to survive their childbearing years* and to survive to adulthood generally.” (Mare 1996:121-122, emphasis ours). In other words, the mortality argument as phrased by Mare is actually a fertility argument—lower SES women subject to higher mortality have fewer low SES children. The argument we make here is different—mothers who have higher mortality have less well-educated children. While Mare addresses how education may change in populations over time, we focus on individual-level processes.

Early life events and conditions can have dramatic impacts that persist into adolescence and early adulthood. Historically, shocks to the family income led to lower educational attainment, poor health and diminished lifetime earnings for children. Being fatherless, in 19<sup>th</sup> century England, was to be poor (Horrell, Humphries, and Voth 2001). In the modern United States, McLeod (1991) demonstrated that losing a parent as a youth, either through death or divorce, leads to such negative outcomes as early marriage and childbearing, lower educational attainment, and higher rates of divorce in young adults. Other researchers report that early parental loss is associated with alcohol use (Isohanni, Oja, Moilanen and Koironen 1994) and early initiation of sexual activity (Newcomer and Udry 1987). Haveman, Wolfe, and Spaulding (1991) found that childhood events and circumstances such as living in persistent poverty, being on welfare, and residential instability have negative impacts on high school completion. Similarly Duncan and colleagues (1994) found a strong negative effect of economic deprivation on children's cognitive and behavioral outcomes.

While the work summarized above concentrates on outcomes during or not long after adolescence, recent work by Hayward, Gorman, and Robinson (2001) suggests that social conditions in early life can have far reaching and largely irreversible negative consequences on the mortality of middle aged men as well. We hope to assess whether these negative consequences, specifically in terms of socioeconomic status, extend beyond early adulthood, or whether individuals are able to compensate in some way for the deprivation. Actuarially, the longer ago an event occurs, the less of an impact we expect it to have (Jordan 1975).<sup>1</sup>

## **Intergenerational Transmission Literature: Focus on SES**

Socioeconomic status is a complex variable that measures an individual's position in the social stratification system. Among the common markers used to measure socioeconomic status are educational attainment, income, wealth, and occupational prestige. Bollen, Glanville and Stecklov (2001) describe how SES is sometimes conceptualized as a unitary concept, measured by looking at the components described previously. According to the unitarians, it is the fundamental underlying structure that is of most interest. In contrast, other researchers do not treat SES as a unidimensional construct, but rather focus on the different components individually (Bollen, Glanville and Stecklov refer to this as the component approach). For example, Kitagawa and Hauser (1973) noted that income and education had independent effects on mortality risk.

Education and early occupation are often classified as human capital. We hypothesize that early parental death may have adverse effects on educational attainment specifically, or more generally on human capital formation. While the links between human capital and social capital are complex (Lin 1999), it seems likely that lower levels of educational attainment could lead to lower occupational attainment, income, and wealth accumulation over the life course. Boxman, De Graaf and Flap (1991) argue that if social capital is low, then human capital is more influential in determining income. When social capital is high, then human capital is not so important in determining income.

Many economists and sociologists have studied the intergenerational transmission of educational attainment. According to Becker's notions of the role of the family, parents are altruistic toward their children—they care about their children's welfare.

Thus, parents may be interested in investing in their children's education both for the good of the individual child, as well as for the good of the family unit (Becker 1991; Becker and Tomes 1986). Status attainment models indicate that educational attainment is very strongly associated with parental educational attainment (Blau and Duncan 1967; Hauser, Tsai, & Sewell 1983). Classic status attainment models—which focus on achieved occupational status in general—argue that family background works through the formal educational system in the United States (Blau and Duncan 1967; Ross and Wu 1996). In addition, parental (and peer) encouragement mediate status attainment (Hauser and Daymont 1977; Sewell and Hauser 1975).

Knowing that parents are important for higher educational attainment indicates that parental loss may be detrimental to high educational attainment. Previous research does indicate that education may be limited by parental loss during childhood (McLeod 1991).<sup>2</sup> One of the explanations of the effect of large family size on lower academic achievement has been resource dilution (Blake 1989; Downey 1995; Steelman and Powell 1991). Clearly, losing a parent would also dilute resources; with parental death, there are fewer “resources” to be allocated.

Other measures of socioeconomic status include occupation, income and wealth. We know that higher education is correlated with both income and wealth accumulation. Although status attainment models have indicated that educational attainment and occupational status are the primary markers for status attainment, here we are interested in examining a broad measure of SES rather than focusing on just education and occupation.

Since we are interested in measuring midlife SES, we hypothesize that income and wealth of the offspring may be linked to parental death via other pathways than educational attainment. These paths might include direct effects on wealth through lessened transfers, or indirect effects—for example, if parental death implies some kind of frailty or health deficiency in the child, then parental death may be a marker for health problems which in turn lead to lower income or wealth. That is, parental death may be linked with a health deficiency, and that lack of good health may be linked with the inability to maintain steady employment and accumulate savings. In addition, parental death may lead to other unmeasured behaviors that are in turn related to lower income or wealth—such as early marriage and childbearing or divorce. Income is achieved through either personal paid employment, paid employment of other household members, or other types of earnings (such as stock dividends). Income is most strongly linked with paid employment. Personal paid employment primarily is determined by such factors as labor force experience and education; however, factors such as gender or children in the home may also be linked to income. The employment status of other household members depends first on having other members available—thus single persons do not have additional household members to be employed. Income is usually considerably constrained by opportunity structures (Mare 1996). While it is possible that parental death may exert a direct effect on income, here we treat income as if it is primarily determined by educational attainment. An additional caveat must be added: marital status may be an important (and unmeasured) predictor of household income. We discuss the gendered implications of this assumption in the section on gender differences below.<sup>3</sup>

Wealth can be achieved in several ways, usually either through life-cycle savings behaviors or through transfers. Life-cycle savings behaviors are typified by patterns where individuals save from their income during their working years and dissave late in life (Gale and Scholz 1994). Income and wealth are clearly linked via life-cycle savings. Transfers can either be *inter vivos* (or between living persons), or bequests from the deceased. Obviously, the early death of a parent is likely to limit *inter vivos* transfers, given that the parent is removed from the living population. It seems theoretically possible however that the early death of a parent might increase the level of bequests. For example, the premature death of a parent may trigger a bequest before the parent has had time to spend down previously accumulated wealth.

Economists debate how wealth accumulation occurs. Some economists estimate that about 80% of wealth comes from *inter vivos* transfers (Kotlikoff and Summers 1981) while others such as Hurd and Mundaca (1989) and Modigliani (1988) argue that 80% of wealth (or net worth) is explained by life-cycle savings. Gale and Scholz (1994) claim that approximately 20% of the wealth of adult Americans comes from *inter vivos* transfers, with an additional 31% coming from bequests. Thus, economists interested in the mechanism of American adult wealth creation propose that twenty to eighty percent of wealth comes from transfers. Even if we accept the lower bound (only 20% of wealth is due to transfers), losing those transfers may be quite severe.

The evidence indicates that both bequests and *inter vivos* transfers are adversely affected by the early death of the parent. Among other reasons, familial transfers are likely to be lower if the parent spends less time in the profitable middle years of life (Lee and Miller 1994). According to the life-cycle savings model, bequests should be rare

since appropriate life-cycle saving and dissaving should balance.<sup>4</sup> However, given that the lifespan is not perfectly predictable, bequests are not unexpected in the life-cycle model (Davies 1981). We also argue, following the human capital model (Becker and Tomes 1986), that if the purpose of education is to increase wealth, the indirect pathway from parental death to wealth via educational attainment may be quite important. That is, if parental death lowers educational attainment, then wealth may also be significantly diminished.

### **Gendered Effects**

As we consider the effect of early parental death on midlife SES, we are also interested in examining if there is a gendered effect of early parental death. There are several issues to consider: the gender of the specific parent who dies may matter; the gender of the child who has a parent die may matter; the gender-match between parent and child may matter.

First, we consider whether the effect of a father's death is different than the effect of a mother's death. Specifically, it seems possible that losing a father is more severe than is losing a mother, especially given the economic climate of the 1930/40s, when the respondents were children. If fathers died in this era, household income would be constrained. In addition, the mothers, now widows, would likely enter the labor force. The long-term socioeconomic impact of a father's death seems theoretically strong. The long-term impact of a mother's death is less obvious. However, since mothers were more concentrated in the household labor market, that labor might have to be replaced by the child. That is, the death of a mother might not have a significant impact on household

income, but it may still have a strong impact on the child's ability to attain additional years of education.

Second, we consider whether the gender of the child matters. That is, is having a parent die more severe for boys than for girls, or vice versa? The literature is mixed on whether there is a difference in the value of education for boys and girls. The status attainment models (Blau and Duncan 1967; Sewell and Hauser 1975) are based on males' educational and occupational attainment, and it appears that male status is more influenced by education than is female status. Thus we can hypothesize that if parents understand that education is more important for boys' future status attainment, they may value boys' further education more highly.

Previous research indicates that boys are much more likely to attend higher education than are girls in this cohort (Sewell 1971; Sewell and Shah 1968). Thus, a decline in years of educational attainment that is equal in number of years for boys and girls may be more severe (in terms of overall SES) for girls since it will take place earlier in the course of that education. For both of these reasons, we hypothesize that if boy's education is more valued than is girls, parental death may weigh more heavily on girls than on boys. In that case, regardless of which parent dies, girls may be more disadvantaged in attaining additional years of education. Our hypothesis is based not on differences in cultural or normative expectations of the value of education, but on rational action theory, which postulates that families choose among different educational options based on rational cost-benefit calculus (Breen and Goldthorpe 1997; Buchmann 2000). A recent ethnographic study of elderly black Americans describes one such cost-benefit calculus; the eldest daughter had to curtail her education, and often had to act as the

“mother,” including performing child care and household maintenance after the mother died (Johnson and Barer 2002).

Some of the recent literature seems to indicate that parents do not value boys’ education more than girls’ education, and perhaps thus are not acting as rational actors. For example, parents who will pay for a child to attend college will pay for a child of either gender (Steelman and Powell 1991). In addition, parents now appear more closely involved in their daughter’s education than their son’s education (Carter and Wojtkiewicz 2000). The more recent findings also could be consistent with rational action models if there has been a change in how much education matters for girls. Since the older literature describing norms for parental practice and investment in education may be more relevant for our cohort than the newer literature, we hypothesize that girls may be more disadvantaged in our sample, but that younger cohorts may not experience such gender disparity.

While we thus hypothesize that parental death may exert a downward effect on girls’ educational attainment, it is less clear what the impact of parental death on income and wealth may be for girls relative to boys. Historically, women have been more able to marry “up” the socioeconomic ladder. Becker (1991) describes these patterns as an exchange based on different family members meeting different familial needs. Thus, since women are more able to marry into higher income and wealth than are men, compromised educational attainment for women will likely not have the negative impact on lifetime SES than compromised educational attainment has for men.

After examining the independent effects of parental gender and child’s gender, we consider the importance of the gender match. That is, is losing a father more severe for

boys while losing a mother is more severe for girls? This hypothesis has some support in the literature, although no one has addressed precisely the question we do. Looking at the direct effect of parental education on child's education, Lillard and Willis (1994) found that father's education was more influential for sons while mother's education was more influential for daughters' educational attainment in Malaysia. In Australia, mother's education appears to have more of an effect on daughter's education than other mixed gender matches, although the authors argue that overall, gender matching is not important in status attainment models (Crook 1995). Considering parental death, Isohanni, Oja, Moilanen and Koiranen (1994) found that among teens that had a parent die, the risk of alcohol use was highest among those who had had their same-sex parent die.

We are interested in examining whether parental death exerts an additional effect on achieved SES of the child, over and above that expected due to lower parental SES. In addition, we examine which element of SES is most affected—in particular, we look at whether the effect is predominately one of lowered educational attainment, or whether there are independent effects on wealth and income. Finally, we examine how gender may structure different effects.

Although we are unable to examine multigenerational data here, we realize that the achieved socioeconomic status of the child may be linked with his/her own mortality. Thus, a complex chain of causation is woven where low parental SES leads to higher mortality risk for parents, and to lower SES of child, which in turn may lead to elevated mortality risk, and lower SES of grandchild, ad infinitum. Future research will address the joint transmission of health risks as well as SES.

## **Data & Methods**

The data for this analysis come from the first wave of the Health and Retirement Study (HRS). The HRS is a long term panel survey of over 12,000 Americans aged 51-61 in 1992 designed to monitor health and SES before and throughout the transition to retirement. The HRS covers a representative national sample of non-institutionalized men and women born between 1931 and 1941. Women are sampled at the same rate as men. In addition, blacks, individuals of Latin descent, and residents of the state of Florida are over-sampled. The first wave of HRS was conducted in person in respondents' homes with a response rate of 82%. The interview covered health status and cognitive functioning (including measures of morbidity, disability, self-rated health, cognitive functioning, depressive symptoms, and positive well-being), retirement plans and perspectives, attitudes, preferences, and expectations, family structure and transfers, employment status and job history, disability, housing, income and net worth, health insurance and pension plans, and demographic background. The HRS is described in detail in Juster and Suzman (1995). We limited our analysis to those 51-61 in 1992. Additionally, sixty-nine observations were excluded because of missing data on income and/or wealth. The total sample size used in this analysis is 9,678.

Using covariance matrices and LISREL 8.3 we fit a series of recursive structural models to estimate the direct and indirect effects of early parental death and parental education on later life SES. We compare models under various parameterizations to test whether the observed relationship between early parental death and later life SES is a spurious one. Because of large sample size model fit is assessed using both minimum-

fit function  $\chi^2$  and Bayesian Information Criterion (BIC). BIC is calculated using the following equation:

$$(1) \quad \chi^2 - (\ln(n) * \phi)$$

where  $n$ = sample size and  $\phi$ = degrees of freedom (Raftery 1993). BIC is essentially a punished  $\chi^2$  statistic that attempts to attenuate the inflationary effect of large sample sizes on standard minimum-fit function  $\chi^2$  values. Generally, BIC values of  $-5$  suggest good model fit while  $BIC \leq -10$  suggest excellent fit. Positive values of BIC of the same magnitudes are indicative of poor model fit. Also, because it is a function of the degrees of freedom specified in the model, BIC also has the added feature that, all else being equal, it rewards parsimonious models. The general argument for using BIC is that with large sample sizes, it is often impossible to accept any parsimonious model using traditional significance testing.

Because the sampling procedure employed in the HRS was designed to yield an over-sample of Hispanics, African-Americans, and Floridians, we adjusted the sample correlations and standard deviations used to fit our models using the person-level analysis weights created by HRS. This allows our results to be representative of the near-retirement age population of the nation as a whole.

### **Measures of SES**

For the midlife respondents, SES is measured along three dimensions. Educational attainment is measured as a continuous outcome of the number of years of

schooling ever completed. Income and wealth are aggregate measures of household level income and non-housing assets both measured on a log scale. Wealth that is negative (indicating a net debt) is treated as zero in the log-scale.

Parental SES is measured using 5 categorical indicators for education for each parent. We used categorical variables for parental education to preserve cases that would have been lost due to a non-trivial number of missing data for parental education. The educational status measures completion of primary school (0-8 years), partial secondary school (9-11 years), high school graduation (12 years), and post-high school education (13+ years), as well as a missing education category. Although we present the parameter estimates for each of these effects, for the sake of schematic clarity the path diagrams of the models we construct portray only two indicators of parental education, one for each parent. We do not have measures of parental income or wealth and thus are unable to include those factors in the models.

### **Parental Longevity**

In order to measure potential differential effects between the gender of the deceased parent and that of the child we have two dichotomous measures of early parental death. A dummy variable measuring early maternal death equals 1 if the respondent experienced the death of their mother before they reached age 19; a dummy variable measuring early paternal death equals 1 if they experienced the death of their father before age 19.

## Models

In all of the models presented below we also include demographic controls for race, Hispanic ethnicity, nativity, and age. Models are estimated separately for men and women.

Parameter estimates are derived from the following structural equations of the model.

$$(2) \quad h_{\text{yr sed}} = \mathbf{G} \mathbf{x} + \mathbf{z}_1$$

$$(3) \quad h_{\text{income}} = \mathbf{G} \mathbf{x} + \mathbf{b} h_{\text{yr sed}} + \mathbf{z}_2$$

$$(4) \quad h_{\text{wealth}} = \mathbf{G} \mathbf{x} + \mathbf{b} h_{\text{yr sed}} + \mathbf{z}_3$$

where  $\mathbf{G}$  is a matrix of the direct effects of  $\mathbf{x}$  (the exogenous parental longevity, SES, and the demographic control variables),  $\mathbf{b}$  is a matrix of the effects of educational attainment on income and wealth, and the  $\mathbf{z}$ 's are error terms. The models we test are depicted graphically below in Figure 1.

In Models 1-5 we test the effects of early parental death on educational attainment. In Models 6-9 we test the effect of early parental death on wealth accumulation. In Model 10 we test whether parental education has direct effects on income and wealth. Finally, in Model 11, we create best-fitting models for men and women, and then test whether men and women should be modeled separately.

In Model 1 (see Figure 1 for path diagrams), we fit a nearly saturated recursive model. Early parental death is allowed to exert a direct effect on wealth and educational attainment. All other exogenous variables have both direct effects on educational

attainment, income, and wealth and as well as indirect effects on income and wealth via their effects on education. To account for covariance between income and wealth that is not accounted for in the model there is a free correlation among their error terms. There are also correlated errors between parent's education and their own longevity, between mother and father's education, and between parental longevity. These correlations are present in all models.

In Models 2-3 we constrained the effect of first mother's death (Model 2) then father's death (Model 3) on educational attainment to be zero. These two models examine whether the observed relationship between parental longevity and education is really driven by one parent. Like Model 1, Model 4 allows both early paternal and maternal death to affect education. However, the parameters for maternal and paternal death are constrained to be equal. Model 4 directly tests the notion that experiencing the death of a parent has long-term consequences for children's education; however, losing one's mother is no worse than losing one's father and vice versa. In Model 5, we directly test whether the adverse effects on educational attainment of losing one's parent during childhood are spurious. We may simply be observing the fact that people with lower levels of educational attainment are both more likely to die prematurely and to also have children of lower SES. This would be an example of the classic case of common cause spuriousness. Low parental SES may be causing both their own premature mortality and their children's lower SES attainment. In this model the effects of early parental death on education are fixed to zero.

In Models 6-7 we constrained the effect of first mother's death (Model 6) then father's death (Model 7) on wealth to be zero. These two models examine whether the

observed relationship between parental longevity and wealth is really driven by one parent. In Model 8 these effects are equalized and in Model 9 they are constrained to be zero.

In Model 10 we fit a model that examines if parental education has direct long-term effects on income and wealth. That is, do the status attainment models, which indicate that family background essentially works through the formal educational system in the United States (Blau and Duncan 1967), hold for our cohort? We fit a model in which parental death is allowed to have direct effects on education and wealth while parental education is allowed to affect only education directly.

Finally in Model 11 we fit a best fitting model for men (Model 11—men) and for women (Model 11—women) based on the previous analysis. We then fit a between-group model that tests whether the best-fit model for men also fits for women.

## **Results**

We begin by describing the occurrence of early parental death within this cohort as well as the bivariate relationships between early parental death and SES. Table 1 describes the age of the respondents at the death of their mothers and fathers. Three key findings are apparent. The first is the large percentage of parents still alive for this midlife cohort. Over 40 percent of respondents still have a living mother and nearly 20 percent have a living father. The second important (although expected) feature is the noticeable mortality differential between men and women at all ages. Although this is not the actual age distribution of mortality for the parents (because respondents are more likely to have had a father die at all age groups), it suggests that mortality is higher for

men throughout the life course. The third striking feature of the bivariate results is that large proportions of the cohort did experience the death of a parent, especially a father, during childhood. Over six percent had their mother die and over 10 percent experienced the death of their father before they reached age 19. For this cohort, early parental death was not a rare event.<sup>5</sup>

[Table 1 about here]

Table 2 shows the simple bivariate differentials in education, wealth, and income by parental death status. At midlife, there are clear socioeconomic differentials between those who experienced the death of a parent during childhood and those who did not. The premature death of one's mother is associated with 1.4 fewer years of schooling completed. Those that experienced the death of a father also had lower levels of educational attainment. There are also large disparities in income. Early death of the father is associated with an average of \$8,000 less in household income while those whose mothers survived their childhood earned \$6,000 more in household income. The effect on household wealth at midlife shows a similar pattern to those for education and income. The early death of a parent is associated with substantially lower levels of household non-housing assets. Again, we find that the early death of mother has a stronger effect on wealth accumulation. Those who experienced the death of their mother before their 19<sup>th</sup> birthday had \$65,000 less in household assets. Father's death is associated with nearly \$50,000 less in assets.

[Table 2 about here]

There also is a strong inverse relationship between parental education and the likelihood that they died prematurely. As seen in table 3 both mothers and fathers that

had lower levels of education were more likely to die before the respondent reached age 19. For example 20.6 percent of mothers that died prematurely had completed high school or had some post secondary education compared to 35.3 percent of mothers who survived. As would also be expected those that died prematurely were substantially more likely to have missing data on education.

[Table 3 about here]

We next turn to the analytical models to try and explain the causal processes that lead to these disparities and whether these relationships are spurious due to the common effect of parental SES on their children's SES and their own mortality. Table 4 presents the statistics for model fit. See Figure 1 for path diagrams that illustrate the models.

[Table 4 about here]

### **Early Parental Death and Educational Attainment**

We begin by examining the hypotheses about the relationship of early parental death to educational attainment. Model 1 describes the most saturated model—early parental death exerts a direct influence on wealth and education, while parental SES affects income, wealth and education. The complete model is depicted in Figure 1, Model 1. The fit of Model 1 is excellent for both men and women. In Models 2-3, we constrain the effect of first mother's death (Model 2) and then father's death (Model 3) on educational attainment to be equal to zero. Both constrained models fit very well for men. It appears that for men the death of one parent is not more deleterious (in terms of educational attainment) than that of the other parent. For women, constraining the effect of mother's death to be zero does not have a statistically significant negative impact on

the fit of the model while constraining father's death to be zero results in a significant decline in model fit. While this would suggest that father's death is important while mother's is not, we test this by setting these effects to be equal (Model 4).

Model 4 is very similar to Model 1, but the parameters for maternal and paternal death are constrained to be equal to each other. Model 4 tests the hypothesis that experiencing the death of a parent has long-term consequences for children's educational attainment, regardless of the gender of the parent who dies. For men, there is almost no difference in fit between Models 1 and 4. For women Model 4 fits better. While  $\chi^2$  does increase slightly (from 5.69 to 5.77) the added parsimony derived from assuming no differential effects for mother's and father's death yields an improvement in BIC (from -79.75 to -88.21) that more than makes up for this insignificant decline. In Model 5, we directly test whether the lower educational attainment predicted by early parental death is spurious. In this model all of the effects of early parental death on education are fixed to zero. Here we hypothesize that early parental death only appears to deflate educational attainment and that actually the effects are due to the correlation of early parental death with parental SES. Thus lower education may be attributed to lower parental SES not early parental death. We find that Model 5 is the best fitting baseline model for men. Thus, there is no reason to believe that there is a direct causal relationship between premature parental mortality and lower educational attainment of male children. Men who experience the death of parent during childhood may have lower lifetime levels of SES but it is not the result of parental death *per se*, rather it is the result of having less educated parents.

For women, the addition of these constraints has a detrimental effect upon the fit of the model. There is a significant increase in  $\chi^2$  to 17.02 with only two additional degrees of freedom. The ratio of  $\chi^2$  to degrees of freedom almost triples. We conclude that, for women, the relationship of early parental death to achieved education is not spurious.

In general the comparison of the five baseline models demonstrates that parental mortality has very different consequences for men and women. For men, experiencing the death of a parent does not appear to lead to a significant change in educational attainment, net of the effect of parental SES. For women, the early death of a parent leads to lower educational attainment above and beyond the expected intergenerational transmission of SES.

### **Early Parental Death and Wealth Accumulation**

Having examined the structure of the relationship between early parental death and educational attainment in the preceding models, we turn to the relationship between early parental death and their children's achieved wealth at midlife (Models 6-9). The results from Models 6-9 are very similar to those for education. Again, we test the effect of constraining mother's death to be zero (Model 6), father's death to be zero (Model 7), mother's death and father's death to be equal to each other (Model 8), and a spurious effect model (Model 9). As for education, both constrained Models 6 and 7 fit very well for men. Model 7, where the two parents' deaths are constrained to have an equal impact does not improve the model fit relative to Model 1. We find that Model 8 is the best fitting model for men. For men, the best fitting models are Model 5 (where the effect of

parental death on education was zero) and Model 8 (where the effect of parental death on wealth was zero). Thus, there is no reason to believe that there is a direct causal relationship between premature parental mortality and lower levels of wealth of male children.

For women, we cannot conclude that parental death is merely spurious. For women, many of the constraints result in a significant decline in model fit. Constraining either paternal mortality's effect (Model 6) or maternal mortality's effect (Model 7) to be zero results in a decline in model fit. Thus we reject these models. Model 8, like Model 4, constrains the parameters for maternal and paternal death on wealth to be equal to each other. For women Model 8 fits substantially better than 6 or 7. Comparing Model 1 with Model 8, we note that while  $\chi^2$  does increase slightly (from 5.69 to 5.99), the added parsimony derived from assuming no differential effects for mother's and father's death yields an improvement in BIC (from  $-79.75$  to  $-87.99$ ).

In Model 9, we directly test whether the adverse effects of losing one's parent during childhood are spurious. In this model all of the effects of early parental death on wealth are fixed to zero. Here we hypothesize that early parental death only appears to deflate achieved wealth at midlife and that actually the effects are due to the correlation of early parental death with parental SES. For women, the addition of these constraints has a detrimental effect upon the fit of the model. There is a significant increase in  $\chi^2$  to 16.06 with only two additional degrees of freedom; the ratio of  $\chi^2$  to degrees of freedom more than doubles. We conclude that, for women, the relationship of early parental death to wealth accumulation is not spurious.

In general the comparison of the nine baseline models demonstrates that parental mortality has very different consequences for men and women. For men, experiencing the death of a parent does not appear to lead to a significant change in the long-term accumulation of wealth or education net of the effect of parental SES. For women, the death of a parent leads to lower asset accumulation that persists over the life-course and lower educational attainment above and beyond the expected intergenerational transmission of SES. For women, we reject both of the spurious effect models (Models 5 and 9) while for men we accept the spurious effect models.

### **Transmission of SES**

In Model 10 we turn our focus to parental SES and away from parental death briefly. We test whether all of the effects of parental educational attainment on income and assets are indirect, operating via parental education's influence on children's education. Under this parameterization the fit of the model improves substantially for men. The minimum-fit  $\chi^2$  rises to 14.68 (but at 16 additional degrees of freedom this is not statistically significant and is more than made up for by improved parsimony as seen in a BIC of  $-204.28$ ). For women, Model 10 is not an improvement over Model 1. There is a statistically significant increase in  $\chi^2$  from 5.69 to 59.62. The ratio of  $\chi^2$  to degrees of freedom quadruples. Although BIC does improve substantially and is quite respectable at  $-162.51$ , it is not clear whether the added parsimony makes up for the loss in ability to reproduce the observed covariance that exists in the data. While more

parsimonious models are generally good, the added parsimony achieved in Model 10 may not be sufficiently better to warrant the loss of overall model fit. For this reason we are inclined to choose the less parsimonious model which includes direct effects of parental education on income and wealth.<sup>6</sup>

### **Final Models**

Finally, we bring together the results from Models 1-10 into a best fitting model for men (Model 11) and women (Model 11a). For men, we draw on Models 5, 9 and 10—early parental death does not have a long-term negative impact on socioeconomic status net of the effect of low parental SES. Also, the intergenerational transmission of SES appears to act primarily through educational attainment. For women, we use Models 4 and 8. The best fitting model for women derived from the analyses above suggests that the experience of losing one’s parent not only has deleterious effects on SES in the short term as suggested by the work of McLeod (1991), but that these effects persist over the life course.<sup>7</sup>

[Table 5 about here]

Tables 5-6 present the parameter estimates for Models 11 (men) and 11a (women) respectively. From Table 5 we see that men that are white, non-Hispanic, and younger have higher levels of educational attainment. Whites also have higher levels of income and accumulated assets. Additionally, those whose parents both have some post-secondary education have on average nearly 5 more years of completed education than those whose parents did not attend high school.

[Table 6 about here]

For women (Table 6), having a parent die when one is a child has a significant deleterious effect on educational attainment and wealth accumulation net of the effect of parental education. The size of this effect, although statistically significant, is small relative to the effect of parental SES and ethnicity on education. Having a parent die during your childhood leads to 0.316 fewer years of educational attainment and 0.36 fewer log-dollars in assets. However, those whose parents only completed primary education have 4.3 fewer years of schooling than those whose parents both have some post secondary education. Via its effects on education, early parental death also has indirect negative impact on income and wealth accumulation at midlife. Parental education continues to exert a strong effect on midlife income and wealth.

## **Conclusion**

While previous research has found that negative life events experienced in childhood such as parental death and divorce can have deleterious effects that last into adolescence and early adulthood (McLeod 1991; Duncan, Brooks-Gunn, and Kato Klebanov 1994; Haveman, Wolfe, and Spaulding 1991), we find that, at least for women, these effects persist into midlife. For women, experiencing the death of a parent before maturity has significant negative effects on SES that persist into late middle age. For men, we did not find any long-term effects of parental death on midlife SES. Thus, it could be argued that women are not able to compensate for the blow of early parental death but men are.

We focus on educational attainment as a mechanism by which early parental death could affect SES generally. Lower educational attainment has tremendous impacts on wealth accumulation through out the life course primarily by limiting the

accumulation of human capital. This in turn limits opportunities for occupational attainment and lowers lifetime earnings. This simple bivariate relationship is attenuated when the effects of parental education are parceled out but remain significant. This suggests that while low SES parents are both more likely to die prematurely and to have children of lower SES, the effect of early parental death is not simply a case of common cause spuriousness for women. It is not the case that low SES parents are passing on their low SES to their daughters and just also happen to die prematurely. While other mechanisms such as health status over the life course, the loss of potential inheritance, as well as early marriage and childbearing, may also mediate the effect of early parental death on SES, educational attainment is likely to be one of the most important.

Socioeconomic status is a complex variable that measures an individual's position in the social stratification system. While some researchers have argued that stratification, especially status attainment based on family background, works through educational attainment (Blau and Duncan 1967; Ross and Wu 1996), others point out that the relationship between various markers of SES and other outcomes of interest is not uniform (Kitagawa and Hauser 1973). We also examined lifetime SES by focusing on the impact of parental death on wealth accumulation. As for education, parental death appears to exert an additional negative effect on wealth accumulation for women.

Boxman, De Graaf and Flap (1991) argue that if social capital is low, then human capital is more influential in determining income. When social capital is high, then human capital is not so important in determining income. Thus, our finding that parental death is not a predictor of later SES for men could be explained thusly: men whose parent(s) die when they are young are able to replace the deficit in social capital (e.g.,

networks or parental aspirations) with additional human capital (e.g., education). Women whose parent(s) die when they are young are unable to compensate for the deficit in social capital with human capital.

Following the research on early adult experiences with parental loss (McLeod 1991; Duncan, Brooks-Gunn, Kato Klebanov 1994), and the results we present above, we argue that for women, early parental death is especially detrimental. Early parental death leads to the loss of human capital (via educational pathways) and to the loss of social capital (via the loss of the parental contacts, as well as early marriage and subsequent marital dissolution, and other behavioral patterns). While early marriage is potentially indicative of a gain in social capital, the long-term future of early marriages is bleak (Sweet and Bumpass 1987). Thus, if women try to make up for the social capital lost from parental death with early marriage, they are unsuccessful. Whether or not men and women actually rationally plan to make up for the loss of social capital (often measured by parental networks and aspirations) in different ways remains an open question. That is, do men actively seek additional education to make up for social capital deficits while women try to replace the social capital itself? Future research may answer this question more definitively. If it is a rational plan, and the item for optimizing is income, then we must argue that the men's strategy is more successful.

The gender disparities we find are striking. For men, parental death does not additionally limit educational attainment or wealth; for women, it does. We were interested in three gender hypotheses: the gender of the parent who dies matters; the gender of the child whose parent dies matters; the gender match between parent and child matters. While we expected that parental gender would matter, in fact our results indicate

that it did not for this cohort. Also, the gender match was unimportant in all cases. For girls, parental death was bad no matter who died; for boys, it did not matter if anyone died.

On the other hand, the best-fitting models are quite different for the gender of the child. We discussed the possible explanations from the human capital and social capital theories above. In addition, based on formal rational action theory, we might expect that if boys' education is more valued than girls', parental death may "cost" more for girls than for boys. Finally, since girls attain less education than boys (for our sample, women averaged 11.99 years of education and men 12.38 years), the penalty for missing an additional year of education may be relatively greater for girls than for boys, especially in terms of other measures of SES. It should also be noted that although the "best-fitting" model differs for men and women, all models fit better for men than for women. BIC for the final male model is  $-230.36$  ( $\chi^2/df$  is 0.743); BIC for the final female model is  $-96.64$  ( $\chi^2/df$  is 0.502). Perhaps the superior fit for males is not surprising, given that male education tends to be more correlated with household income and wealth than does female education and married females are likely dependent on male income (Sorenson and McLanahan 1987; Reskin and Hartmann 1986).

When we examine the coefficients presented in Tables 5 and 6, we are surprised to find that education is more correlated with income and wealth for women than for men. For women, each additional year of education they attain buys them 0.116 log-dollars of household income and 0.305 log-dollars of household wealth. For men, each additional year of education buys then 0.110 log-dollars of income and 0.228 log-dollars of wealth. These results run contrary to both the original status attainment models and the

rational action theory model. Future work may address this disparity by concentrating on individual income and wealth rather than household measures. We have also simplified our models by treating having negative assets the same as having no assets. Finally, considerations of non-housing wealth separately from all wealth may change the picture.

While these results are very interesting, several limitations should be mentioned. First, the results presented here are based on a nationally representative sample of older Americans born in 1931-1941. This cohort was exposed to a number of unique period events during their childhood, including the Depression of the 1930s and World War II. These period events may have influenced parental death rates and educational aspirations and attainment, as well as the rest of the life course. Whether these results will be generalizable to later cohorts is debatable. More recent work on younger cohorts (McLeod 1991, for example) seems to indicate that these results may persist.

Second, our models are somewhat simplistic. Among the additional factors we might have wished to consider are other forms of familial separation in childhood (such as never-married mothers or divorced parents) and number of siblings. More recent cohorts may be more impacted by some of these familial events than by death. We also did not consider the impact of household and family formation for this cohort. Some of the gender effect of parental death may be attributable to different marital patterns for men and women affected by parental death. Contrary to research that focuses on earlier life course events (McLeod 1991), we did not find any correlation between whether our respondents had ever married and early parental death. We were unable to measure marital timing over the life course accurately enough to include it in our models. Since this may be a very important mediator of midlife SES through the mechanism of

assortative mating, future researchers may wish to address whether the possible differences in marital timing are influenced by parental death. Assortative early marriage may be bad for women in two ways: first, it may limit their own human capital information; second, it may lower the average SES level of the pool of potential spouses. Again, our models appear to predict that males and females cope differently with parental death. One of these “coping mechanisms” for women may be early marriage.

In addition, we did not model how family size, specifically number of siblings, was related to socioeconomic outcomes. Some authors have noted that parental investment in children may vary by family size (Blake 1989; Steelman and Powell 1991; Downey 1995). Future researchers should investigate the influence of family size on educational outcomes, controlling for early parental death. We hypothesize that the relationship may be extremely complex. In fact, it may be difficult to determine the direction of causation. The majority of the literature seems to indicate that “child quality,” including educational attainment, is higher with fewer siblings (Alwin 1991; Blake 1989; Downey 1995; Powell and Steelman 1993; Retherford and Sewell 1991, 1992).<sup>8</sup> However, we find here that educational attainment is lower, at least for girls, if a parent dies. In addition, we note that if a parent dies very young, fertility may be curtailed. Thus, persons with fewer siblings may be subject to opposing forces on their educational attainment. An additional consideration is that parental death may lead to structural family changes. Remarriage may add siblings who are not related by blood; we know that parental investment is higher for biological children (Daly and Wilson 1988).

Our own future research plan is to turn to later life health risks and behaviors. We hope to address the even more complex question of how parental death influences health

risks, controlling for both familial and achieved socioeconomic status. In effect, we address here how early parental death creates a select group of individuals who have different midlife SES than those who did not experience this winnowing factor. Next, we hope to address how the selection of early parental death marks people's behaviors later in life—not just their SES, but their health and economic lifestyle choices.

## Endnotes

- <sup>1</sup> One of the immediate outcomes that follow the death of a parent is the experience of grief. Current research indicates that grief may be more difficult to cope with for adolescents than for younger children (Glass 1990; DeMinco 1995; American Academy of Pediatrics 2000; Dowdney 2000). According to Freudian psychology, children who have a parent die are destined for depression later in life (Hurd 1999). The Freudian described “later behavior disorder” was the primary psychological hypothesis about how children would respond to grief during the era that the respondents to the Health and Retirement Study, our sample, were children. In the 1960s, Bowlby emerged as the primary critic of the “later behavior disorder” hypothesis, arguing that children who were properly supported during the grief period would not necessarily develop depression later in life (Bowlby 1961, 1963, 1980). Bowlby argued that children could mourn in healthy ways, in a supportive environment. Here we focus not on the psychology of depression but rather on a long-term structural component in the life course: socioeconomic status.
- <sup>2</sup> On the other hand, earlier research indicated that “orphanhood” was more common among geniuses—the stress of being orphaned led to extreme intellectual curiosity and concentration (Eisenstadt 1978; Silverman 1974).
- <sup>3</sup> Mare (1996) details the history of previous research on the interdependency of demographic factors and intergenerational transmission of inequality. In particular, he cites a series of studies (Johnson 1980; Lam 1986; Matras 1961, 1967; Preston 1974; Preston and Campbell 1993) that focus on how differential fertility may matter for the

intergenerational transmission of inequality. We do not consider fertility in our models; it may be an interesting factor to add in further research on the topic.

- <sup>4</sup> Life insurance is an exception to the rule that bequests should not occur since clearly life insurance is meant to be a transfer of money that follows the death of the person insured.
- <sup>5</sup> Period events, including the Depression of the 1930s, World War II and the Korean War, may explain part of these high rates.
- <sup>6</sup> Recently there has been increasing debate as to the utility of BIC as means of assessing model fit relative to traditional significance testing or other methods using Bayesian factors (Weakliem 1999; Raftery 1999; Xie 1999). Our results illustrate a case in which traditional significance tests and BIC do not agree as to which model is preferable. Unfortunately our analysis does not provide new insight into this controversy. We acknowledge that based on BIC a more parsimonious model without direct effects of parental education on income and wealth would be supported. As we see it, the decision, as is often the case, comes down to a choice between parsimonious models and those that best reproduce the data at hand. On this point we come down in support of reproducing the data, though we acknowledge that others may see it otherwise.
- <sup>7</sup> To test whether men and women really have different underlying structures we fit a between-group model in which we applied the underlying causal structure implied by the men's best-fit model to the women. This yields a poorly fitting model with a chi-square of 108.48 with 60 degrees of freedom. This is significant at  $p < .005$ .

<sup>8</sup> We understand that newer research has questioned the relationship between number of siblings and “child quality” (Guo and VanWey 1999a). While we are intrigued by the recent debate on this subject (Downey, Powell, Steelman and Pribesh 1999; Guo and VanWey 1999b; Phillips 1999), our findings remain tenable if the number of siblings is truly unimportant for educational attainment. That is, if sibling size does not matter for educational attainment, then our models are sufficient as they stand. In fact, we argue that one reason that sibling size may appear not to matter is if the models describing the effect of number of siblings on education and child quality do not adequately control for parental death. However, we do not believe this is a failing of the previous research, given that parental death is probably less important for children today than when our cohort was young.

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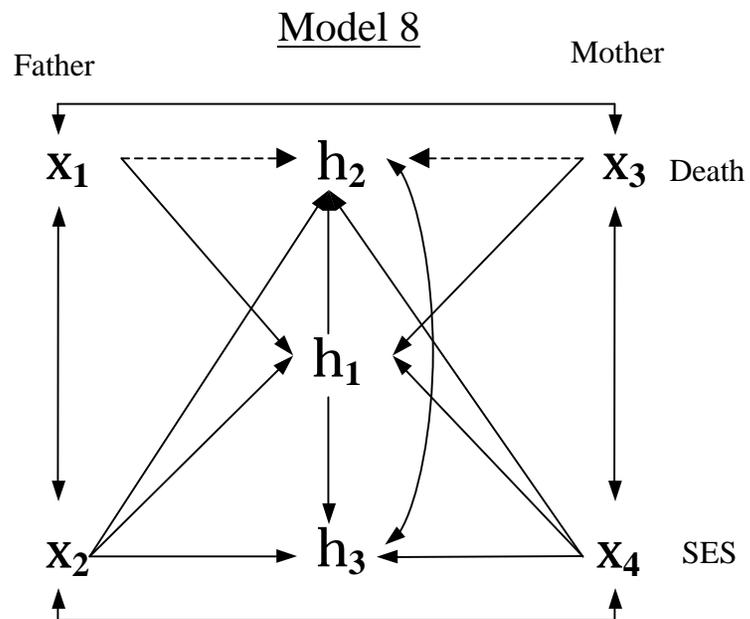
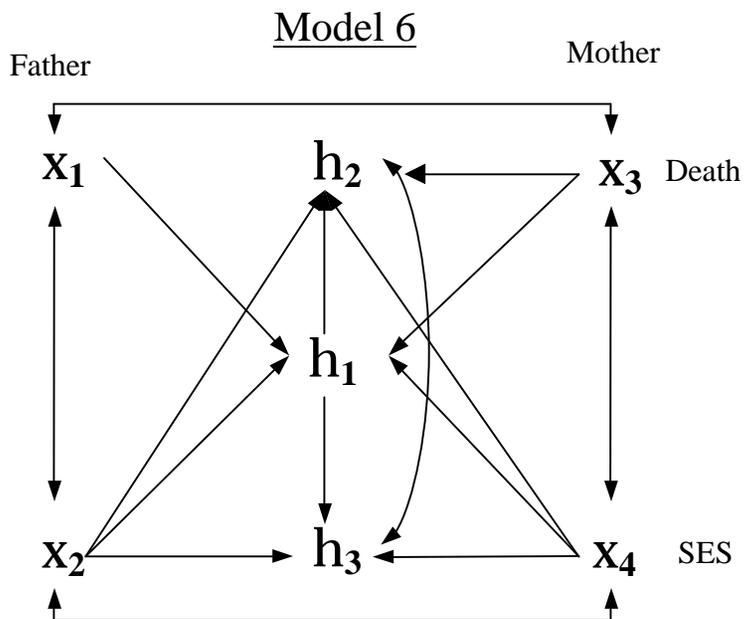
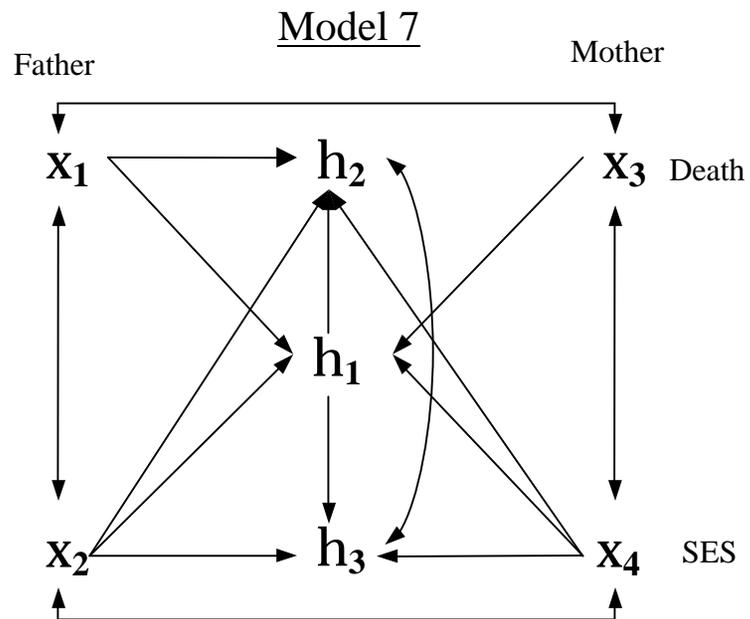
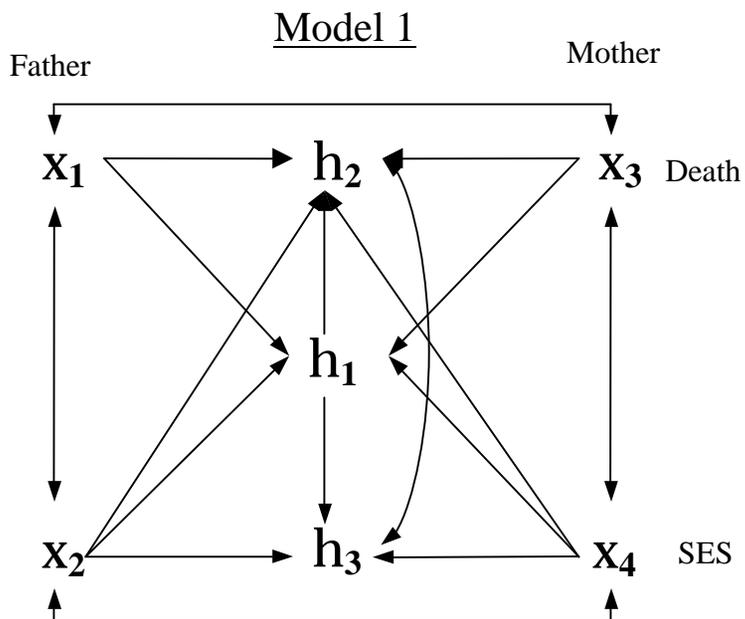
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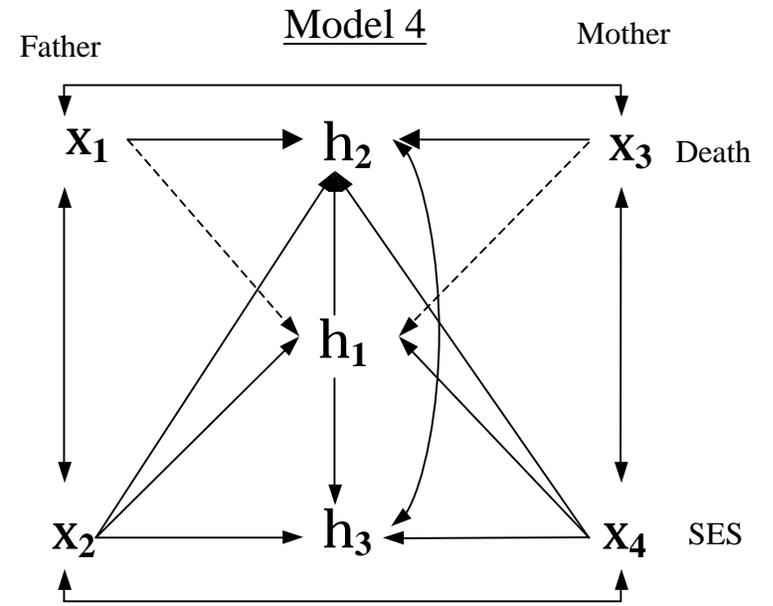
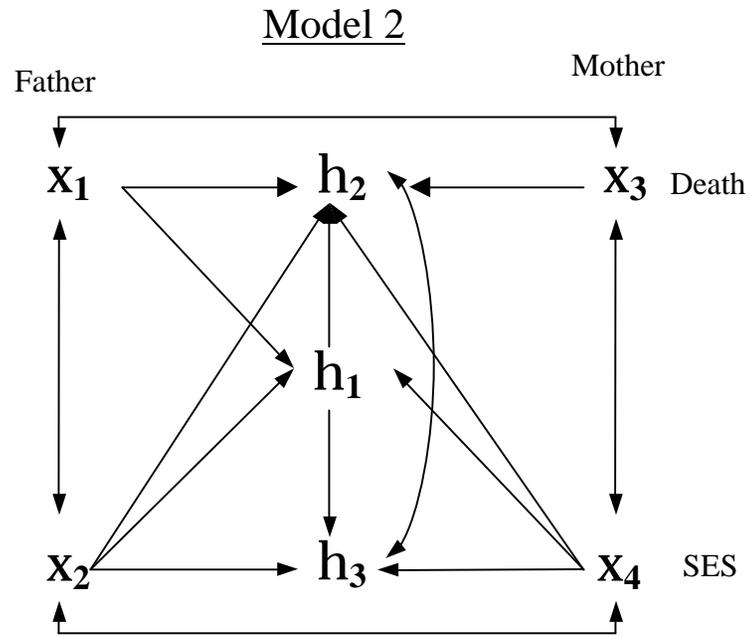
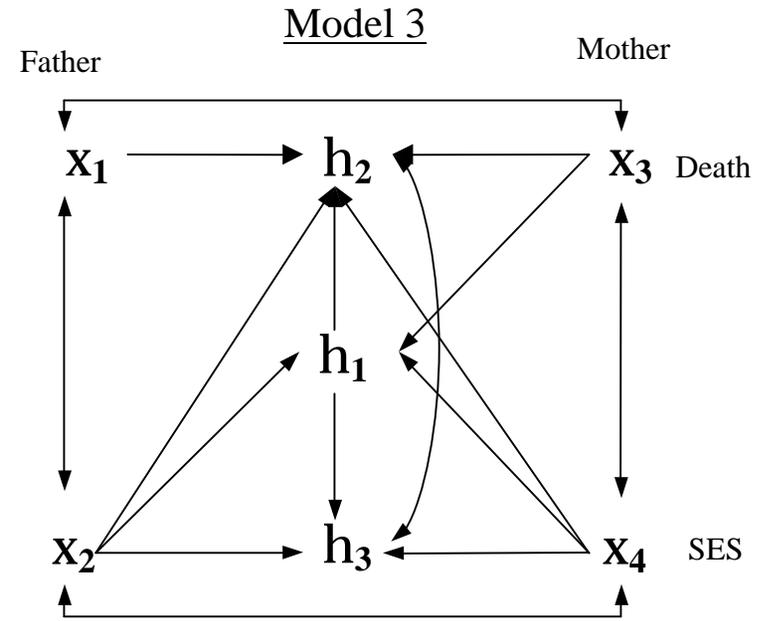
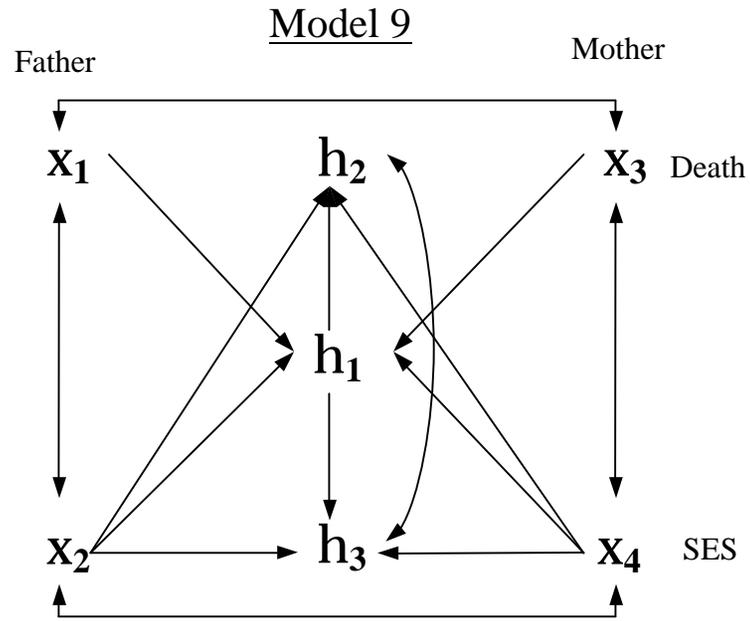
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Figure 1 Path Diagrams for Models Used in the Analysis



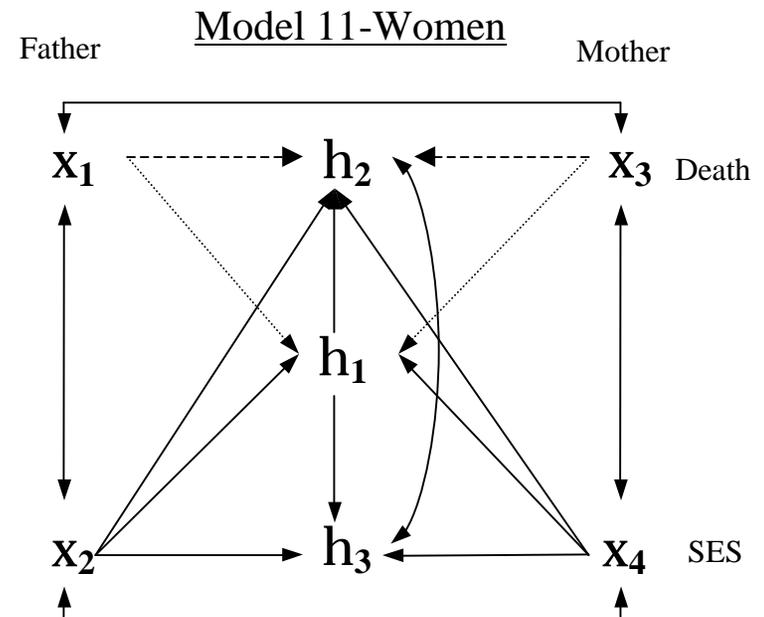
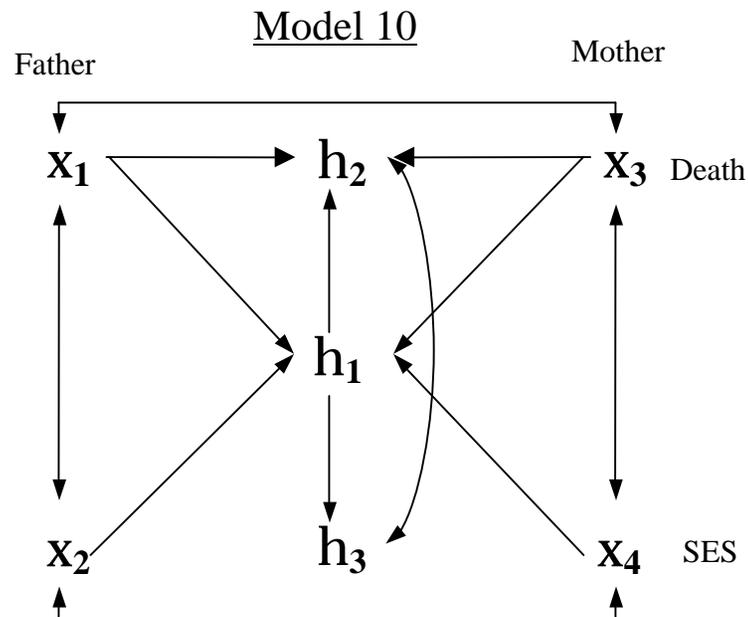
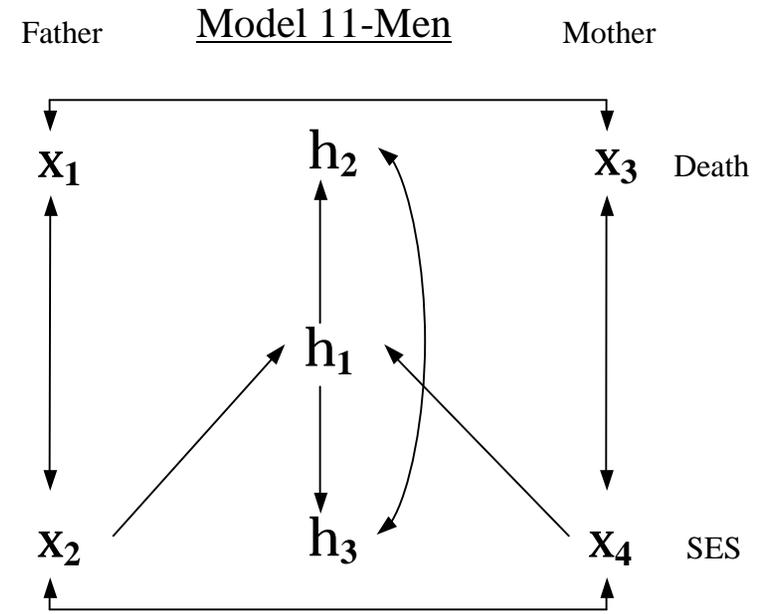
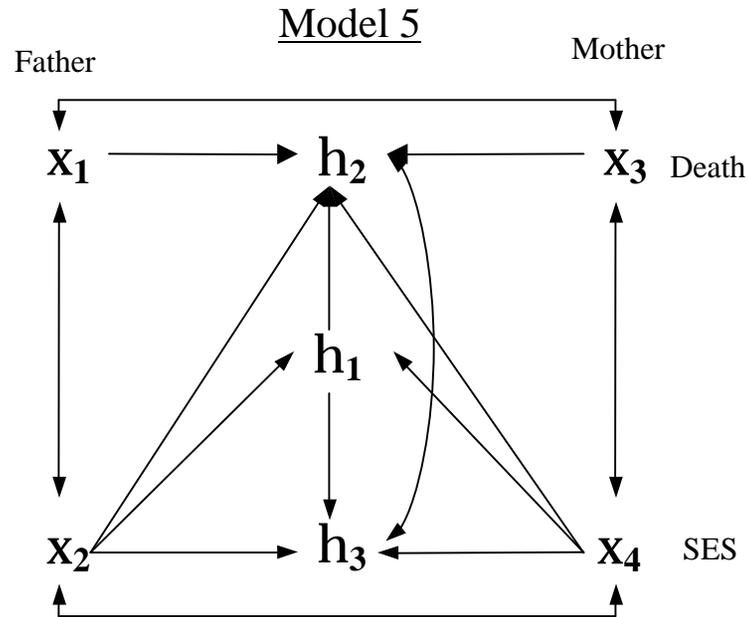
$\eta_1 = \text{Yrsed}$      $\eta_2 = \text{lnwlth}$      $\eta_3 = \text{lnincome}$

Figure 1Continued



$\eta_1 = \text{Yrsed}$     $\eta_2 = \text{lnwlth}$     $\eta_3 = \text{lnincome}$

Figure 1Continued



$\eta_1 = \text{Yrsed}$      $\eta_2 = \text{lnwlth}$      $\eta_3 = \text{lnincome}$

Table 1 Age at Death of Parent	Mother	Father
	% (N)	% (N)
0-5	2.16 (206)	2.55 (240)
6-18	4.03 (383)	8.42 (792)
19-30	6.9 (657)	15.6 (1468)
31-45	19.2 (1829)	32.37 (3046)
46-61	25.01 (2381)	24.09 (2266)
Still Alive	43.62 (4222)	19.28 (1866)
Total	100 (9678)	100 (9678)

Table 1. Distribution of respondents by age at the death of their mother and father, HRS

1992.

**Table 2 Average Educational Attainment, Income, and Wealth by Parental Longevity Status**

	<u>Years of Education</u>	<u>Household Income</u>	<u>Household Assets</u>
Mother Died During Childhood	10.85	44,627	111,148
Mother Survived Childhood	12.24	50,912	176,370
Father Died During Childhood	11.49	43,288	128,453
Father Survived Childhood	12.23	51,307	177,156

Table 3 Distribution of Parental Education by Longevity

	Died Young	Survived
	% (N)	% (N)
<b>Mother</b>		
Missing	35.87 (184)	9.03 (736)
Primary	34.5 (177)	42.8 (3923)
Some High School	8.97 (46)	13.73 (1258)
High School Grad	15.01 (77)	26.04 (2387)
College and above	5.65 (29)	9.39 (861)
Total	100 (513)	100 (9165)
<b>Father</b>		
Missing	24.39 (221)	11.91 (1045)
Primary	39.4 (357)	45.3 (3974)
Some High School	7.84 (71)	12.13 (1064)
High School Grad	20.8 (191)	20.14 (1767)
College and above	7.28 (66)	10.51 (922)
Total	100 (906)	100 (8772)

Table 4 Comparison of Models

Model	Men				Women			
	$\chi^2$	BIC	df	$\chi^2/df$	$\chi^2$	BIC	df	$\chi^2/df$
1. Direct Wealth and Education Effects	3.43	-80.79	10	0.343	5.69	-79.75	10	0.569
2. Paternal Death Effect on Ed. (Model 1 -Effect of Maternal Death)	5.91	-86.73	11	0.537	8.67	-85.31	11	0.788
3. Maternal Death Effect on Ed. (Model 1 - Effect of Paternal Death)	4.43	-88.21	11	0.403	13.53	-80.45	11	1.230
4. Equal Effect of Parental Death on Ed. (Model 1 + Equality Constraint)	3.88	-88.76	11	0.353	5.77	-88.21	11	0.525
5. Spurious Education Effects	7.10	-93.96	12	0.592	17.02	-85.50	12	1.420
6. Maternal Death Effect on Wealth (Model 1-Paternal Wealth Effect)	6.12	-86.52	11	0.556	10.23	-83.75	11	0.930
7. Paternal Death Effect on Wealth (Model 1 - Maternal Wealth Effect)	3.69	-88.95	11	0.335	11.02	-82.96	11	1.000
8. Equal Effect of Parental Death on Wealth (Model 1 + Equality Constraint)	3.72	-88.92	11	0.338	5.99	-87.99	11	0.545
9. Spurious Wealth Effects	6.49	-94.57	12	0.541	16.06	-86.46	12	1.340
10. Model 1 + Parental SES Affects Income and Wealth Only Indirectly	14.68	-204.28	26	0.565	59.62	-162.51	26	2.290
11. Men- Model 10 + Spurious Parental Death Effects	22.29	-230.36	30	0.743				
11. Women- Equal Parental Death Effects					6.08	-96.64	12	0.502
Between Group test of Model 11.					108.48**		60	1.808
Shaded = Best Fitting Model **P< .01 (One-Tailed)								

Table 5 Model 11 Parameter Estimates for Men (Standard Errors)

	YRSED	LnINCOME	LnWEALTH
Age	-.043** (.015)	-.025*** (.006)	.077*** (.014)
White	.741*** (.149)	.362*** (.055)	1.92*** (.136)
Hispanic	-2.33*** (.245)	.066 (.090)	.545* (.225)
US-Born	-.230 (.182)	-.123 (.066)	-.025 (.165)
Mdieyng	---	---	---
Ddieyng	---	---	---
Mom-Missing Ed	-.864*** (.212)	---	---
Dad-Missing Ed	-.494* (.193)	---	---
Mom-Secondary	.638*** (.166)	---	---
Dad-Secondary	.804*** (.168)	---	---
Mom-Grad	1.15*** (.135)	---	---
Dad-Grad	1.03*** (.140)	---	---
Mom-Tertiary	2.39*** (.197)	---	---
Dad-Tertiary	2.60*** (.182)	---	---
$r_{\text{income, wealth}}$		.249***	
YRSED	---	.110*** (.005)	.228*** (.012)

\* p<.05 \*\* p<.01 \*\*\* p<.001 (two-tailed test)

Table 6 Model 11a Parameter Estimates for Women (Standard Errors)

	YRSED	LnINCOME	LnWEALTH
Age	-.021 (.011)	-.020*** (.006)	.076*** (.014)
White	.218* (.108)	.416*** (.052)	2.47*** (.136)
Hispanic	-2.67*** (.184)	.117 (.091)	.920** (.237)
US-Born	.534*** (.135)	-.337*** (.065)	-.302 (.170)
Mdieyng	-.316** (.094)	---	-.360** (.114)
Ddieyng	-.316** (.094)	---	-.360** (.114)
Mom-Missing Ed	-.440** (.160)	-.117 (.077)	-.291 (.202)
Dad-Missing Ed	-.494*** (.135)	.079 (.065)	-.667*** (.170)
Mom-Secondary	.551*** (.118)	.015 (.057)	.084 (.149)
Dad-Secondary	.570*** (.124)	-.018 (.060)	-.062 (.157)
Mom-Grad	.984*** (.105)	.120* (.051)	.136 (.133)
Dad-Grad	.715*** (.109)	.054 (.053)	.060 (.138)
Mom-Tertiary	2.19*** (.140)	.037 (.069)	-.095 (.181)
Dad-Tertiary	2.11*** (.136)	-.002 (.067)	-.019 (.176)
$\Gamma_{\text{income, wealth}}$		.254***	
YRSED	---	.116*** (.007)	.305*** (.018)

\* p < .05 \*\* p < .01 \*\*\* p < .001 (two-tailed tests)

Equality Constraint

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