Birth Weight, Childhood Health, and Family Formation

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Research has increasingly focused on the contribution of childhood health for the production and reproduction of socioeconomic and health inequalities. For reasons I offer below, childhood health may also shape family formation—marriage and fertility—which is inextricably tied to the intergenerational transmission of disadvantage. Marriage and fertility patterns allocate the distribution of disadvantage across generations in ways that can exacerbate or offset the already studied intergenerational linkages. In turn, these demographic processes shape the more-studied relations between social origins and child wellbeing. The presence (or absence) of parents and the stock of human/economic capital shape children's early life environments and life chances. To investigate this connection between childhood health and family formation, I use data from the National Child Development Study (NCDS) to examine the links between a number of measures of childhood health (including birth weight, chronic conditions, and mental health) and fertility, marriage, and assortative mating.

Research has increasingly focused on the contribution of childhood circumstances, such as low birth weight and childhood health, to adult socioeconomic and health inequalities (e.g., Case, Fertig, and Paxson 2005; Conley and Bennett 2000; Haas 2006; Jackson 2010; Palloni 2006; Palloni et al. 2009). In addressing the relationship between families and childhood health, most work has focused on how families influence individuals' health across the life course.

At the same time, health may influence the formation of families themselves. As noted by Duncan (1966) and reaffirmed by numerous others (e.g., Preston 1974; Mare 1996), the linkages between social standing and demographic processes—including marriage patterns, and fertility—serve a vital role in the production of inequality. These processes help allocate the distribution of disadvantage in the population across generations (Preston and Campbell 1993; Mare and Maralani 2006; Maralani 2013). Differences in marriage and childbearing patterns between those with poor childhood health have the potential to exacerbate (or diminish) the transmission of advantage and disadvantage.

With some exception, however, consideration of these population renewal processes have been largely absent from the literature examining early life conditions / childhood health. Palloni (2006) outlines the contribution of childhood health to the production of inequality across generations, but his models rely on assumptions of non-differential fertility across socioeconomic groups and on complete homogamy. In later work, Palloni and colleagues (2009) offer social mobility estimates that assume high and low fertility differentials. These simplifying assumptions do not diminish the importance of his models, but may provide an incomplete estimate of the intergenerational importance of childhood health.

Higher fertility rates and greater coupling with health- or educationally-disadvantaged persons (and/or higher marital dissolution)—larger and/or disproportionately disadvantaged families—may lead to a greater accumulation of disadvantage for the offspring of those who suffered early life health penalties. However, if childbearing and fertility patterns operated in the opposite direction—smaller and/or equally disadvantaged families—the consequences of poor childhood health would be less severe.

Getting a better sense of these differences is important for inequality research beyond mobility matrix estimates. The presence (or absence) of two parents, and their amount of human and economic capital (due to assortative mating) are critical for shaping children's early life environments. Family and life course researchers have highlighted how these parental configurations matter for offspring life chances (McLanahan 2004; Cunha and Heckman 2008; Hayward and Gorman 2004; Heckman, Stixrud, and Urzua 2006).

Marriage

From the literature on health selection into marriage, there is some evidence that early life health may contribute to differences in family formation dynamics. Research examining the links between marital status and health has explored the possibility of selection into or out of marriage by health status. Although this work mainly focuses on health fairly close to the time of marriage, it generally finds that at least some (but not all) of the protecting influence of marriage is attributable to selection (Mastekaasa 1992; Murray 2000). Some evidence finds that marriage selection was not observed for advantaged populations, e.g. employed women (Waldron, Hughes, and Brooks 1996). This marriage differential between healthy and less healthy persons may extend to earlier life health. To the extent that adverse selection into marriage occurs (Lillard and Panis 1996), however, we may expect to find that those who suffered poor childhood health are more likely to enter into marriage. Additionally, Joung and colleagues (1997) find that those in poor health are more likely to divorce. If divorce occurs after childbirth, then the child of a mother who experienced poor childhood health will grow up in a non-intact family.

Although marriage itself matters, who women marry also matters for the intergenerational production of inequality since it may lead to a concentration of advantage. As a result, assortative mating—the tendency for individuals to be married to those with a similar characteristic—has been the object of a great deal of social demography. Given the links between birth weight and educational attainment (Conley and Bennett 2000) and other aspects of childhood health and educational attainment (Haas 2006; Jackson 2010), educational homogamy could occur for those who suffered poor childhood health. However, one could argue that assortative mating rates are lower for those who experienced early health penalties. The aforementioned adverse selection hypothesis could be extended to argue that poor health may incentivize individuals to up-marry to help "compensate" for their disadvantage. Likewise, some of the pathways between early childhood health and reduced educational attainment, such as missed

school days, may not similarly impact other characteristics that matter in the marriage market.

Fertility

These differences in marriage pattern between health groups may extend to differences in the number of children which women bear. To the extent that childbearing and marriage continue to be correlated, the aforementioned differences in marriage patterns may extend to differences in fertility patterns. (Similarly, the presence of children may also influence marital transitions (Steele et al. 2005)). The correlation between early life health conditions and education and, in turn, between education and marriage and fertility, would predict higher fertility and lower marriage rates (Ellwood and Jencks 2004).

Other fertility-specific dynamics may also occur. Childhood conditions experienced may directly affect fertility via reduced fecundity. Alternatively, if the condition is heritable, persons with less than favorable childhood conditions may opt to remain childless or have fewer children.

In light of competing possibilities for the direction of childhood health's influence in these domains which are critically important for the intergenerational transmission of disadvantage, I ask: *How is poor childhood health associated with family formation patterns in ways that matter for inequality?* By interrogating a number of measures of poor childhood health—ranging from the earliest indicator of low birth weight to measures of childhood chronic conditions—I hope to highlight how different health insults at different stages of childhood may differentially affect long-range inequality processes.

Data and Methods

My analysis will draw data from the National Child Development Study (NCDS), a longitudinal study of a cohort of 17,000 British persons born in a single week in 1958. NCDS data were collected on participants at birth and at follow-up waves at ages 7, 11, 16, 23, 33, 42, 46 and 50. Each wave includes information concerning health status and socioeconomic conditions; later waves include information about marital transitions, number of children, and spouse characteristics. (See Power and Elliott 2006 for more information). For conceptual clarity, I restrict my analytic sample to NCDS women.

My main analyses examine the association between early life health and family formation. Although the marriage selection literature largely tends to examine young adult / late childhood health, my analyses will include measures of earlier life health, including individuals' birth weight and childhood chronic conditions. I will focus on three primary outcomes: fertility, marriage, and assortative mating, as all three are inextricably linked to individuals' social origins, and, therefore, shape the transmission of disadvantage from one generation to the next. Models will first examine the gross association between childhood health (birthweight, chronic conditions, mental health) and these outcomes. Subsequent models will control on individuals' adult socioeconomic characteristics, non-cognitive skills, and parental

socioeconomic conditions. To further isolate the importance of childhood health net of observable and unobservable characteristics about individuals' families, I will include propensity score models as a sensitivity check.