Healthy Baby, Healthy Marriage? The Effect of Children's Health on Divorce

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Abstract

This paper investigates whether children's health affects the likelihood that their parents divorce. This topic is relevant to the debate over whether the economic status of families affects children's health: if the poor health of children promotes greater family dissolution, then children's health problems could be the cause rather than the result of children's economic status. Using the 1988 National Health Interview Survey, the National Longitudinal Survey of Adolescent Health, and the 1970 British Birth Cohort Study, I find that low birth weight children are more likely to experience parental divorce than normal birth weight children in the US, but not in the UK. While the cross-country difference rules out family structure as a universal link between health and economic status, it does suggest that part of the gradient observed in children's health in the US may run from health to income.

JEL Codes: I1, J12

Keywords: child health, family structure

1 Introduction

In this paper, I investigate whether the health of children affects the likelihood that their parents divorce. This topic is relevant to the debate over the direction of causality between health and economic status – commonly referred to as the 'gradient' because a positive relationship exists all along the income distribution (e.g. Adler et al., 1994; Smith, 1999). Medical researchers and epidemiologists argue that economic status influences health. Their theories claim that people of low economic status receive less and lower quality medical care, have riskier health behaviors, experience poor nutrition in utero which has far-reaching effects on adult health (Barker, 1997), or suffer from the psychosocial stress associated with low status jobs (Marmot, Shipley, Brunner, & Hemingway, 2001). On the other hand, economists generally argue that health affects earnings by reducing educational attainment, labor market productivity, and accumulated labor market experience (Adams, Hurd, McFadden, Merrill, & Ribeiro, 2003; Case, Fertig, & Paxson, 2005). In addition, health costs can impact wealth (Wu, 2003; Smith, 1999). Contributing to this debate, Case, Lubotsky, and Paxson (2002) and Currie and Stabile (2003) argue that since children in developed countries do not generally earn income, their finding that the gradient exists among children implies that children's health must be the *result* of their economic status. Case, Lubotsky, and Paxson (2002) test whether the mothers of children in poor health are less likely to work (and find that they are not) as one possible avenue through which children can affect their economic status. However, I argue that there is another possibility: if the poor health of children promotes greater family dissolution, then children's health problems could be the *cause* of children's economic status.

Using two large, nationally representative data sets, I find that low birth weight children in the US are at a higher risk of experiencing their parents' divorce than children of normal birth weight. However, using a large survey of a British birth cohort, I find that low birth weight does not affect the hazard of parental divorce for British children. A two-county comparison is useful because the gradient is a worldwide, not just a US, phenomenon. Thus, this cross-country difference suggests that family structure is not a universal avenue through which health and economic status are related; however, it does imply that part of the gradient observed in children's health in the US may run from health to income.

These findings are of interest not only because they contribute to the gradient discussion, but also because they are relevant to a second debate – that over whether children's outcomes following a divorce are a consequence of divorce or merely an indicator of selection into divorce. If the parents of disabled children are more likely to divorce, then the fact that children of divorced parents are more likely to be in poor health (e.g. Angel & Angel, 1993; Mauldon, 1990) is at least in part due to selection. Moreover, in the current marriage promotion policy environment in the US, if child health were a determinant of parental divorce, providing support to these vulnerable families would likely be a politically popular policy intervention. Given that between four and eight percent of children in the US are disabled, a policy aimed at protecting these families from divorce could have a large impact on the overall divorce rate.

Prior research on this topic has found that parents of children in poor health are more likely to divorce (e.g. Cooke, Bradshaw, Lawton, and Brewer (1986), Mauldon (1992), Corman and Kaestner (1992), Joesch and Smith (1997), Cohen and Petrescu-Prahova (2006), Lyon, Barnes, and Sweiry (2006), and Swaminathan, Alexander, and Boulet (2006)).[1] However, as stated above, the direction of causality between children's health and parental divorce is difficult to disentangle given the plethora of evidence that family structure affects the outcomes of children (see McLanahan (2002) for summary). In addition, there are many characteristics of families – so called 'third factors' – which may make them more likely to have a disabled child and a divorce. In particular, poorer families are more likely to experience divorce and are more likely to be in poor health. Alternatively, parents who are

[1] Reichman, Corman, and Noonan (2004) find that having a child in poor health decreases the level of commitment in the parents' relationship, married or not.

generally neglectful may also be more likely to divorce and have a sick child.

In this paper I reduce the problems of reverse causality and potential 'third factors' by focusing on the health of the child at birth and by using alternative data sources which allow for a greater range of controls. The birth health of the child limits the opportunity for reverse causality in that the child does not suffer detrimental stress or neglect from a family disruption beyond what the mother can transfer in utero. Omitted variable bias is also reduced by using birth health rather than other child health measures to the extent that it is less correlated with important other factors than the alternatives.

Birth health is a particularly appropriate measure of health for this analysis because marriages are most fragile in the early childbearing years. I focus on birth weight in particular because having a low birth weight baby has a large impact on the parents' lives. The delivery of a low birth weight baby is a traumatic event for the parents involving long hospital stays, procedures, and a fear of neonatal mortality. In addition, low birth weight is associated with a higher risk of childhood health problems, including cerebral palsy, high blood pressure, deafness, blindness, seizure disorders, congenital abnormalities, respiratory problems, lung disease, reduced cognitive ability, and behavior problems (Institute of Medicine, 1985; Paneth, 1995; McCormick, Brooks-Gunn, Workman-Daniels, Turner, & Peckham, 1992; and Brooks, Byrd, Weitzman, Auinger, & McBride, 2001).

Additional contributions of this paper are that I allow the effect of a child's illness to vary across the child's life, and I use data from both the US and the UK which allows an examination of some mechanisms. I find that the effect of low birth weight on divorce is positive at birth in the US but goes to zero as time passes. I exploit the cross-country difference and reject the hypothesis that the lower rates of labor force participation among mothers in the UK contributes to the difference in effect. I do find evidence that health insurance may be protective and thus an important factor in the difference.

I begin in the next section by discussing how child health might impact the parents' marriage. I then introduce the three data sets I use and the ways in which each survey contribute to this analysis. Section 4 presents the econometric framework for analyzing the effect of low birth weight on divorce. Section 5 presents the results and provides a discussion of mechanisms that may underlie the relationship between low birth weight and parental divorce. I conclude in section 6.

2 How might child health affect divorce?

Theories about the determinants of divorce offer some insight into how child health might affect family structure but do not offer clear predictions. The following discussion is based on a theoretical model of divorce using a framework of utility maximization under uncertainty developed by Becker, Landes, and Michael (1977). This model assumes that, at any given moment in time, an individual chooses whether to get or stay married by comparing the expected utility within marriage to that outside of marriage.

Let the utility of each parent, whether married or divorced, depend on their consumption, leisure, and the utility of the child. The illness of a child has the potential to affect each of these attributes and to have different effects if the parent is married or not. Medical expenses incurred because of the child's illness directly affect consumption. Although these expenses do not vary by marital status, the share of the expenses that each parent covers may differ by the custodial status of the parent after a divorce. That is, given that only 66% of ever-married mothers have a child support award and only 41% of all awards have health care benefits included in the award (U.S. Bureau of the Census, 1995), the expected financial benefit of divorce for the non-custodial parent and the expected cost for the custodial parent are greater given a sick child. Likewise, the care-giving demands of a sick child have a direct effect on the amount of leisure time available. In addition, having a sick child involves additional stress and worry which directly effects the quality of what leisure there is. As with the medical expenses, the share of the care-giving and the intensity of the stress may differ by custodial status after a divorce affecting each parent's incentive to divorce.

Having a child in poor health can also have an indirect effect on leisure. One reason that people marry is that they both get additional utility from sharing their leisure time together. If having a child in poor health raises the parents' relationship quality because of this shared experience, then this joint leisure effect is larger and the benefits of divorce are lower for both partners. On the other hand, if the couple chooses to devote all of their energy toward the child's needs and sacrifices their relationship as a result, then leisure time spent alone is the same as (or better than) leisure time spent with one's spouse.

This model assumes that the utility or wellbeing of the child is also important to both parents. Even if most married parents believe that children are better off living with both of their biological parents, having a sick child may alter this view. Parents may feel that it is more important that they stay together for the sake of the child if he/she is sick because the needs of the child are greater. On the other hand, parents may feel that the child's potential outcomes are already low and thus staying together may not make a difference, or perhaps staying together is detrimental to the child because the relationship takes energy away from the child.

Finally, the tendency of parents of children in poor health to specialize can increase the overall utility of the marriage. That is, several studies find that mothers of disabled children often cut back on market work to provide more care at home for the child (Powers, 2001; Corman, Noonan, & Reichman, 2005). In effect, she is investing in marital-specific capital by foregoing some labor market experience, which would benefit her after a divorce, in order to provide a service to the household which would be expensive and of lower quality if obtained through the market. Many aspects of this specialization in home production would be difficult to coordinate if the parents lived in separate households and thus the bundle that the household has if married is greater than the sum of the two households if divorced.

In sum, the relative benefit of marriage expected at the time of marriage will likely be different when a child with poor health is in the picture, but whether it will be higher or lower is unclear. Moreover, as the decision to stay married is a dynamic one that is re-evaluated continuously, the relative benefit of marriage given a sick child changes over time. The benefits of specialization take years to accumulate as does the deterioration of a relationship because of neglect.

3 Data

3.1 Three Data Sources

In this analysis, I use data from three sources: the 1988 Child Health Supplement to the National Health Interview Survey (NHIS-CH), the National Longitudinal Study of Adolescent Health (Add Health), and the 1970 British Birth Cohort Survey (BCS). The National Health Interview Survey is a cross-sectional survey that collects annual data on the health status and chronic and acute medical conditions of a large nationally representative sample of American adults and children. The sample for the 1988 NHIS-CH consists of one child drawn from each 1988 NHIS household with children. The respondents for these children were asked a wide variety of questions regarding the retrospective history and current status of the child's health. Of the approximately 17,000 children in the nationally representative sample, I use a sub-sample of over 12,000 children whose parents were married at birth.[2]

Add Health is a longitudinal survey of a nationally representative sample of adolescents in grades seven through twelve in the 1994-1995 school year. Approximately 12,000 students were randomly selected from a sample of 132 participating schools for in-home interviews, where adolescents were asked detailed health questions. The survey also conducted interviews with a parent, most often the mother, on her relationship history and the adolescent's health. I also use the first of two follow-up interviews with the adolescent conducted less than two years after the baseline interview. I use the approximately 9,500 children from the nationally representative sample who were born to married parents.

The 1970 BCS is a longitudinal survey of all children born in Britain in one week in

[2]I dropped 4,000 children because their parents were never married or divorced before the child's birth, or because the marriage or divorce history of the parents is unknown. I dropped 1,000 children because the child's age was unknown or the respondent was not a parent.

April 1970. Thus far, the survey has been conducted at six points in time – at birth, and at ages 5, 10, 16, 26, and 29. Each wave includes extensive health questions, including a medical examination at ages 10 and 16, and detailed questions on family structure. Of the over 17,000 children in this cohort, nearly 16,000 were born to married parents.

I use the NHIS-CH in this analysis for comparability to the literature. Both Corman and Kaestner (1992) and Joesch and Smith (1997) use this sample; Mauldon (1992) uses the 1981 NHIS-CH. By conducting the analysis with this data, I am able to distinguish differences across surveys from differences across empirical strategies. However, the NHIS-CH survey has several limitations which make other data sources better suited to this analysis.

First, the NHIS-CH involves a wide range of birth cohorts which makes it difficult to disentangle cohort and age effects using traditional methods. The NHIS-CH and Add Health samples are similar in terms of birth cohorts; the NHIS-CH children were born between 1970 and 1988 where the Add Health children were born between 1974 and 1983. In contrast, the BCS follows only one cohort; those children born in 1970. As a result, age effects are necessarily distinct with the British data.

Second, both Add Health and NHIS-CH censor divorces that occur between the (last) interview and age 18 for those children younger than 18 at the end of the survey. The econometric method used in this analysis (discussed in the next section) does not cause this type of censoring to bias the estimates but nonetheless the censoring reduces precision. Since children in the BCS are followed into adulthood, I observe all divorces experienced before age 18 except for those lost to attrition.[3]

Third, the NHIS-CH requires respondents to recall events that happened up to 17 years earlier and the length of recall varies substantially because of the wide range of interview

[3]There was a substantial amount of attrition, particularly from the age 10 interview to the age 16 interview. Fortunately, many cohort members previously lost to attrition were found for the age 29 interview. Attrition analysis reveals that the proportion of children in the low birth weight categories did not change across time. In addition, the fraction of mothers in the lowest and highest education categories and the distribution of fathers by social status at the child's birth also did not change as the sample gets smaller. These findings suggest that attrition was not concentrated among groups that might be important to this analysis.

ages. The Add Health survey has a narrower range of interview ages – between the ages of 12 and 20 for the first interview – but, as a result, the average length of recall is longer. Because the BCS followed its sample from birth into adulthood, the BCS respondent need remember back a few years at the most, which reduces both the level and variation of measurement error.

Finally, the NHIS-CH allows only a limited set of controls since it asks about very few characteristics of the household before the onset of the child's illness or the divorce. These controls are important since characteristics which are related to both child health and divorce – so called 'third factors' – make arguing causality somewhat unconvincing. In particular, poverty and stress are correlated with divorce and poor health. While the NHIS-CH collects household income at the time of the interview, current income is related to the child's health history and to the parents' current marital status, and thus is endogenous. Similarly, a mother who is immature or neglectful before having a sick child or a divorce, or a mother with poor health herself, may be more likely to have a sick child and a divorce. However, the NHIS-CH mostly asks about current characteristics of the mother, which, as above, may have changed because of the illness or divorce.[4] In contrast, Add Health collects information on the biological father's education from the adolescent even if the father is non-resident at the time of the interview. Even better, the BCS collects the father's education, the social status of the household at birth, the prenatal behavior of the mother, and the health of the parents of the child before a divorce.

In addition to the fact that the structure of the BCS is better suited to this analysis than the other two sources, using the BCS also provides a non-US perspective. The cross-country comparison is an opportunity to explore some potential mechanisms which may underlie the relationship between child health and divorce. Similarly, including Add Health in the analysis provides a within-country comparison which sheds light on the representativeness of the NHIS-CH findings.

[4]The exceptions are questions about prenatal smoking and doctor visits asked of a small subset of mothers.

3.2 Divorce

I restrict each sample to all children born to married parents. If a divorce occurs, the age of the child at the divorce must be reported to be included in each sample.[5] Figure 1 depicts the percent of children with currently married parents who experience the divorce of their parents at each age. The probability of divorce in the US is highest at the youngest ages where the hazard of divorce is relatively flat for the British sample. Divorce rates are lowest for the British Cohort, where only 15% of children experienced a divorce by age 18, and highest for the Add Health sample, where 33% experienced their parents' divorce during childhood. Part, but not all, of this cross-country difference is due to the range of younger cohorts that make up the American samples. To illustrate this point, Figure 2 depicts the percent at risk who have divorced by a given age for the British Cohort, three Add Health cohorts, and four NHIS cohorts. Even the oldest American cohorts – those born between 1970 and 1973 for the NHIS and those born between 1974 and 1977 for the Add Health sample – have a substantially higher divorce probability than the 1970 British Cohort.[6]

The divorce rate in the US has been historically higher than that of the UK (Clarke, 1995; Stone, 1990). The persistent cross-country difference in the divorce rates is a puzzle given that the two countries have strikingly similar laws governing divorce as well as somewhat similar demographic compositions and trends. Both countries saw large changes in divorce laws in the early 1970s. The Divorce Reform Act of 1969 expanded the allowable reasons for divorce in the UK from adultery, cruelty, or desertion to also include two years separation with the consent of both spouses and five years separation without the consent of one spouse.

[5]Although I refer to divorce only throughout this text, I am studying both divorce and separation. The time of divorce is technically the time that one of the parents stopped living in the child's household, or the time of separation, for all three data sets.

[6]This figure highlights a surprising difference across the American samples. Consistent with an upward trend, the cumulative divorce rate for the Add Health sample is higher for the youngest cohorts, but the cohorts overlap for the NHIS-CH sample. Also, although the cumulative divorce rates at age 17 appear to be the same across the American samples, the NHIS-CH children experience parental divorces at a younger age than the Add Health children.

Thus, the UK permitted no-fault and unilateral divorce beginning in 1971 when the law became effective (Stone, 1990). At the same time, the US went from having thirteen states in 1971 which allowed unilateral divorce – eight of which required a period of separation before granting a divorce – to 34 states in 1973. By 1985, nearly all states allowed unilateral divorce (Friedberg, 1998).

Child custody laws, which may impact the incentives of parents to divorce, also changed in both countries in the 1970s. The Uniform Marriage and Divorce Act of 1979 in the US and the Guardianship of Minors Act of 1971 in the UK shifted priority to the welfare of the children in assigning custody, rather than stipulating a maternal preference as was the practice earlier in the century. However, the distribution of custody arrangements in both countries continued to favor mothers. In 1990, 72% of American wives were granted sole custody of their children and another 16% shared joint custody (Clarke, 1995). Official statistics on child custody in the UK are unavailable but only 8% of lone parents were fathers between 1990 and 1992 (Haskey, 1994), which suggests that a great majority of divorces involving children must result in custody being awarded to the mother, as in the US.

There are also very few relevant demographic characteristics of the countries' populations that differ substantially. The number of married people in the country might have an impact on the divorce rate since it is most often expressed as the number of divorces per 1,000 married couples/women. However, 52 percent of the adult population was married in 2000 in each country. This similarity reflects the fact that both the US and UK experienced increases in cohabitation beginning in the late 1970s and early 1980s. In addition, the age at first marriage, which is generally considered an important determinant of divorce, is similar across both countries as well; 23.0 and 23.1 for American and British brides, respectively, and 25.0 and 25.4 for American and British grooms in 1981 (U.S. Centers for Disease Control and Prevention, 2000; Office for National Statistics, 2003).

The cross-country differences in the racial composition of the populations and in the propensity of mothers to work outside of the home may explain some of the difference in the divorce rates. In 2001, blacks comprised 12% of the population in the US and Hispanics made up another 12%, while in the UK, the total non-white population only makes up 8% of the population (U.S. Bureau of the Census, 2001; Office for National Statistics, 2001). This is relevant because black couples are more likely to divorce than white couples in the US (Cherlin, 1992) – for the NHIS-CH sample, 28.1% of black children and 18.2% of white children experience the divorce of their parents. However, the proportion of white children with divorced parents is still higher than the 15% observed in the British sample.[7]

Finally, mothers are much more likely to work outside of the home in the US than in the UK. In 2002, 40% of American mothers with children under age 6 worked fulltime, where only 20% of British mothers with young children did so (Bureau of Labor Statistics, 2002; Summerfield & Babb, 2003). Because there is evidence that women's labor force participation is correlated with their probability of divorce (Cherlin, 1992), the average difference in mother's employment could impact overall divorce rates. As a mother's labor force participation may be a potential mechanism by which child health affects parental divorce, I will exploit this cross-country difference in a later section of the paper.

3.3 Health Measures

Table 1 shows descriptive statistics for the three samples. In both of the American samples, the parent retrospectively reports the child's birth weight, where in the BCS, a medical interviewer records the birth weight of the baby days after the birth. From these reports, I construct a low birth weight indicator (less than 2500g, or 5.5 pounds). Low birth weight (LBW) children account for between six and eight percent of each sample. Add Health does not report the actual birth weight of children below four pounds (1814g) so I cannot report the minimum or mean birth weight among the low birth weight babies. Instead, between one and two percent of each sample weighed less than four pounds at birth and the *median*

[7]The effect of child health on divorce is unchanged when the samples are restricted to white children only.

birth weight among low birth weight babies is around 2200g, or 4.9 pounds.

3.4 Control Variables

One set of controls is available in all three surveys: the child's gender, twin status, race, the mother's age at the birth, and the mothers' education. Besides known cross-country differences in racial composition and educational systems, the control variables have similar means across the surveys.

The availability of additional controls varies by survey. For both of the American samples, I control for regional characteristics of the household,[8] and whether the father responded to the survey. Both the NHIS-CH and the BCS surveys provide the number of years the parents were married at the child's birth. Add Health and the BCS obtain information on the father's education; the adolescent's report of their father's education even if the father is non-resident at the time of the interview in the case of Add Health and the father's education at the time of the cohort member's birth in the case of the BCS. NHIS-CH asks the mothers of children under the age of six at the time of the interview about prenatal smoking and doctor visits. Finally, the BCS reports whether the mother or the father has been ill prior to each interview, the mother's prenatal behavior (doctor visits, smoking, and drinking), and the social class (based on the occupation) of the mother and the father at the birth.[9]

Because the controls are more limited for the US samples, omitted variable bias is more of a concern using these datasets. However, the richness of the BCS data allows me to control for observable characteristics (e.g. prenatal smoking) which are likely correlated with unobservable characteristics, thus greatly reducing the problem of omitted variable

[8]Divorce rates are higher in cities and in the Western states in the US. Add Health does not have state identifiers but instead provides characteristics of the child's block group census area. I included an indicator for those block groups that were considered urban and the proportion of family households in the block group that were female headed without a husband present. For the British Cohort, there does not appear to be a significant regional difference in divorce rates.

[9]I only show two of the seven categories in Table 1. The seven possible categories for men are unemployed, professional, managerial, skilled non-manual, skilled manual, semi-skilled, and unskilled. The seven possible categories for women are unemployed, professional or managerial, skilled non-manual, skilled manual, semi-skilled, unskilled, and housewife.

bias.

4 Econometric Model

To estimate the effect of a child's illness on the risk of his or her parents' divorce, I employ a discrete time hazard model (Allison, 1982) of time until divorce, following Joesch and Smith (1997).[10] The hazard model is preferable to a standard probit analysis where the dependent variable is an indicator of whether a divorce took place at any time during childhood, as used by Corman and Kaestner (1992) and Mauldon (1992), because it permits more variation in the outcome variable, incorporates those observations that are censored before a divorce occurs, and allows explanatory variables to vary across time.

I choose a discrete-time hazard approach primarily because the data provides the events in discrete intervals of time—years, in most cases.[11] Thus, let $t = 1, 2, 3, ..., t_i$ denote child i's age in years. A child becomes at risk of experiencing a parental divorce after he or she is born ($t = 1$) and is no longer at risk ($t = t_i$) when the divorce occurs, when the child reaches age 18, or when the observation is censored because a divorce has not occurred by the interview. Let x_{it} represent characteristics of the child and his family and h_i represent health characteristics of the child. Finally, let T_i be the uncensored time of the divorce. Then, the discrete time hazard rate, $Prob(D_{it})$, is the conditional probability that a divorce occurs at time t, given that it has not already occurred, or:

$$Prob(D_{it}) = Prob[T_i = t \mid T_i \geq t, x_{it}, h_i]. \tag{1}$$

I assume that the explanatory variables influence the hazard rate by the logistic regression function, written here in logit form:

$$\log[Prob(D_{it})/(1 - Prob(D_{it}))] = \alpha_t + \beta_1 x_{it} + \beta_2 h_i + \epsilon_{it}, \tag{2}$$

[10] Joesch and Smith (1997) use a continuous hazard model.

[11] Running a continuous proportional hazard model does not change the results significantly.

where α_t is a set of age dummies which allow the hazard of divorce for a child with no health problems to vary by age. To estimate this model, I convert the sample into child-year observations and estimate logit models using maximum likelihood.[12]

I also allow the effect of a child's illness to vary by time. If it is the case that the impact of the child's illness on divorce varies over the course of the child's life, then the main effect of the child's illness can be insignificant merely because it is an average of, say, a positive effect initially and a negative effect after several years. Thus, I include $h_i t$ as an additional term in equation (2) to capture the number of years that the child has had the health condition.

5 Results

Tables 2, 3, and 4 report the results of applying the hazard model expressed by equation (2) to the NHIS-CH sample, the Add Health sample, and the British Cohort samples, respectively. In the first two columns of each table, I use only controls for characteristics that are not choices – sex, twin status, and race. I include additional controls in every pair of columns to the right.

Before getting to the results, it is worth noting that the coefficients on the common set of control variables have reasonable signs and are fairly consistent across the samples, barring known cross-country differences. In the US, the coefficients on the indicator for whether the child is black are positive where the coefficient on the non-white indicator for the UK sample is negative. This difference reflects the fact that the minority populations in the UK are smaller and have different immigration histories than those in the US. For all three data sets, having an older mother is associated with a lower likelihood of divorce. The controls that are not available for all three samples also generally behave as expected. For Add Health, father's education is important. For the BCS, parents' social class is important. In addition, a mother's illness as well as prenatal smoking and drinking are associated with a

[12]The standard errors are adjusted for intra-cluster correlations at the child level for the NHIS-CH and the BCS and at the school level for Add Health.

higher probability of divorce.

5.1 NHIS-CH

The first two columns of Table 2 provide evidence that the hazard of divorce is higher for low birth weight children in the NHIS-CH sample, when I include a limited set of controls. When the effect is permitted to vary across time, it is evident that the average effect masks the fact that the effect is greatest at birth and falls across time such that after age 11 (0.359/0.032=11), if the child's parents are still married, the probability of divorce for a low birth weight child is the same as that of a normal birth weight child. When all of the available controls are included, the average effect of low birth weight is close to zero and the effect at birth is substantially smaller than that in column (2). In addition, none of the individual coefficients in the last two columns nor their joint test is significant.

These results are consistent with those studies using this data. Mauldon (1992) finds that a 'complicated delivery' significantly increases the probability of divorce among children less than age 2. Similarly, Corman and Kaestner (1992) find that the number of physical conditions that a child has increases the probability that the mother is not married at the time of the interview. However, the timing of the divorce was not taken into account and some of the conditions could be affected by parental divorce. That is, the condition may have occurred after the divorce; for example, accidents which result in physical impairments can occur during or after a divorce because parents are distracted or there is less supervision time available. If the possible conditions are restricted to only those that occurred at least 1 year prior to a divorce, then the effect of these conditions is no longer positive or significant.

I cannot control for potential third factors, like household income and the mother's prenatal behavior, for the full NHIS-CH sample, which may bias the relationship between child health and parental divorce. However, I can control for prenatal smoking and doctor visits for a small sub-sample of the NHIS-CH – those children under age six. I find that, while prenatal smoking appears to be a predictor of divorce, the coefficient on low birth weight is not significantly different whether these controls are included or not, indicating that prenatal smoking and late doctor visits do not appear to be important third factors.[13]

I also use an alternate way of getting at prenatal smoking with the full sample (not just those under age six) using gestational age. In particular, the mother is more likely to have smoked during pregnancy if the low birth weight baby is born full-term than if born pre-term. Low birth weight can be attributed to short gestation or a slow rate of fetal growth in utero, known as intrauterine growth retardation (IGR). Research on the determinants of low birth weight suggests that, while the cause of low birth weight among pre-term births is largely unknown, prenatal smoking is an important factor leading to IGR in developed countries (Kramer, 1987). Thus, if the mother's behavior is correlated with both the child's birth weight and her probability of divorce, then I should see that full-term low birth weight children are more likely to experience parental divorce than pre-term low birth weight children. However, I find that the coefficient on full-term low birth weight is not significantly different from the coefficient on pre-term low birth weight. Thus, again I find that the mother's prenatal behavior does not alter the basic finding that low birth weight has a positive but insignificant effect on the likelihood of parental divorce for the NHIS-CH sample.

5.2 Add Health

The first two columns of Table 3 indicate that low birth weight has a significant positive effect on the hazard of divorce for the Add Health sample, when I include a limited set of controls. Moreover, the coefficients on low birth weight and the low birth weight interaction in column (2) are quite similar to those in the corresponding column on Table 2. In columns (3) and (4), I include all of the controls available except father's education for comparison to the NHIS-CH specification. As with the NHIS-CH, the effect of very low birth weight

[13]The results of this regression as well as others that are not shown in this manuscript are available from the author upon request.

shrinks with the inclusion of these controls. However, unlike the NHIS-CH finding, the effect of low birth weight remains significant and the coefficient size does not differ much between columns (2) and (4). In fact, the joint test of the health conditions is significant in column (4) of Table 3 where the corresponding joint test in Table 2 is not significant.

In columns (5) and (6), I include father's education. This is the best proxy of household income prior to the illness and divorce (assuming that the father did not return to school after the birth) available from the US surveys. In all of the specifications up until now, the relationship between child health and divorce may just be a reflection of the fact that poorer families are more likely to have sick children and more likely to divorce. Consistent with this, the magnitude of the coefficient on low birth weight falls; however, it is still individually and jointly significant.

In sum, data from both of the US sources indicate that children with low birth weight are more likely to experience the divorce of their parents, although the effect diminishes as the child grows older. The effect of low birth weight is partially explained by the parents' characteristics, but a significant effect remains. These findings are consistent with other US studies; however, the data sources available in the US which can address this question have important limitations associated with cross-sectional or short-panel surveys discussed above. Thus, I now turn to the results using the longitudinal British Cohort Survey.

5.3 British Cohort

In contrast to the US findings, Table 4 indicates that low birth weight children in the UK are not more likely to experience the divorce of their parents. The first two columns of Table 4 indicate that low birth weight has a positive but insignificant effect on the hazard of divorce at birth for the British sample, when I include a limited set of controls. In columns (3) and (4), I include only the controls that were available in the NHIS-CH survey for comparison. In columns (5) and (6), I include father's education, and finally, in the last two columns, I include other family illness, the mother's prenatal behavior, and both mother's and father's social class at the time of the child's birth. None of these controls have an important effect on the coefficients of interest, which remain insignificant individually and jointly.

5.4 Magnitude of Effects

In Figures 3 though 5, I summarize the birth weight findings by presenting the predicted probabilities of divorce at various ages assuming a normal birth weight and a low birth weight child. For both of the American samples, the predicted probability of parental divorce between birth and age two for a low birth weight baby is significantly higher than that of a normal birth weight baby. The effect size is on the order of a 50 percent increase in the probability of divorce. For the Add Health sample, low birth weight babies also have a marginally significant higher probability of experiencing divorce between the ages of five and seven and between 15 and 18. For the BCS, there is no difference in the predicted probabilities of parental divorce by birth weight category for any of the estimated age groups. Overall, if the six to seven percent of babies that are born with a low birth weight were instead born with a normal birth weight, the divorce rate in the US would fall approximately three percentage points (on a base of 19 to 33 percent).

The size of the effect of a child's health may be biased by the fact that I have combined children of various birth orders in the samples. That is, the effect of being low birth weight is likely to be different if the child is the first born to the couple compared to a child that is the couples' third child. The parents' marriage is relatively young for first born children which might make them more vulnerable to divorce; however, divorce may be more likely for higher birth order children if the they follow the births of low birth weight siblings, which may push the parents' over the threshold into divorce.

To obtain a more narrowly defined estimate of the magnitude of the effect, I restrict the sample to first born children in Table 5. The coefficients on low birth weight are very similar for both of the American samples. They are also both close in size to the coefficient for the full Add Health sample (see column (4) of Table 3). As for the full sample, the effect of being low birth weight for first born children in the UK is not significantly different from zero. Figure 6 provides the predicted probabilities of divorce for the youngest first born children in each sample. Like for the full sample, the effect size is on the order of a 50 percent increase in the probability of divorce for the American samples and no effect for the British sample. Thus, although the NHIS-CH results are not often significant, it is clear from these figures that the effect sizes are strikingly similar between the two US samples and bear little resemblance to the UK results.

5.5 Cross-country Difference or Cohort Effect?

The age effect demonstrated in Figures 3 through 5 highlight one explanation for the cross-country difference which I have not addressed yet; the effect of low birth weight on divorce may be a new effect only present among the more recent cohorts of children. Thus, low birth weight may have an effect on divorce in the UK among a younger cohort than the 1970 cohort. Because both American data sets are, for my purposes, cross-sectional, normally I could not distinguish between age and cohort effects (that is, older children are born in earlier cohorts). However, the discrete time hazard framework allows me to control for both. To run the hazards, I convert retrospective, cross-sectional observations into child-year observations. Thus, while the only children who have observations at age 17 are those who were interviewed at age 17, nearly every child in the sample has an observation at age 1. So, at age 1, I have children born between 1970 and 1988 for the NHIS-CH sample and between 1974 and 1983 for the Add Health sample.

Table 6 presents some evidence that the cross-country difference I observe is not the result of a cohort effect. In columns (1) and (3), I show the regressions from the main analysis for both of the American samples (from columns (4) on Tables 2 and 3). These regressions include a set of dummies for the year that each child-year observation represents which allows the hazard to vary by the child's age. In columns (2) and (4), I show regressions which also include indicators for the year that the child was born (and its squared term). The variable 'birth cohort' takes the value 0 if the NHIS child was born in 1970 and if the Add Health child was born in 1974. From both US samples, we can see that the probability of divorce is higher for the more recent cohorts (although not significantly for the NHIS sample). However, the interaction between LBW and birth cohort is not significant for either sample. This suggests that the cross-country difference in the effect of low birth weight on divorce is not merely attributable to differences in cohort.

5.6 Discussion of Mechanisms

The results above indicate that low birth weight affects the likelihood that the child's parents divorce in the US but not in the UK. Birth weight, as a health outcome, reduces the possibility that this result is driven by reverse causality. Controls for prenatal smoking and household income demonstrate that the most obvious third factor explanations do not completely explain the effect of low birth weight. In this section, I turn to possible mechanisms which may underlie the relationship between child health and parental divorce. First, I consider two mechanisms by which low birth weight can affect parents and, as a result, affect their decision to divorce – the trauma at the time of the birth and the burden of having a chronically unhealthy child. Then, I exploit the cross-country difference in findings to speculate about whether the mother's labor force participation and whether more generous social support affect the relationship between child health and parental divorce.

5.6.1 Traumatic Event

Low birth weight may affect the parents in important ways immediately after the birth because the delivery is a traumatic event involving long hospital stays, procedures, and a fear of neonatal mortality. Low birth weight may also have a delayed effect on parents because low birth weight is associated with a number of childhood morbidities ranging from congenital abnormalities to reduced cognitive ability in school age children, as detailed in the introduction. The findings thus far suggest that the immediate trauma may be the primary avenue through which low birth weight affects divorce in the US given that the effect is strongest closer to the birth. To investigate this further, I interact low birth weight with other aspects of the birth that would suggest the degree of stress or trauma during this early period.

For the NHIS-CH sample, I know how long the baby remained in the hospital following the delivery and construct an indicator for whether this stay was two weeks or longer. I find that the effect of low birth weight on the hazard of divorce is slightly larger for those children whose stay in the hospital was extended. However, neither the coefficient on long-stay low birth weight, nor the coefficient on short-stay low birth weight, nor the difference between the two coefficients is significant.

For the BCS sample, I know whether the baby was in a neonatal surgical ward or a special care unit on their seventh day (the last day the interview covered). I again find that the effect of low birth weight on divorce is not significantly different for children who received special care on their seventh day. Thus, the severity of the child's condition, proxied by the length of the hospital stay and the receipt of special care, does not appear to significantly increase the likelihood of parental divorce.

5.6.2 Subsequent Health Problems

I turn now to another possible channel through which low birth weight may affect parents – through the increased risk of childhood health problems. As stated above, the main findings do not point to subsequent morbidities as the mechanism by which low birth weight affects parental divorce. If this were true, the effect of low birth weight should grow stronger as the child ages and more conditions arise, contrary to the findings thus far. However, I pursue more direct evidence in this section by controlling for other health measures.

In choosing these other health measures, I am cautious about reverse causality. I avoid health conditions that can be stress-induced, like asthma (Wright, 2003), stuttering (Blood, Wertz, Blood, Bennett, & Simpson, 1997), or frequent complaints of minor chronic conditions such as stomach pain or headaches (Zuckerman, Stevenson, & Bailey, 1987), which are particularly suspect in terms of reverse causality; and conditions that can result because parents are distracted, like accident-related injuries. Both the BCS and the NHIS-CH contain information on the age at onset of a common set of nine major chronic conditions: arthritis, blindness, bone problems, bowel problems, cerebral palsy, deafness, diabetes, epilepsy, and heart problems.[14] Parents report the conditions in the NHIS-CH. 3.3% of the children in the NHIS-CH sample have at least one of the nine major chronic conditions. In the BCS, a doctor reports the conditions and the age at which the condition first appears in the child's medical records. 5.1% of children in the BCS sample have at least one of the nine major chronic conditions. In addition, in the BCS, a medical interviewer notes any congenital abnormalities seven days after the birth. Similar to low birth weight, because of the timing of onset, this health measure is likely to avoid the problem of reverse causality. From this, I create an indicator of the most serious congenital abnormalities. 1.1% of the sample has a major congenital abnormality.

When controls for chronic conditions (and major congenital abnormalities, in the BCS case) are included, there is no change in the magnitudes of the coefficients on low birth weight for both the NHIS-CH and BCS samples. This implies that the relationship between low birth weight and subsequent chronic conditions have independent effects on the hazard of divorce. Thus, the effect of low birth weight on divorce in the US observed in the main results is not derived from the increased risk of childhood morbidities – at least, not the childhood morbidities captured by these lists of major chronic conditions. Missing from these lists are measures of the child's cognitive abilities and behavior problems which may play an important role but, unfortunately, are difficult to include in this type of analysis because divorce may also be predictive of these problems.

[14]Table A1 lists the exact condition definitions included for each survey.

5.6.3 Mother's Employment

I now consider whether the greater propensity for American mothers to work, mentioned above, contributes to the cross-country difference in the effect of low birth weight on divorce. To evaluate whether the greater propensity of mothers to stay at home in the UK affects the results of interest, I estimate the hazard of divorce using only a sample of working mothers. If stay-at-home mothers protect families with sick children from divorce, then I should observe a positive effect of low birth weight on divorce among working mothers in the UK. Only those observations where the mother was known to work before a divorce, if one occurs, are included. 6.8% of this sample divorced. I find with this sample that there is still no positive effect of low birth weight on divorce. Thus, I argue that mothers specializing in home production are not responsible for the protective effect of low birth weight on divorce in the UK.

5.6.4 Financial Burden

The other important and relevant cross-country difference is that the UK has more generous social programs than the US. Families with disabled children in the US only receive government support if their household income is below some threshold in the form of Medicaid and Supplemental Security Income. In the UK (in the 1970s and 1980s), there were several programs to give financial support to families with disabled children that were not means-tested (Burchardt, 1999). More importantly, the UK has the National Health Service (NHS), which provides universal health care financed largely out of general taxation.

Government support which covers the additional expenses of having a disabled child should reduce the difference in the propensity to divorce compared to those families without disabled children. Thus, because of universal health care and financial support for the disabled available in the UK, financial burden should not be an important factor in the break-up of a marriage given a disabled child. Families in the lowest income bracket should be no more likely to divorce because of a sick child than families in higher brackets in the

UK. Consistent with this, I find that parents' education and social class do not appear to systematically affect the likelihood that a low birth weight child experiences parental divorce in the UK.

On the other hand, if the financial aspects of the child's illness are driving the probability of divorce up in the US, then I expect the effect of child health to be strongest among families without health insurance. In the Add Health data, we know whether the cohort member is covered by Medicaid. Thus, we can look at whether those few families that have social insurance in the US (like all citizen in the UK) are less likely than the majority of families to divorce after a low birth weight birth. 6.8 percent of all children received Medicaid and 3.3 percent of children with always married parents received Medicaid.[15] Table 7 provides the results of a regression which includes a control for Medicaid and its interaction with LBW. I find that Medicaid recipients are more likely to divorce overall, and, consistent with the hypothesis that health insurance is protective, are less likely to divorce than those without Medicaid if they have a low birth weight baby.[16] Thus, health insurance may be an important factor influencing the likelihood of divorce for families with sick children.

6 Conclusion

I find that having a low birth weight child increases a parents' probability of divorce in the US, but not in the UK. The results from the Add Health sample are significant for every specification, even those including the largest set of possible controls. While the NHIS-CH results are not often significant, the effect sizes for both US samples are strikingly similar –

[15]Children who are in poor health are more likely to have received Medicaid; however, there is no difference in Medicaid take-up between sick children with married parents and sick children with divorced parents for this sample.

[16]Medicaid receipt is only known at the time of the first interview; i.e. after most of the divorces in the sample occur. However, if Medicaid receipt is endogenous because parents of low birth weight babies divorce in order to reduce their household income and qualify for Medicaid, the estimated coefficient on the Medicaid-LBW interaction would be biased up. Because this coefficient is negative, either parents are not divorcing to get on Medicaid or the actual coefficient on the interaction is even more negative than this estimate.

a low birth weight baby has about a 50% higher probability of experiencing his/her parents' divorce in the first few years of life compared to a normal birth weight baby. In contrast, the British cohort results are consistently small and insignificant indicating that there is no effect of birth weight on divorce in the UK.

I have made a case for causality, but acknowledge some weaknesses in the argument. That is, I argue that the effect of low birth weight on parental divorce in the US is causal given that there are few direct channels through which a parents' divorce can lead to a low birth weight birth, reducing the probability of reverse causality, and given that the effect is not greatly altered when I control for prenatal smoking and drinking and father's education, reducing the probability of important 'third factors'. However, low birth weight is not a random event; extreme marital distress during pregnancy could induce a low birth weight. In addition, the set of possible 'third factor' controls available using US data is limited.

The finding that Medicaid reduces the effect of low birth weight on parental divorce adds some strength to the argument of causality. This finding implies that health insurance is protective, which is consistent with the finding that there is no effect of low birth weight in the UK where there is universal health care, but a positive effect in the US, where health care costs and health insurance coverage are a large public concern. Further investigation of this possible mechanism is needed. Given our current marriage promotion policy regime, it would be useful to know whether expanded health insurance can protect families from divorce.

In sum, the results of this paper indicate that, in the US, there is selection into divorce based on characteristics of the child which biases various estimates of the consequences of divorce for children's outcomes. These findings also imply that part of the gradient observed in children's health in the US may run from health to income; and at the same time indicate that family structure is not a universal avenue by which health and economic status are related.

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Figure 1: Divorce by Child's Age

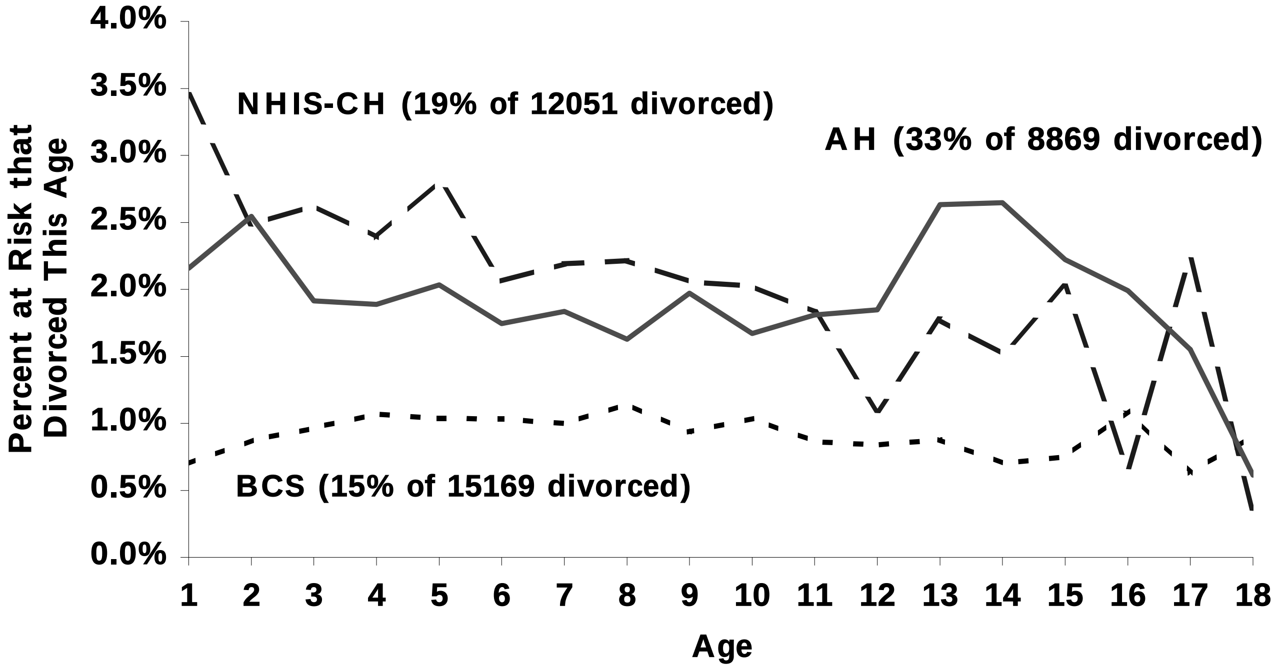


Figure 2: Cumulative Divorce by Child's Age and Cohort

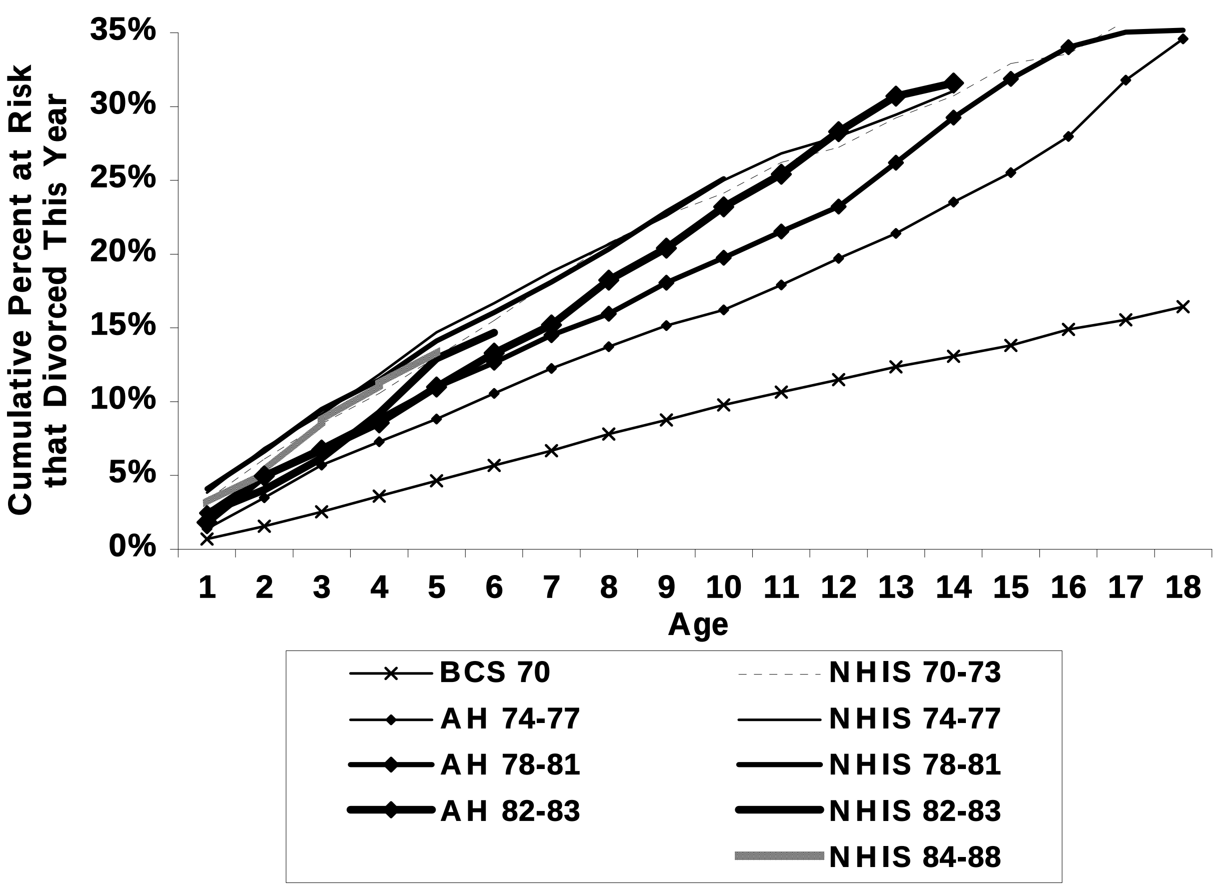


Figure 3: Predicted Probability of Divorce by Child's Age (NHIS-CH)

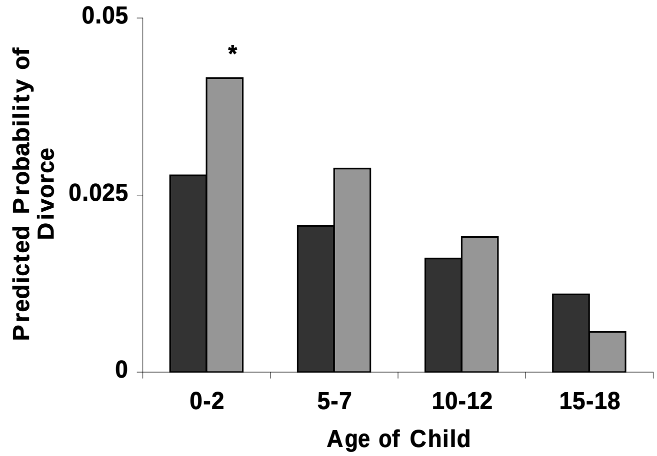


Figure 4: Predicted Probability of Divorce by Child's Age (Add Health)

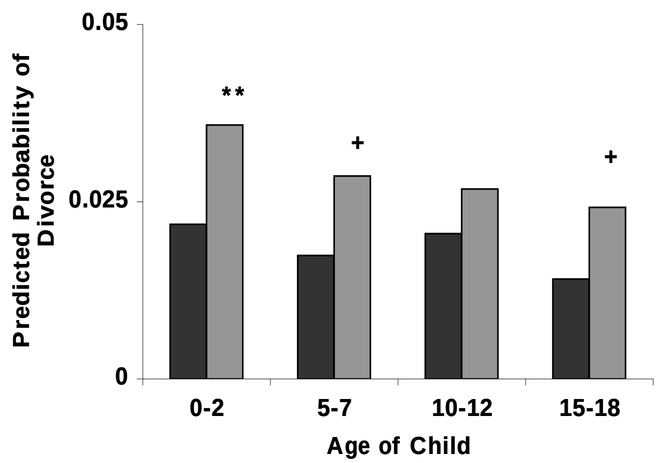
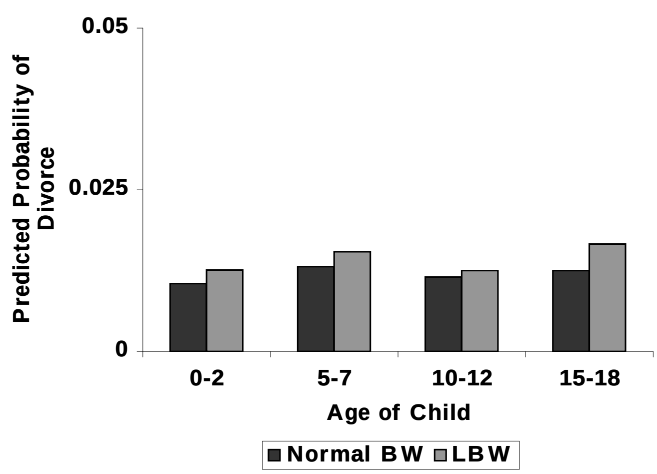
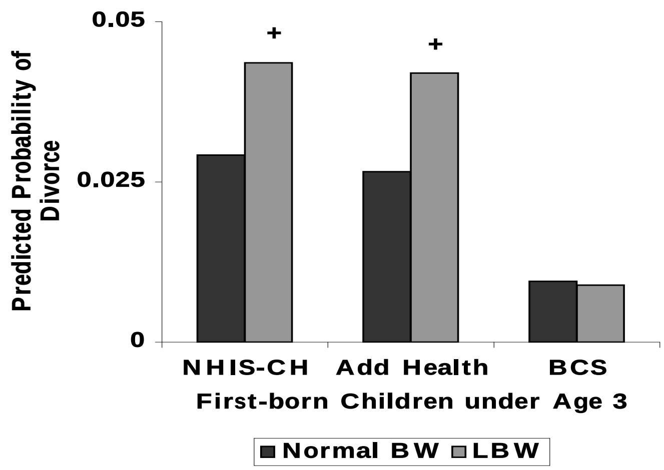


Figure 5: Predicted Probability of Divorce by Child's Age (British Cohort)



+ significant at 10%; * significant at 5%; ** significant at 1%.

Figure 6: Predicted Probability of Divorce by Child's Age (First Born Children)



+ significant at 10%; * significant at 5%; ** significant at 1%.

Table 1: Descriptive Statistics

	NHIS-CH			Add Health			British Cohort		
	N	Mean	SE	N	Mean	SE	N	Mean	SE
Birth Weight:									
LBW ($< 2500g$)	11525	0.061	0.002	8654	0.072	0.003	15890	0.076	0.002
BW$< 1814g$	11525	0.011	0.001	8654	0.015	0.001	15890	0.019	0.001
Median BW if LBW	714	2268	8.03	588	2183	41.51	1208	2211	19.30
Child's Characteristics:									
Age, first interview	12051	8.39	0.047	9663	15.32	0.018			
Boy	12051	0.513	0.005	9671	0.511	0.005	15907	0.520	0.004
Twin	12051	0.043	0.002	9412	0.022	0.002	15915	0.022	0.001
Hispanic	11816	0.110	0.003	9671	0.121	0.003			
Black	11816	0.090	0.003	9671	0.123	0.003			
Non-white							11662	0.028	0.002
Parents' Characteristics:									
M's age at birth*	11765	25.89	0.048	8542	26.08	0.056	15821	26.23	0.043
Yrs married at birth	10720	4.86	0.038				15806	5.33	0.034
M <high school	11879	0.163	0.003	9233	0.156	0.004			
M no qualifications							11391	0.553	0.005
M 2+ yrs college	11879	0.316	0.004	9233	0.274	0.005	11391	0.078	0.003
F <high school				8866	0.161	0.004			
F no qualifications							10747	0.489	0.005
F 2+ yrs college				8866	0.309	0.005	10747	0.158	0.004
M ill							15915	0.179	0.003
F ill							15915	0.134	0.003
N of prenatal visits (Max=21+)							15264	10.31	0.034
Smoked while pregnant							15841	0.402	0.004
Drank while pregnant							11454	0.054	0.002
M non-manual skilled							14427	0.299	0.004
M housewife							14427	0.344	0.004
F professional							15356	0.053	0.002
F manual skilled							15356	0.479	0.004
F responded to survey	12051	0.113	0.003	8923	0.047	0.002			
Regional Characteristics:									
Urban	12051	0.258	0.004	9581	0.525	0.005			
Large city (pop>1m)	12051	0.387	0.004						
West (US)	12051	0.212	0.004						
Female Head/Family HH				9535	0.157	0.001			

*For Add Health, if mother's age is missing, father's age is used instead.

Table 2: The Effect of Child Health on Divorce in the US (NHIS-CH)
Dependent Variable: The Hazard of Divorce

	(1)	(2)	(3)	(4)
LBW	0.195*	0.359*	0.057	0.168
	(0.096)	(0.155)	(0.099)	(0.173)
LBW * Age		-0.032		-0.022
		(0.024)		(0.026)
Boy	0.008	0.009	-0.055	-0.055
	(0.050)	(0.050)	(0.050)	(0.050)
Twin	0.154	0.150	0.167	0.164
	(0.124)	(0.123)	(0.126)	(0.126)
Hispanic	-0.062	-0.061	-0.161+	-0.159+
	(0.088)	(0.088)	(0.094)	(0.094)
Black	0.508**	0.508**	0.386**	0.386**
	(0.074)	(0.074)	(0.082)	(0.082)
Father was respondent	-0.177*	-0.178*	-1.151**	-1.151**
	(0.084)	(0.084)	(0.110)	(0.110)
M's age at birth			-0.143**	-0.143**
			(0.037)	(0.037)
M's age squared			0.002*	0.002*
			(0.001)	(0.001)
Yrs married at birth			-0.057**	-0.057**
			(0.010)	(0.010)
Urban			0.213**	0.213**
			(0.057)	(0.057)
Large city (pop>1m)			-0.038	-0.037
			(0.053)	(0.053)
West			0.177**	0.177**
			(0.064)	(0.064)
Jointly Sig? (p-value)				
LBW		0.0472		0.6241
Age	0.0000	0.0000	0.0000	0.0000
M's Educ			0.0114	0.0116
N child-years	91562	91562	91495	91495
N children	11514	11514	11505	11505

Hazards. Standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Not shown but included in all regressions are a set of age dummies and missing indicators. The last two columns also include a set of mother's education dummies. The standard errors are adjusted for intra-cluster correlations at the child level.

Table 3: The Effect of Child Health on Divorce in the US (Add Health)
Dependent Variable: The Hazard of Divorce

	(1)	(2)	(3)	(4)	(5)	(6)
LBW	0.371**	0.418*	0.314**	0.380*	0.234*	0.301+
	(0.091)	(0.166)	(0.097)	(0.170)	(0.096)	(0.174)
LBW * Age		-0.006		-0.008		-0.008
		(0.018)		(0.018)		(0.018)
Boy	-0.051	-0.051	-0.058	-0.058	-0.053	-0.053
	(0.051)	(0.051)	(0.051)	(0.051)	(0.052)	(0.052)
Twin	-0.263	-0.263	-0.212	-0.211	-0.194	-0.194
	(0.198)	(0.198)	(0.212)	(0.212)	(0.209)	(0.208)
Hispanic	0.066	0.066	-0.047	-0.047	-0.079	-0.079
	(0.124)	(0.124)	(0.108)	(0.108)	(0.102)	(0.102)
Black	0.614**	0.614**	0.289**	0.289**	0.235**	0.235**
	(0.089)	(0.089)	(0.077)	(0.077)	(0.076)	(0.076)
Father was respondent	0.766**	0.765**	0.872**	0.872**	0.920**	0.920**
	(0.077)	(0.077)	(0.076)	(0.076)	(0.077)	(0.077)
M's age at birth			-0.187**	-0.187**	-0.169**	-0.169**
			(0.040)	(0.040)	(0.041)	(0.041)
M's age squared			0.002**	0.002**	0.002**	0.002**
			(0.001)	(0.001)	(0.001)	(0.001)
Urban			0.217**	0.217**	0.214**	0.214**
			(0.060)	(0.060)	(0.060)	(0.059)
Female Head/Family HH			1.233**	1.232**	1.008**	1.008**
			(0.234)	(0.234)	(0.242)	(0.242)
Jointly Sig? (p-value)						
LBW		0.0002		0.0041		0.0432
Age	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
M's Educ			0.0000	0.0000	0.0000	0.0000
F's Educ					0.0000	0.0000
N child-years	107328	107328	107328	107328	107328	107328
N children	8254	8254	8254	8254	8254	8254

Hazards. Standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Not shown but included in all regressions are a set of age dummies and missing indicators. Dummy indicator variables for mother's and father's education are included as indicated at the bottom of the table. The standard errors are adjusted for intra-cluster correlations at the school level.

Table 4: The Effect of Child Health on Divorce in the UK (British Cohort)

Dependent Variable: The Hazard of Divorce

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LBW	0.110	0.215	0.025	0.129	0.005	0.129	-0.057	0.077
	(0.094)	(0.180)	(0.094)	(0.181)	(0.096)	(0.179)	(0.098)	(0.180)
LBW * Age		-0.013		-0.013		-0.015		-0.016
		(0.019)		(0.019)		(0.019)		(0.019)
Boy	0.031	0.031	0.011	0.011	0.019	0.019	0.013	0.013
	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)	(0.044)	(0.044)
Twin	-0.201	-0.204	-0.083	-0.086	-0.149	-0.152	-0.115	-0.119
	(0.249)	(0.248)	(0.252)	(0.251)	(0.259)	(0.258)	(0.255)	(0.254)
Non-white	-0.486*	-0.486*	-0.416*	-0.416*	-0.500*	-0.500*	-0.419*	-0.419*
	(0.193)	(0.193)	(0.201)	(0.201)	(0.208)	(0.208)	(0.211)	(0.211)
M's age at birth			-0.200**	-0.200**	-0.198**	-0.198**	-0.175**	-0.175**
			(0.038)	(0.038)	(0.039)	(0.039)	(0.040)	(0.040)
M's age squared			0.002*	0.002*	0.002*	0.002*	0.001	0.001
			(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Yrs married at birth			0.031**	0.031**	0.029**	0.029**	0.033**	0.033**
			(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
M is ill							0.302**	0.302**
							(0.063)	(0.063)
F is ill							-0.188*	-0.188*
							(0.075)	(0.075)
N of prenatal visits							-0.010+	-0.010+
							(0.006)	(0.006)
Smoked while pregnant							0.158**	0.158**
							(0.046)	(0.046)
Drank while pregnant							0.201*	0.201*
							(0.099)	(0.099)
Jointly Sig? (p-value)								
LBW		0.3927		0.7714		0.7260		0.5981
Age	0.0003	0.0003	0.0002	0.0002	0.0000	0.0000	0.0001	0.0000
M's Educ			0.1863	0.1863	0.0498	0.0496	0.0366	0.0365
F's Educ					0.1323	0.1300	0.4082	0.4015
M's Social Class							0.0063	0.0064
F's Social Class							0.0634	0.0630
N child-years	188132	188132	188132	188132	188132	188132	188132	188132
N children	12892	12892	12892	12892	12892	12892	12892	12892

Hazards. Standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Included in all regressions are a set of age dummies and missing indicators. The standard errors are adjusted for intra-cluster correlations at the household level.

Table 5: The Effect of Child Health on First Born Children

Dependent Variable: The Hazard of Divorce

Sample: First Born Children

	NHIS-CH	Add Health	British Cohort
LBW	0.386+	0.380+	-0.136
	(0.232)	(0.221)	(0.319)
LBW * Age	-0.056	-0.012	0.015
	(0.041)	(0.025)	(0.030)
Boy	-0.080	-0.100	-0.091
	(0.070)	(0.068)	(0.074)
Twin	0.194	-0.101	0.615
	(0.201)	(0.366)	(1.126)
Non-white			-0.887+
			(0.464)
Hispanic	-0.027	-0.102	
	(0.133)	(0.117)	
Black	0.335**	0.319**	
	(0.126)	(0.098)	
Father was Respondent	-0.917**	0.789**	
	(0.144)	(0.094)	
M's age at birth	-0.161*	-0.186**	-0.254**
	(0.074)	(0.050)	(0.070)
M's age squared	0.001	0.002**	0.003+
	(0.002)	(0.001)	(0.001)
Yrs married at birth	-0.026		0.028
	(0.020)		(0.027)
Urban	0.319**	0.318**	
	(0.080)	(0.075)	
Large city (pop>1m)	0.001		
	(0.074)		
West	0.153+		
	(0.088)		
Female Head/Family HH		1.072**	
		(0.302)	
Jointly Sig? (p-value)			
LBW	0.2496	0.0731	0.8814
Age dummies	0.0000	0.0000	0.0152
M's Educ dummies	0.0132	0.0029	0.3288
N child-years	37429	58227	61786
N children	5402	4078	4138

Hazards. Standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Not shown but included in all regressions are a set of age dummies, mother's education dummies, and missing indicators. The standard errors are adjusted for intra-cluster correlations at the household or school level.

Table 6: Cohort Effect?

Dependent Variable: The Hazard of Divorce

	NHIS-CH		Add Health	
	(1)	(2)	(3)	(4)
LBW	0.168	-0.005	0.380*	0.450+
	(0.173)	(0.307)	(0.170)	(0.234)
LBW * Age	-0.022	-0.013	-0.008	-0.015
	(0.026)	(0.030)	(0.018)	(0.018)
Birth Cohort		0.035		0.114*
		(0.040)		(0.045)
Birth Cohort^2		-0.002		-0.011**
		(0.003)		(0.004)
LBW * Birth Cohort		0.018		-0.021
		(0.024)		(0.043)
Boy	-0.055	-0.057	-0.058	-0.042
	(0.050)	(0.051)	(0.051)	(0.050)
Twin	0.164	0.154	-0.211	-0.244
	(0.126)	(0.127)	(0.212)	(0.208)
Hispanic	-0.159+	-0.164+	-0.047	-0.065
	(0.094)	(0.094)	(0.108)	(0.101)
Black	0.386**	0.383**	0.289**	0.253**
	(0.082)	(0.083)	(0.077)	(0.074)
Father was Respondent	-1.151**	-1.159**	0.872**	0.951**
	(0.110)	(0.110)	(0.076)	(0.076)
M's age at birth	-0.143**	-0.150**	-0.187**	-0.156**
	(0.037)	(0.037)	(0.040)	(0.040)
M's age squared	0.002*	0.002*	0.002**	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
Yrs married at birth	-0.057**	-0.056**		
	(0.010)	(0.010)		
Jointly Sig? (p-value)				
LBW	0.6241	0.6203	0.0041	0.0256
Age	0.0000	0.0000	0.0000	0.0000
M's Educ	0.0116	0.0125	0.0000	0.0000
Region	0.0000	0.0001	0.0000	0.0000
N child-years	91495	91495	107328	107328
N children	11505	11505	8254	8254

Hazards. Standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Not shown but included in all regressions are a set of age dummies, mother's education dummies, and missing indicators. Due to space constraints, the regional variables are not shown in this table, but a joint test of their significance is provided at the bottom. The standard errors are adjusted for intra-cluster correlations at the household or school level.

Table 7: Does the Financial Burden Matter? (Add Health)
Dependent Variable: Hazard of Divorce

LBW	0.561**
	(0.159)
LBW * Age	-0.024
	(0.018)
Medicaid	0.827**
	(0.075)
LBW * Medicaid	-0.613*
	(0.258)
Boy	-0.034
	(0.052)
Twin	-0.249
	(0.233)
Hispanic	-0.106
	(0.118)
Black	0.272**
	(0.078)
Father was respondent	0.842**
	(0.082)
M's age at birth	-0.167**
	(0.044)
M's age squared	0.002*
	(0.001)
Urban	0.206**
	(0.058)
Female Head/Family HH	1.043**
	(0.251)
Jointly Sig? (p-value)	
LBW	0.0002
Age dummies	0.0000
M's Educ dummies	0.0000
N child-years	116441
N children	7918

Hazards. Standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. Not shown but included in this regression is a set of age dummies, mother's education dummies, and missing indicators.

Table A1: Major Chronic Conditions

Condition Category
Arthritis
NHIS-CH
73 arthritis or other joint problem
BCS (ICD9 3-digit codes)
00323 Salmonella arthritis
05671 Arthritis due to rubella
09850 Gonococcal arthritis
710-719 Arthropathies and related disorders
V134 Arthritis
Blindess
NHIS-CH
62 blind in one eye
63 blind in both eyes
BCS (ICD9 3-digit codes)
366 Cataract
369 Blindness and low vision
Bone Problems
NHIS-CH
74 other bone, cartilage, muscle or tendon problem
BCS (ICD9 3-digit codes)
730 Osteomyelitis, periostitis and other infections involving bone
731 Osteitis deformans and osteopathies
associated with other disorders classified elsewhere
732 Osteochondropathies
733 Other disorders of bone and cartilage
Bowel Problems
NHIS-CH
46 frequent or repeated diarrhea or colitis
47 any other persistant bowel trouble
BCS (ICD9 3-digit codes)
555-558 Noninfective enteritis and colitis
Cerebral Palsy
NHIS-CH
75 cerebral palsy
BCS (ICD9 3-digit codes)
343 Infantile cerebral palsy

continued on the next page

Table A1 *continued*: Major Chronic Conditions

Condition Category
Deafness
NHIS-CH
60 deafness in one ear
61 deafness in both ears
BCS (ICD9 3-digit codes)
389 Deafness
V192 deafness or hearing loss
Diabetes
NHIS-CH
48 diabetes
BCS (ICD9 3-digit codes)
250 Diabetes mellitus
Epilepsy
NHIS-CH
67 epilepsy or convulsion without fever
68 seizures associated with fever
BCS (ICD9 3-digit codes)
345 Epilepsy
Heart Problems
NHIS-CH
76 congenital heart disease
77 any other heart disease or condition
BCS (ICD9 3-digit codes)
093 Cardiovascular syphilis
391 Rheumatic fever with heart involvement
393 Chronic rheumatic pericarditis
394 Diseases of mitral valve
395 Diseases of aortic valve
396 Diseases of mitral and aortic valves
397 Diseases of other enocardial structures
398 Other rheumatic heart disease
402 Hypertensive heart disease
404 Hypertensive heart and renal disease
410-414 Ischaemic heart disease
415-417 Diseases of pulmonary circulation
420-429 Other forms of heart disease
745-747 Congenital anomalies of the heart or circulatory system