Marital Disruption and the Risk of Loosing Health Insurance Coverage

Extended Abstract

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Health insurance coverage in the United States is currently provided by a complex, uncoordinated mix of public and private sources. As a result, drastic changes in coverage eligibility and affordability accompany many common life course events. Marital disruption is one such event. With many individuals obtaining health insurance coverage through their spouse's employer and approximately 50% of marriages ending in divorce, marital disruption is an important risk factor for losing health insurance coverage. Much previous research documents the positive association between being married and having health insurance, but little or none has examined the relationship between marital disruption and the risk of loosing insurance coverage. In this study, I use nationally representative longitudinal data and hazard rate modeling techniques to examine how changes in marital status affect the risk of loosing health care coverage.

Recently enacted health care legislation, the Patient Protection and Affordable Care Act, aims to achieve universal coverage in 2014. At this time, everyone will need to secure coverage or face a substantial fine. Understanding how common events precipitate lapses in health insurance coverage is essential to achieving universal coverage efficiently and with as little burden on those who currently have difficulty maintaining coverage as possible. This study contributes to this effort. .

Theoretical Background

The theoretical basis for this study rests on two observations. First, marital status affects both *opportunities* and *incentives* for insurance coverage. Most Americans get their health insurance through their employer or that of their spouse. Thus, compared to those who are unmarried, married individuals generally have greater opportunity to

obtain employer-sponsored health insurance coverage. Marital status may also affect incentives for coverage. Married couples are bound to one another financially and emotionally. Compared to unmarried individuals, then, those who are married may be more motivated to protect their assets and their health from serious illness.

The second observation on which the theoretical basis for this paper rests is that individuals make many important life course decisions based on their marital status and their expected marital status. Decisions regarding careers, fertility, and residential location are all closely linked to marital status and might be related to health insurance coverage as well. Moreover, many of these decisions cannot easily be undone. For example, if a person decides to leave the labor force after having children, it is not a simple matter to return to the labor force and secure a position with health care benefits in response to marital disruption. Similarly, a person might decide to be self-employed or to run a small business if their spouse has a job through which they can get employer-sponsored health insurance. This decision, too, is not easily or quickly undone in the event of marital disruption.

These two observations---that marital status provides opportunity and incentives for health insurance coverage and that past decisions predicated on marital status have staying power--- imply that the relationship between marital disruption and the risk of loosing health insurance should be thought of in two parts. The first is a "stable" part, reflecting the advantages of *being* married. The second is a "transitional" part, reflecting the disruptive nature of marital transitions and the fact that adjusting to a new marital status takes time. Figure 1 illustrates the conceptual model of change developed for this study.

--- Figure 1 about here ---

The three lines shown in Figure 1 represent, respectively, individuals who are married continuously over the observation period (blue), unmarried continuously (pink), and those who experience the dissolution of their marriage during the study period (yellow). The difference between the blue and the pink lines represents the "stable" effect of marital disruption, or the fact that *being* married provides some protection from loosing health insurance coverage. The difference between the pink and yellow lines at its widest is a measure of the "transitional" effect of marital disruption. Those who experience marital disruption are not only more likely to loose health insurance than those who stayed married, but also more likely to loose coverage than those who were *not married to begin with.* Finally, as time passes, individuals adjust to their new marital status and, consequently, the risk of loosing health insurance coverage diminishes.

The goal of this paper, then, is to describe the three salient parameters in the theoretical model depicted in Figure 1: 1) the "stable" effect of being married, 2) the "transitional" effect of marital disruption, and 3) the "recovery" period following marital disruption.

Analytic Approach

This study is primarily concerned with *when* an event occurs (insurance loss) relative to another event (marital disruption), and how the association changes over time. Hazard rate modeling, with its emphasis on time, is therefore well-suited for this project. The hazard rate for an event, h(t), is a measure of the instantaneous risk of occurrence, given that a person is at risk of experiencing the event. A well known model for

analyzing hazard rates is the proportional hazards models developed by Cox. It posits that each individual's hazard is a function of a baseline hazard, $\lambda_0(t)$, which everyone shares, and the exponential of a linear combination of covariates. The model can be expressed as

$$h(t) = \lambda_0(t)\exp(XB)$$

The proportional hazards model specified above assumes that time is measured continuously. In this paper, time is measured discretely; changes in insurance status are not recorded on exact dates but, rather, monthly. However, the proportional hazard model can be extended to such situations. Assuming that events can occur at any time but that they are observed only at discrete time points with equal intervals between them, then the proportional hazard model can be written as:

$$\log[-\log(1-P_{it})] = \alpha_t + X\beta$$

where P_{it} is the probability that an event will occur to individual *i* during time interval *t* and α_t are fixed-effects for each time point (Prentice and Gloeker, 1978). The model above is simply a GLM with a complimentary log-log link (instead of the usual logit or probit link) estimated with data at the person-month level.

It is important to note that, unlike many events examined in with hazard rate models, insurance coverage loss is repeatable. This gives rise to two problems. The first is that events nested within individuals are assumed to be independent. If this assumption is violated, standard errors will likely be too small. I remedy this problem by using robust standard errors based on a Taylor linearization. A second problem is that individuals who experience multiple insurance transitions may be different from those who do not in ways that are not captured by the independent variables. I am currently

performing sensitivity analysis to examine the problem of unobserved heterogeneity and will be finished well before the conference.

Data and Variables

Data Sources

Data for this study come from the 2005, 2006, and 2007 panels of Medical Expenditure Panel Surveys (MEPS) sponsored by the Agency for Healthcare Research and Quality. MEPS is a series of longitudinal surveys based on clustered and stratified samples of households that provide nationally representative estimates of health care use and socio-demographic characteristics for the U.S. non-institutionalized population. Each panel is interviewed five times and data is collected pertaining to two years of health insurance coverage, health care use, access, and expenditures, as well as a variety of socioeconomic and demographic characteristics. Because MEPS uses the prior year's National Health Interview Survey (NHIS) for its sample frame, I am able to get insurance and marital status at an additional time point approximately one year before MEPS began.

Change in Insurance Coverage and Marital Status

The main variables in this study pertain to changes in health insurance coverage and marital status. At each of the five interview rounds, MEPS collects information on insurance coverage by month. From this, I create an observation for each person-month that records whether an insured person lost their coverage during that month. Each

observation also records whether a person who did not have insurance coverage gains insurance in a particular month.

Information on marital status is also collected at each interview round but the month in which marital disruption occurs is not available. Using the interview date, each observation (i.e. person-month) is coded into one of the four following categories: 1) married in *all* prior rounds, 2) divorced, separated, or widowed in *any* prior round, 3) unmarried in *all* prior rounds, or 4) married in *any* prior round. For example, suppose that an individual is interviewed on March 1 and they report being divorced, separated, or widowed sometime after the previous interview. Then *all* months starting with March would be coded as "divorced, separated, or widowed". If another change in marital status occurs then the variable is recoded accordingly. There are very few individuals, however, that experience more than one change in marital status (less than 1%). This "lagged" coding scheme means that all months between the first and second interviews are lost because past changes in marital status cannot be ascertained.

An important goal of this study is to understand how the initial effect of marital disruption on the risk of loosing health insurance changes over time. To what extent, if any, do the deleterious effects of marital disruption diminish over time? To accomplish this, I create a count variable that records how many months elapsed since marital disruption and interact this with the dichotomous variable for marital disruption in a prior round. This interaction measures how quickly the hazard of loosing insurance coverage declines or "recovers" after a change in marital status. Note that the count variable enters the model only in the interaction terms. This is consistent with my theoretical framework

and is based on the assumption that time has no bearing on the "stable" effect of being married; time influences only the "transitional" effect of marital disruption.

Control Variables

I include a variety of variables as controls in the hazard rate models. These include measures of attitudes about risk, especially as related to health, medical treatment, and insurance coverage; health and disability status; and socioeconomic and demographic characteristics. Some of these variables are time-invariant while others are measured at each interview round. The round-specific variables are "mapped" onto person months using interview dates in a manner similar to that for marital status.

To capture differences across individuals in risk tolerance and attitudes about health, I created a scale based on the extent to which individuals agreed with the following statements: 1) "I am healthy enough that I really don't need health insurance", 2) "Health insurance is not worth the money it costs", 3) "I'm more likely to take risks than the average person", 4) "I can overcome illness without help from a medically trained person." Responses range from "strongly agree" to "strongly disagree" on a five point scale. I sum these responses to form a scale (alpha = 0.79). This variable was collected twice during the panel but is fairly stable over time. It therefore enters the model as a time-invariant variable.

To measure health status and disability, I included variables for self-assessed overall health, dichotomous variables identifying individuals with functional limitations as indicated by the need for help or supervision with activities of daily living (ADLs) and instrumental ADLs, and the number of serious chronic conditions diagnosed by a doctor

designated as “high priority conditions” by AHRQ (angina, asthma, coronary heart disease, diabetes, emphysema, hypertension, heart attack, and stroke). These variables are collected at every round of the survey and are, therefore, allowed to vary with time in the model.

Finally, a variety of sociodemographic variables are included as controls. These are age, sex, highest educational attainment, and household income as a percent of the federal poverty line. These variables are operationalized as time-invariant; values from the beginning of the panel are used. Ideally, income should be allowed to vary across time and be considered a mediator between marital disruption and insurance loss. However, income is only available by year so this is not possible. I also include the number of minor children in a household as a control variable. This varies across round and therefore is included in the model as a time-varying covariate.

Preliminary Results

Table 1 shows the results from two discrete-time hazard models: Model 1 focuses examines the hazard of loosing health insurance coverage while Model 2 focuses on the hazard or gaining health insurance. Results from Model 1 suggest that the risk of loosing health insurance coverage is greatly elevated immediately following marital disruption. Specifically, the risk of loosing health insurance coverage for those who experience marital disruption is 2.20 times greater than that for those who stay married. Just as important, the risk of loosing coverage for those who experience marital disruption is 1.91 times greater than that for those who were not married to begin with (2.20/1.15). Finally, Model 1 suggests that the association between marital disruption and the risk of

loosing health insurance diminishes with time. Specifically, for each month following the marital disruption, the elevated hazard of loosing insurance coverage decreases by 3% (HR=0.97).

--- Table 1 about here ---

Figure 2 illustrates these findings graphically, and corresponds closely to the theoretical framework outlined earlier. One of the most salient characteristics of the graph is that the "stable" effect of being married, while significant, is much smaller than the "transition" effect of marital disruption. In other words, with respect to the hazard of loosing insurance coverage, the difference between individuals who are continuously unmarried and those who have recently experienced marital disruption is far larger than the difference between individuals who are continuously married and those who are continuously unmarried. Another salient characteristic of the graph is that the recovery time is fairly long; the hazard of loosing health insurance remains elevated for about two years following marital dissolution.

--- Figure 2 about here ---

One surprising finding from Model 1 is that while marital disruption is associated with an elevated risk of loosing health insurance coverage, so is getting married. The hazard of loosing health insurance coverage for those who get married is 1.96 times larger than for those who were married continuously and 1.7 times larger than those who were continuously unmarried (1.96/1.15). As with marital disruption, the association between getting married and loosing health insurance coverage declines with time.

Though entering into marriage, surprisingly, seems to increase the risk of loosing coverage, it may also increase the chances of gaining coverage for those with no

insurance. To address this question, I estimated a model for the hazard of gaining insurance coverage (Model 2). Results suggest that marriage does, in fact, increase the hazard of gaining coverage; the hazard of gaining coverage is 1.63 times higher for those that marry compared to those already married, and 1.92 times higher than that for those who were continuously unmarried (1.63/0.85=1.92). The benefit of getting married is fairly short-lived however (Figure 3). Marital disruption is not significantly associated with the hazard of gaining coverage.

--- Figure 3 about here ---

Summary and Conclusions

Thus far, my findings suggest that marital disruption is strongly associated with the risk of loosing health insurance coverage and that the risk remains elevated for a fairly long period (at least 24 months). The findings further suggest that the association is due less to the advantages of being married as the disruptive effects of changing marital status. Individuals who experience marital dissolution face a far greater risk of loosing health insurance than those who were not married to begin with.

Interestingly, getting married also seems to increase, not decrease, the risk of loosing health insurance coverage. One possible explanation for this is that marriage frequently involves a great deal of change. For example, newly married couples often purchase a house or move residences, make plans to have children, and sometimes change employment. All these transitions, in turn, may increase the likelihood of loosing health insurance. Marriage does, however, impart some benefit; individuals without health insurance coverage who marry are more likely to gain coverage than those who remain unmarried.

Findings from this study suggest that to understand how marital disruption affects the risk of health insurance loss, simple explanations based on changes in coverage eligibility will not suffice. More likely, it is the general upheaval in individuals' lives following marital disruption, including but not limited to changes in coverage eligibility and affordability, that are the root cause of lapses in health insurance coverage.

Table 1. Hazard Ratios from a Discrete-time hazard model on Loosing Health Insurance

	Hazard Ratios	
	Loosing Coverage	Gaining Coverage
Month	0.99*	0.99*
Marital Status & Transitions		
Married in all prior rounds (reference)	**1.00**	**1.00**
Married → Unmarried in a prior round	2.20*	0.95
Unmarried in all prior rounds	1.15*	0.85*
Unmarried → Married in a prior round	1.96*	1.63*
Marital Status x Time interactions		
Married → Unmarried * Months Since transition	0.97*	1.01
Unmarried → Married * Months Since transition	0.96*	0.96*
Age at beginning of panel	0.97*	0.98*
Sex		
Women (reference)	**1.00**	**1.00**
Men	0.95	0.77*
Race & Ethnicity		
NH White (reference)	**1.00**	**1.00**
NH Black	0.98	0.97
NH Asian	1.01	0.84
NH Other Race	1.08	0.93
Hispanic	0.87*	1.69*
Household Income as Percent of Poverty Line		
> 400% (reference)	**1.00**	**1.00**
<100%	2.91*	0.58*
100%-125%	3.05*	0.61*
125%-200%	2.80*	0.71*
200%-400%	1.65*	0.78*
Educational Attainment		
No High School Diploma or GED (reference)	**1.00**	**1.00**
High School Diploma or GED	0.98*	1.31*
Four Year College Degree	0.74*	2.09*
More than Four Year College Degree	0.71*	1.64*
Number of children in household	0.92*	1.02
Attitude about Medical Care (Scale)	1.21*	0.82*
Subjective Health Status		
Excellent (reference)	**1.00**	**1.00**
Very Good	1.10	1.03
Good	1.21*	0.99
Fair	1.24*	1.08
Poor	1.39*	1.07
Any Limitation in Activities of Daily Living	1.62*	0.66*
Any Limitation in Instrumental Activities of Daily Living	1.53*	0.72*
Number of Serious Chronic Conditions	0.97	1.10*

*Significantly different from 1.00 at $p < 0.05$

Figure 1. Theoretical Model of Change

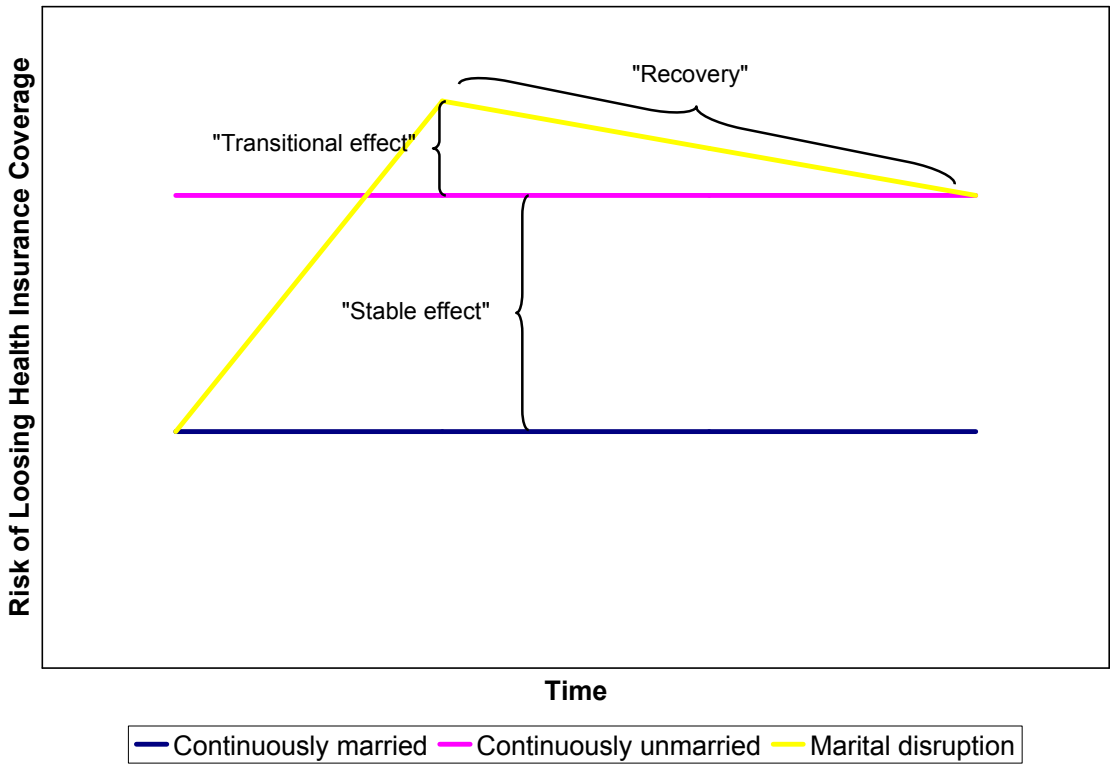

Figure 2. Hazard of Loosing Health Insurance Coverage by Marital Status

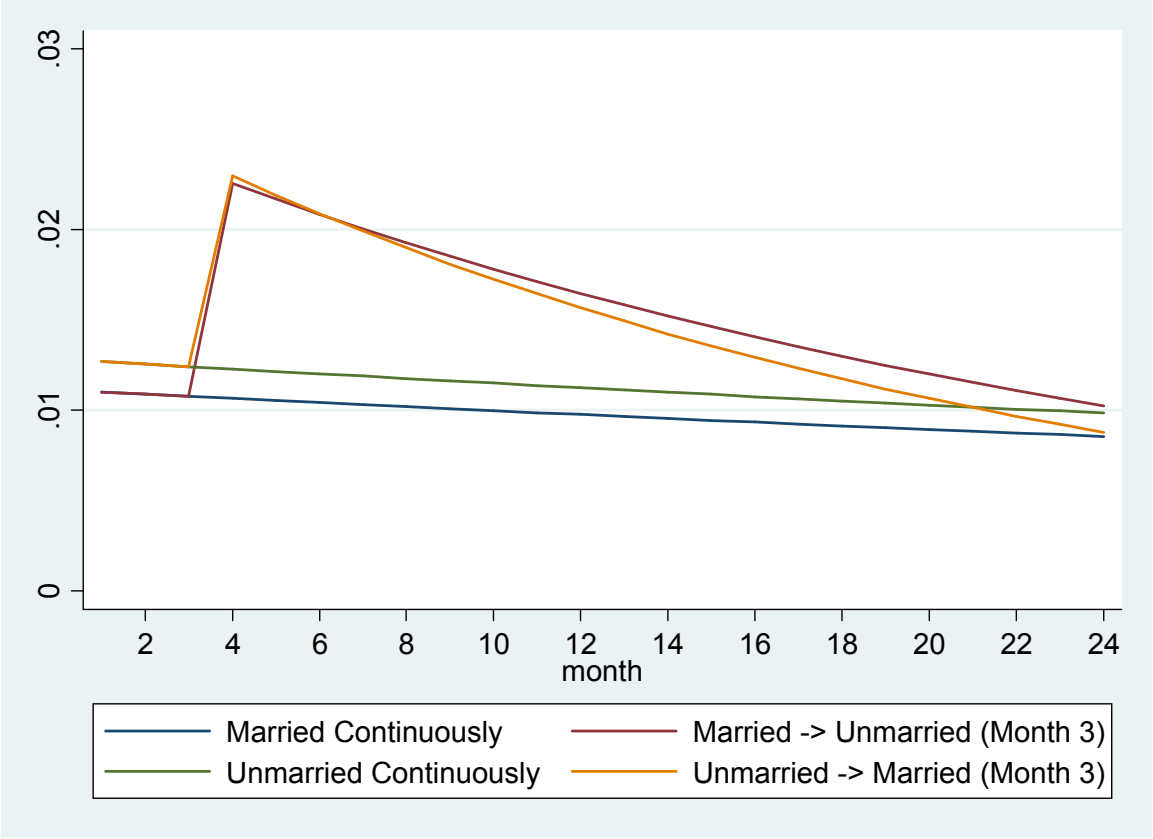

Figure 3. Hazard of Gaining Health Insurance Coverage by Marital Status