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The Effects of Health Shocks on Employment and Loss of Health Insurance:

The Role of Employer-Provided Health Insurance

Cathy J. Bradley, Ph.D.

David Neumark, Ph.D.

Meryl Motika

[*] Bradley (corresponding author) is Professor, Department of Healthcare Policy and Research and the Massey Cancer Center, Virginia Commonwealth University, Richmond, VA. email: cjbradley@vcu.edu. Neumark is Professor, Department of Economics, University of California at Irvine, CA; Research Associate, National Bureau of Economic Research; Bren Fellow, Public Policy Institute of California, and Research Fellow, IZA. email: dneumark@uci.edu. Motika is a Ph.D. candidate, Department of Economics, University of California at Irvine, CA. email: mmotika@uci.edu.

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1. Introduction

The merits and shortcomings of the U.S. system of health insurance, which is primarily employer-based for citizens under age 65, have been debated almost since its widespread adoption during and following World War II. There has been a resurgence of this debate in the past year with the passage of the Patient Affordability and Accountable Care Act (ACA). A key feature of the healthcare reform plan is to ensure that individuals (and their dependents) maintain coverage when they lose or change jobs, or leave jobs voluntarily.[1] In addition, employer-based health insurance – in particular, health insurance based on one's *own* employment – has often been criticized for constraining employment decisions. The "job-lock" literature focuses on its adverse effects on productive job mobility (Cooper and Monheit, 1993; Gruber and Madrian, 1994; Kapur, 1998; Adams, 2004), and our past work has focused on the issue of people diagnosed with cancer remaining at work in order to maintain their health insurance – a different kind of job lock (Bradley et al., 2006). Our research in this paper informs the debate about both of these issues regarding employer-based health insurance, revisiting the question of whether such insurance "locks" people who experience a health shock into remaining at work, and whether it increases the risk of losing health insurance among those who experience such shocks.

We focus on the time period when health insurance is most critically needed – when workers are diagnosed with a serious illness posing considerable health and financial consequences. We use samples of employed married men and women from the Health and Retirement Study (HRS) to examine how dependence on one's employment for health insurance (employment-contingent health insurance, or ECHI) affects transitions from employment to non-employment following a health shock and how it affects the loss of insurance.

[1] See http://www.healthreform.gov/reports/index.html (viewed December 20, 2010).

There is an extensive literature on how health insurance influences labor supply, but few studies, other than our own and a study by Tunceli et al. (2009), address how labor supply changes in response to a health shock are affected by health insurance. The body of work most relevant to our research examines the effects of retiree health insurance. This research is pertinent for two reasons. First, the near-retirement population is similar in age and vulnerability to health shocks as the population we study; and second, access to retiree health insurance is an alternative to ECHI. Most other studies are within the context of how access to retiree health insurance benefits impacts decisions to leave the workforce, without reference to health shocks.

Workers with retiree health benefits are 29% to 55% more likely to retire, over roughly a 2- to 4-year window, than those without (Karoly and Rogowski, 1994; Marton and Woodbury, 2006). Access to retiree health benefits positively and statistically significantly influences the likelihood of retirement when account is taken of pension amount and availability, health status indicators (e.g., multiple chronic conditions, body mass index, fair or poor health), spouse labor supply, and respondent age, race, and education. Some researchers suggest that retiree health benefits accelerate retirement age by approximately 1 month (Gustman and Steinmeier, 1994), whereas others place the retirement range at 5 to 16 months earlier than would have otherwise occurred if retiree health benefits were not available (Madrian, 1994). Karoly and Rogowski (1994) find that having a source of insurance coverage in addition to the coverage provided by the worker's employer significantly increased the likelihood of retirement before age 65. This effect may be greater when workers are in poor health (Blau and Gilleskie, 2008). Ultimately, an alternative source of health insurance may reduce labor supply although studies specific to Medicare and its influence on early retirement suggests that the impact will be minimal (Blau and Gilleskie, 2008).

Turning to health shocks, in research using primary data collected from a sample of Detroit women with breast cancer, we found that at 6, 12, and 18 months following a new breast cancer diagnosis, women with ECHI are significantly more likely to be employed relative to women without insurance through their employer (Bradley et al., 2006). We observed that ECHI reduces the negative impact cancer has on employment and weekly hours worked, especially 12 months post-diagnosis. Tunceli et al. (2009) report similar findings in study of male and female cancer survivors relative to a non-cancer cohort extracted from the HRS. The cancer cohort was drawn from four hospitals in Pennsylvania and Maryland. Nevertheless, this issue requires further investigation to determine if the relationship between ECHI and health shocks holds for conditions other than cancer, to replicate the results on a nationally representative sample including men and women, and to better determine whether employment responses to health shocks are stronger in the short-term than the longer-term.[2]

In addition, how the influence of ECHI on the employment response to a health shock differs between men and women has not received attention the literature. In a previous paper (Bradley et al., 2006) we developed a theoretical framework that suggests that the incentives to remain employed following a health shock should be stronger for men because they have fewer options for switching to their wife's policy. Consistent with this prediction, Tunceli et al. (2009) find that the tendency to remain employed after getting cancer if one has ECHI is stronger for men than for women. In this paper, we study both men and women and compare the results. Consistent with expectations and the evidence in Tunceli et al., we find stronger results for men

[2] Any biases from studying only survivors of a health shock are likely larger the longer the time period studied.

and only weak evidence for women.[3] As a consequence, we focus the discussion on the findings for men.

We also assess the probability of losing health insurance following a health shock for those who initially have insurance through their own employer or their spouse's employer or another privately-purchased source. Loss of health insurance under these circumstances can occur through at least two mechanisms: loss of employment with an employer that offers health insurance or loss of health insurance through a current employer. Thus, our evidence provides guidance as to how ECHI influences employment following a health shock, and whether health shocks threaten the provision of health insurance by an employer.

2. Empirical Approach

The labor market outcome of most interest is exit from employment following a health shock. In our data, we observe employment at interviews two years apart, and whether a health shock occurred in the intervening period between the interviews. Employment is defined broadly, as working one or more hours of paid work per week. We use this definition because transitions from employment to zero hours without reporting retirement are prevalent among individuals – particularly women – with major health events (McClellan, 1998). Following a health shock, we are also interested in health insurance transitions for men and women, and whether these transitions depend on whether one had ECHI prior to the health shock.

The outcomes are modeled as functions of health shocks (HS, which, depending on the specification, will be defined differently), source of health insurance (ECHI or spouse's employer or other privately-purchased policy), control variables (explained below), and

[3] The evidence for women contrasts with the findings in Bradley et al. (2006). In the concluding section of the paper we discuss in greater detail both the commonalities and the differences in the findings on how health shocks affect employment depending on whether health insurance depends on continued employment.

unobserved influences (ε). We estimate the probability of employment (E) following a health shock for men and women separately, using

$$\Pr (E_{i2} = 1 | E_{i1} = 1, INS_{i1} = 1, HS_{i1}=0, ECHI_{i1}, HS_{i12}, X_i), \quad (1)$$

where the 'i ' subscript denotes individuals, and the '1', '2', or '12' subscripts denotes the first interview (period 1), second interview (period 2), or intervening period between periods 1 and 2.

The condition $E_{i1} = 1$ implies that the respondent was employed at period 1, the condition $INS_{i1} = 1$ implies that he or she had insurance in period 1, and the condition $HS_{i1} = 0$ implies that he or she was healthy as of period 1. The three sets of control variables denote individual characteristics (C), spouse characteristics (S), and job characteristics (J), and are explained below; we denote the entire set of controls by X. ECHI is based on insurance source recorded during the period 1 interview, which for those with a health shock will be the interview just prior to the shock.

These equations are estimated as linear probability models. In addition to entering each of the variables linearly, we include an interaction between HS and ECHI, so that our linear probability model, estimated for the sample with $E_{i1} = 1$, $INS_{i1} = 1$, and $HS_{i1} = 0$, is

$$E_{i2} = \alpha + \beta_1 HS_{i12} \cdot ECHI_{i1} + \beta_2 HS_{i12} \cdot (1 - ECHI_{i1}) + \beta_3 ECHI_{i1} + X_i\gamma + \varepsilon_{i2}. \quad (2)$$

The coefficient β_1 captures the effect of a health shock on employment for those with ECHI. The coefficient β_2 captures the effect of a health shock on employment for those without ECHI. The difference $(\beta_2 - \beta_1)$ is then the difference-in-difference estimate, identifying how effect of a health shock on employment transitions is influenced by ECHI.[4] Note that the model

[4] Note that this is just a re-parameterization of the more standard difference-in-difference specification

$$E_{i2} = \alpha + \beta_1 HS_{i12} + \beta_2 ECHI_{i1} + \beta_3 HS_{i12} \cdot ECHI_{i1} + X_i\gamma + \varepsilon_{i2},$$

where β_3 is the difference-in-difference estimator. The formulation yields direct estimates of the effects of health shocks for the two groups. The models are equivalent, with the same differentials or effects simply captured in different combinations of the coefficients.

allows for differences in employment transitions for those with and without ECHI, to control for important differences (not captured in C, S, or J) between workers in jobs that differ with respect to the provision of health insurance – which could reflect both worker and job characteristics.

To study the loss of health insurance, we estimate exactly the same type of model, although in this case for the probability of health insurance in period 2,

$$\Pr (INS_{i2} = 1 | E_{i1} = 1, INS_{i1} = 1, HS_{i1}=0, ECHI_{i1}, HS_{i12}, X_i). \quad (3)$$

In the corresponding linear probability model, estimated for the sample with $E_{i1} = 1$, $INS_{i1} = 1$, and $HS_{i1} = 0$,

$$INS_{i2} = \alpha' + \beta'_1 HS_{i12} \cdot ECHI_{i1} + \beta'_2 HS_{i12} \cdot (1 - ECHI_{i1}) + \beta'_3 ECHI_{i1} + X_i\gamma' + \varepsilon'_{i2}, \quad (4)$$

the difference-in-differences estimator ($\beta'_2 - \beta'_1$) identifies how ECHI influences the effect of a health shock on the loss of insurance.

In all estimations, because there are observable differences between men and women with ECHI and men and women insured through their spouse or a privately purchased policy, we control for individual characteristics, job characteristics, and spouse characteristics. Individual characteristics include age, education (high school or less, some college, college degree or higher), race (white or other), and household income. Because labor force exit becomes more likely at older ages irrespective of health shocks, we control for age categorically (less than 40, 40 to 59, and 60 to 63 as of period 1). Education and household income (attributable to the spouse or unearned sources) may affect a person's market wage or reservation wage and hence influence whether he or she remains at work in response to a health shock. Household income is measured as income from all sources (including earnings) and is categorized as less than \$20,000, \$20,001 to \$74,999, and ≥\$75,000. In all estimations, we include, but do not report, dummy variables for year of the first interview.

In addition to these characteristics, we include a variable indicating if the respondent was employed in a job that involved a lot of physical activity and/or a job that involved a lot of stress. The response categories were all/almost all of the time, most of the time, some of the time, or none/almost none of the time. We dichotomize responses into all/almost all of the time, most of the time, and some of the time (combining these three responses) versus none/almost none of the time. We also controlled for whether the respondent was employed by a public employer, and the firm size (less than 25, 26 to 100, and 101 or more employees) – all of which may affect work decisions independently yet be correlated with ECHI.

Because the labor force participation of a spouse may be an important determinant of a married man or woman's decision to stop working, we add variables to the model capturing the employment situations of spouses at the first interview. We include dummy variables for spouse not working, working full-time, working part-time, and retired. The employment changes we study may be part of joint family labor supply decisions made in response to a health shocks. In this paper our goal is more limited – to focus on the person experiencing the health shock. The spouse's labor market behavior prior to the shock may help predict whether older individuals remain employed or exit the labor market. We also include in the models a control for self-reported health status (e.g., excellent/very good and good versus fair/poor) of spouses as another indicator of the dependency of the household on the respondent's employment. Control variables are also included for spouse age and if the spouse reported being insured by the respondent's health insurance plan in the first interview.

Finally, aside from the observable controls, we narrow our comparison to men or women with insurance through either their own employer, or insurance through their spouse's employer or another private source. Our central interest in the effects of ECHI on employment and

insurance transitions in response to health shocks. We of course do not have random assignment of our respondents to ECHI. The best we can do, then, is to try to control as much as possible for differences between those with ECHI and the comparison group. Men or women with insurance through a spouse or a private source seem likely to be more similar to those with ECHI than are uninsured people or those on public insurance. In that sense, our restriction to those with either ECHI or other employer-sponsored or private insurance is intended to get us closer to a quasi-experimental evaluation of the effects of ECHI. With the rich set of controls available, plus the other sample restrictions, we think it is unlikely that there are remaining differences between the ECHI and other insurance group, although we cannot decisively rule this out.

3. Data

We extracted our analysis samples from the HRS surveys from 1992 through 2006. The HRS is designed to answer research questions regarding the relationships between health, income, wealth, job decisions, and retirement. Only one member of the household must be in the age range of the sample frame; spouses may be interviewed even if they are out of the specified age range for the target population (the initial cohort was aged 51 to 61 years). In most cases, if there are two members of the household (e.g., husband and wife) each is interviewed regarding his or her own employment history, retirement, health, and demographic characteristics.

We first selected all observations for which the respondent was interviewed in two consecutive HRS waves with non-missing data for the employment, insurance, health, and demographic variables we use. We then narrowed the age range to 20 to 64 years at the time of the second interview. The age range selected was chosen to avoid respondents eligible for Medicare.[5] In addition, we selected the subset of these observations in which the respondent was

[5] Most HRS respondents are near the upper end of this age range, although occasionally spouses of the target population are much younger. Generally, to be eligible for Medicare, the beneficiary or the beneficiary's spouse

married, employed, and had private-sector health insurance in the first interview of the pair. Respondents insured by any government plan (e.g., Medicare, Medicaid, Tricare, or other military insurance) or who were uninsured at the time of his or her first interview, were excluded.

We restricted the sample, to the greatest extent possible, to initially healthy men and women. We selected the observation pairs in which, at the first observation in the pair, the respondent had not previously been diagnosed with lung disease, diabetes, cancer, stroke, angina, or congestive heart failure. We also excluded observations on individuals who had previously been hospitalized or described their health status as poor or fair during their participation in the HRS. An examination of this initially healthy sample helps to isolate the effects of a health shock by excluding those who may have adapted to the health condition, which may include leaving employment and subsequently losing insurance.

We define three types of health shocks. Given that self-reported health status is recorded as excellent, very good, good, fair, or poor, we define a health self-report decline (SRD) as a shift from "excellent" or "very good" or "good" health status in the first interview to "fair" or "poor" health status in the second. The second shock we use is a diagnosis of lung disease, diabetes, cancer, stroke, angina, or congestive heart failure, reported at the second interview. Our third health shock measure is hospitalization between the first and second interview. In addition, we look separately at new diagnoses or self-reported health declines that did not also entail a hospitalization in the same period.

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must work for at least 10 years in Medicare-covered employment and the beneficiary must be 65 years or older and a citizen or permanent resident of the United States. It is possible to qualify for coverage prior to age 65 years if the beneficiary has a disability or end-stage renal disease. A one-year waiting period is required for beneficiaries under age 65 who have a general disability.

We define the ECHI group as those with primary insurance from current or former employer or union as of the first interview of the pair. As noted above, we exclude those insured by a government plan or uninsured at that interview, so our "non-ECHI" comparison group include those with insurance through their spouse's employer (defined on the same basis as ECHI for the respondent), or through a privately-purchased plan.

The sample selection procedures described thus far leave us, in many cases, with multiple pairs of observation on each respondent. For those respondents who ultimately report a health shock, we select the pair of observations bracketing this adverse health event. For those respondents who never report a health shock, we randomly select one pair of observations. Thus, we select the first observation prior to the health shock for as many respondents as possible, and then to create a control sample of respondents who did not have these adverse health events.

Table 1 reports how the sample selection rules led to our analysis samples. We start with 102,016 consecutive-wave pairs of interviews on 25,426 individuals. When we restrict the sample to those who are aged 18-64 at the second interview, married and employed with private health insurance as of the first interview, we are left with 5,925 observations. After limiting the sample to respondents who initially reported good or better health, who had no prior diagnosis of any of the named diseases, and who had never reported being hospitalized, we have 4,784 observations. Excluding respondents with missing data on the variables required for our sample selections and analysis, we arrive at the final sample of individuals that met our study criteria, consisting of 2,319 men and 2,209 women. Within these samples, 1,774 men and 1,308 women had ECHI at the first interview, while 545 men and 901 women were covered by other private insurance, typically through their spouse or by purchasing it individually.

Table 1 also reports the number of men and women who experienced health shocks by insurance source. The most common health shock is hospitalization, which affected 409 men and 285 women with ECHI and 142 men and 197 women with other private insurance. A new diagnosis of the diseases listed above was reported by 243 men and 136 women with ECHI and 74 men and 72 women with other insurance. There were 202 men and 143 women with ECHI and 75 men and 111 women without ECHI but with private insurance who had a self-reported health decline.

Table 2 clarifies how the treatment and control groups were defined for our different analyses. The control group – which is constant through our different analyses – consists of individuals who do not experience any of the health shocks we examine. An individual can be in multiple types of treatment groups, including new diagnoses (for a group of diseases, as well as cancer, diabetes, and lung disease considered separately, because the sample sizes are large enough, as reported below), hospitalizations, and self-reported declines. As indicated, we also study narrower treatment groups of those with new diagnoses or self-reported health declines.

Table 3 provides information on the relationships between the three health shock measures, including the individual diseases that make up new diagnoses. The most common diseases are cancer, diabetes, and lung disease. Rates of hospitalization and SRD are similar between men and women, but vary greatly by diagnosis. About 10% of respondents who are not diagnosed with lung disease, diabetes, cancer, stroke, angina, or congestive heart failure self-report a decline in health status, while more than 20% of those with a new diagnosis also have SRD. There is a slightly larger difference in hospitalization rates of respondents with and without a new diagnosis. Looking at the specific diseases, cancer has very high rates of hospitalization and SRD, while respondents with diabetes have low rates of both. These

differences match our expectations concerning the different diseases; a diagnosis of diabetes may have little immediate impact on contemporaneous morbidity or quality of life, while cancer often requires disruptive treatments such as surgery and chemotherapy.

4. Results

4.1. Descriptive statistics

Tables 4a and 4b report descriptive statistics by health shock and insurance source for men and women, respectively. Among healthy men with ECHI, 83% are employed at the second interview whereas only 73% with other sources of private insurance are employed at the second interview ($p < .01$). Most men with ECHI are able to retain their health insurance, although a few become uninsured (3%) by the second interview. About a quarter of men without ECHI in the first interview pick it up by the second interview and 6% become uninsured. Most men with ECHI cover their spouse and other dependents.[6] Men without ECHI are more likely to be employed part-time and by smaller employers (at the first interview) ($p < .01$). Those with ECHI are more likely to work the public sector and to have a stressful job ($p < .05$). Not surprisingly, men with ECHI are more likely to have spouses who do not work, work part-time ($p < .01$), or are retired or in poor health ($p < .05$).

Relative to healthy men, the univariate comparisons suggest that health shocks reduce employment ($p < .01$), with the exception of men who report a new diagnosis of diabetes.

[6] Note that it is not surprising that when men have ECHI, in a high percentage of cases their insurance also covers the spouse and other dependents. More surprising is the high percentage of cases in column (1) where the men are not covered by ECHI but report that their dependents are covered by insurance through their employer. The explanation of this lies in the structure of the insurance source questions. The spouse's insurance source is determined in the same way as the respondent's, because all spouses are also respondents. Thus, for them, the classification of their source of insurance is based on their primary source. The small share of spouses covered when the respondent is in the non-ECHI group could reflect either cases where both people in the couple have employer insurance, and for some reason each is on the other employer's plan, or reporting error. The questions used to determine coverage of dependents, however, do not indicate whether the source is primary. Thus, apart from reporting error, the large share of dependents covered by the respondent's employer's insurance even when the respondent is classified as non-ECHI likely arises because the coverage of dependents is not their primary coverage.

Otherwise, the health shock sample is roughly equivalent to the healthy sample, with a few exceptions. Men with cancer are more likely to have older spouses ($p<.05$). Spouses of men with cancer are also likely to work part time, be retired, or be in poor health ($p < .1$). Respondents who experienced a hospitalization were older ($p < .05$) and had lower incomes ($p < .1$), and were more likely to have spouses who were working only part-time ($p < .01$). The differences were similar, and generally stronger, for respondents with a self-reported decline in health, who were also more likely to be non-white, less educated, work in a physical job, have a spouse in poor health ($p < .01$), and to have a spouse over 65 ($p<.05$).

Among women, there are a few differences in the samples by insurance source. Women with ECHI are more likely to be employed at the second interview ($p < .01$). Just under half of these women cover their spouse on their ECHI policy. A substantially larger percentage of women with ECHI are non-white than those without ECHI (14% versus 8%, $p < .01$). Women with ECHI are more educated ($p < .01$). They also have a greater tendency to be employed in stressful jobs ($p < .01$), employed full-time ($p < .01$), and employed by large employers ($p < .01$). Finally, they are more likely to have spouses who are not employed ($p < .01$), employed part-time ($p < .10$), and in poor health ($p < .01$).

Employment differences between healthy women and women with health shocks are less pronounced than for men. Nevertheless, women with a decline in self-reported health ($p < .01$), or who are diagnosed with cancer or are hospitalized ($p < .05$) are less likely to be employed at the second interview than healthy women. On the other hand, education differentials between healthy women and women with health shocks are larger than for men. Women who experience a health shock are also more likely to have a non-working spouse and an older spouse than are healthy women.

4.2. Employment

Table 5a reports difference-in-differences estimates of the effects of health shocks on remaining employed for those with ECHI versus insurance from another source. Six sets of estimates are reported in this table: for three different health shocks – cancer, lung disease, and diabetes; and for specifications with and without control variables. The table reports both the first-difference estimates of the effects of health shocks on each insurance group (labeled "ECHI" and "non-ECHI"), and below these the difference between these estimates, or the difference-in-differences estimates (labeled "diff in diff"). The estimates with and without controls are similar; for simplicity, the discussion refers to the estimates with controls.

In the top panel, for men, the first-difference estimates indicate that men with ECHI who are newly diagnosed with cancer are 12.7 percentage points less likely to be employed at the second interview than otherwise similar healthy men. In contrast, for those with insurance through another source, there is no significant difference (and the estimate is positive). Thus, the difference-in-difference estimate is negative, indicating that among men newly diagnosed with cancer, those with ECHI are 16.3 percentage points less likely to remain at work. However, this estimate, although quite large, is not significant. In contrast, the estimates for those newly diagnosed with lung disease or diabetes indicate the opposite – that that those with ECHI are relatively *more* likely to remain employed after these health shocks. For these two diagnoses, the point estimate of the effect of the health shock is negative and relatively large for those without ECHI (especially for lung disease, for the employment rate declines by 34 percentage points, $p < .01$). For those with ECHI, the estimates are smaller for lung disease (negative 10 percentage points, $p < .10$, and positive and insignificant for diabetes). For both diseases, the difference-in-difference estimates are positive, meaning that men who have ECHI and are newly

diagnosed are more likely to be employed than men with insurance from another source; the differential is 24 percentage points for lung disease ($p < .10$), and 17.9 percentage points for diabetes ($p < .10$).

For women (lower panel), only the employment effects for a new diabetes diagnosis are statistically significant when controls are included in the estimations, and these effects are opposite from what we observe in men. Women with an insurance source other than ECHI are more likely to remain employed (20.9 percentage points, $p < .01$) than healthy women, whereas the results for women with ECHI are not statistically significant. Therefore, the difference-in-difference estimate is negative ($p < .01$).

Table 5b reports results that are analogous to those in Table 5a for broader definitions of health shocks, comparing respondents who were hospitalized, had a new diagnosis, or had a self-reported decline with those without an adverse health shock. For those with a new diagnosis or a self-reported health decline, we also estimate models restricting the treatment group to those who did not have a hospitalization. The effects of health shocks that do not entail a hospitalization may convey more information on the onset of health problems that could prove costly – hence increasing the value of insurance – without the contemporaneous health shock that would affect current employment. Among those with ECHI who experience health shocks, it may be those who do not have a contemporaneous decline in health who are most able to remain employed to keep their insurance; conversely for those who also experience a decline in health status, the direct effect of this decline on employment may obscure the effect that acts through the increased value of insurance.[7]

[7] In our view, this interpretation is cleanest for new diagnoses that do not entail a hospitalization. A priori it is less clear how to think about self-reported declines in health. If one reports a decline after a new diagnosis even if there are not contemporaneous morbidities, then self-reported declines are like new diagnoses. As discussed below, the

In estimates for the hospitalization health shock, as well as the new diagnosis and self-reported decline health shocks that do *not* exclude hospitalizations (columns (2), (4), and (8)), the difference-in-difference estimates are positive, but not statistically significant. The first-difference estimates of the effects of these health shocks are always negative, and significant in 5 out of 6 cases (the only exception is for the ECHI group in column (4)). Specifically, men with ECHI who are hospitalized are 8.8 percentage points less likely to be employed at the second interview than healthy men ($p < .01$). The results are similar for men with insurance through another source ($p < .05$). Men with a new diagnosis, but health insurance through a source other than ECHI are 11.3 percentage points less likely to be employed than men with ECHI ($p < .10$); the estimate for men with ECHI is not statistically significant. Similar (although slightly larger) negative results are found for men with a self-reported health decline. Men with ECHI experience a 14.3 percentage point decline ($p < .01$), whereas men without ECHI experience a 25.2 percentage point decline in employment ($p < .01$). In each of these cases, the difference-in-difference estimates are positive, but not statistically significant.

In contrast, for the new diagnoses or self-reported declines that exclude hospitalization, the difference-in-difference estimates are positive, larger, and statistically significant. In particular, in column (6), men with a new diagnosis but no hospitalization, and ECHI, are more likely to be employed (2.8 percentage points, but not significant). In contrast, for those without ECHI, employment for those with a health shock is lower by 13.3 percentage points ($p < .10$). The difference-in-difference estimate is 16.1 percentage points ($p < .05$). The findings are similar in column (8), for men with a self-reported decline in health but no hospitalization. There is little change in employment for those with ECHI who have a health shock, but for those with

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similarity of the results for new diagnoses and self-reported declines, in the absence of hospitalizations, suggests that this self-reported declines in health are driven more by new diagnoses..

insurance from another source, employment is lower by 22.7 percentage points ($p < .05$). Again, the difference-in-difference estimate is positive (an 18.1 percentage point difference between men with and without ECHI, $p < .10$).

Moreover, comparisons of column (4) to column (6), and column (8) to column (10), show that the difference is driven by the fact that these narrower types of shocks do not reduce employment of men with ECHI, consistent with the conjecture above that new diagnoses or self-reported declines in the absence of hospitalization, in particular, posed less of a barrier for those with ECHI to keep working. The net result, as reflected in the difference-in-difference estimates, is that men with an adverse health shock are more likely to remain employed if they had ECHI prior to the shock.

Across nearly all specifications, women with ECHI who experienced a health shock are less likely to remain employed than women with insurance through another source. With the exception of the results for diabetes, however, the difference-in-difference estimates for women are generally small and always statistically insignificant.

4.3. Insurance

Table 6 explores that the extent to which employed men and women with different initial sources of health insurance remain insured following a health shock. We report results for all of the health shocks in one table, by omitting the specifications without control variables. In 6 out of 8 cases, the first-difference estimates for men with ECHI are always negative, but they are never statistically significant. In contrast, for those with another source of insurance the corresponding estimates are almost always positive, but significant in only one case (for cancer). Putting these results together, in 7 of 8 cases the difference-in-difference estimates point in the direction of men with a health shock being more likely to lose their insurance if they have ECHI

prior to the shock; but only for one type of health shock – cancer – is the difference-in-difference estimate statistically significant ($p < .01$).

For women, there are two types of health shocks – diabetes, and new diagnoses excluding hospitalizations or self-reported declines – for which the difference-in-differences estimate is statistically significant. In both cases the estimates are negative, indicating that those with ECHI are less likely to remain insured following a health shock. Finally, in general, health shocks (whether or not one has ECHI) are not associated with the loss of health insurance.

5. Discussion

This study informs policies regarding employment-based health insurance along two dimensions: labor supply and continuity of health insurance. Past research on men and women diagnosed with cancer indicates that those with ECHI are more likely to remain employed. Our study lends supporting evidence to these findings, particularly for men, for whom we should anticipate a greater need to remain employed when faced with a health shock because they have fewer options for switching health insurance coverage to a spouse's policy. Among men with ECHI, in 70% of cases their insurance also covered a spouse; see Table 4a. In contrast, only 46% of women with ECHI covered their husband on their policy. Because men therefore have fewer options for health insurance, they may have a greater incentive to continue working after an adverse health shock in order to maintain health insurance through their jobs. With the passage of the ACA, the tendency of men with ECHI as opposed to other sources of insurance to remain employed when the experience a health shock may be diminished, with the extent of the change depending on the availability, cost, and extent of coverage of privately-purchased policies. As it currently stands, however, men with employer-provided health insurance appear

to experience a form of 'job lock' following a health shock because of the incentives ECHI creates.

Prior published papers on health shocks, employment responses, and source of insurance found stronger evidence for women with cancer (Bradley et al., 2006), and for men (and women) with cancer (Tunceli et al., 2009). The variation in results should not be viewed as surprising. The samples used are small, and the samples also differ in other ways, including the definitions of health shocks, the choice of control groups, and the period over which changes in behavior are observed. Unfortunately, it is logistically challenging and cost-prohibitive to prospectively study the influence of ECHI on labor supply following a health shock for large, representative samples. Therefore, the only feasible research strategy is likely the continued assembling of pieces of evidence from disparate data sources, in an effort to see if they tell a consistent and cohesive story. Across the studies, we observe stronger differences in labor supply responses among men than among women. We observe this finding across several, but not all, definitions of health shock. An important contribution the specific analysis in this paper adds is the finding that labor supply differences are driven by narrower types of health shocks that do not reduce employment of men with ECHI and posed less of a barrier for those with ECHI to keep working. We have interpreted this evidence as reflecting behavioral responses to health shocks that do relatively more to increase expected future health costs and relatively less to introduce contemporaneous health problems. Nonetheless, our results suggest caution; the incentives ECHI creates to continue working following a health shock is not always manifested and additional research is needed before definitive conclusions can be made.

Following a health shock, men and women with ECHI appear to be more likely to lose coverage than those with health insurance from another source, but the evidence is weak and

rarely statistically significant. For men, the explanation may lie in the employment responses – because men with ECHI are more likely remain at work, they may be better able to keep their health insurance through continuing employment. Although women's employment response does not vary depending on their initial source of health insurance, they can more easily switch to their spouse's policy, which may explain why women with ECHI who experience a health shock are scarcely more likely to lose their health insurance. As noted earlier, most men with ECHI cover their spouse, but fewer women with ECHI cover their husband.

Three limitations are noteworthy. First, we study a sample of married employed and initially privately insured individuals. Given the socioeconomic characteristics of married versus single older adults, and given that marriage often implies the availability of multiple sources of insurance (especially for women), the HRS participants we study are probably less vulnerable to loss of employment and loss of insurance than the population at large (in the corresponding age groups). On the other hand, the strength of using this sample is that it provides a quasi-experimental design that allows us more reliably to isolate the effects of the source of health insurance than if we compared the experiences of married, employed, adults with ECHI to those who were not married or were either uninsured or on public insurance. Second, the HRS is confined to older individuals and our findings may not be applicable to those who are younger. We believe this to be a minor drawback for studying the influence of health shocks, which are much more prevalent among older workers. Finally, qualitative data that can explain why individuals remain or quit working is absent from the HRS. We are currently engaged in a systematic study of these questions using survey data on newly-diagnosed cancer patients and medical record audits.

Health reform intends, in part, to provide near-universal health insurance coverage. Our study indicates, across several specifications of health shocks, and using a nationwide sample, that ECHI encourages job attachment in men following a health shock. Access to alternative sources of health insurance provided through the ACA may reduce job attachment after an adverse health shock. On the one hand, this is a potential cost of less reliance on employment for health insurance; like any policy that provides resources to those not working, there are potential work disincentives. On the other hand, an enhanced ability to continue health insurance coverage without working could deliver health benefits, if men who would otherwise be constrained to keep working are instead better able to take the time to recover and to continue receiving appropriate health care.

References

Adams, SJ 2004, 'Employer-provided health insurance and job change,' *Contemporary Economic Policy*, vol. 22, no. 3, pp. 357-369.

Blau, DM & Gilleskie, DB 2008, 'The role of retiree health insurance in the employment behavior of older men,' *International Economic Review*, vol. 49, no. 2, pp. 475-514.

Bradley C, Neumark D, Luo Z, Bednarek H. 2006, 'Employment-based health insurance, illness, and labor supply of women: evidence from married women with breast cancer.' *Health Economics,* vol. 16, no. 7, pp.719-734.

Cooper, PF & Monheit, AC 1993, 'Does employment-related health insurance inhibit job mobility?' *Inquiry*, vol. 30, no. 4, pp.400-416.

Gruber, J & Madrian, BC 1994, 'Health insurance and job mobility: the effects of public policy on job-lock,' *Industrial and Labor Relations Review*, vol. 48, no. 1, pp. 86-102.

Gustman, AL & Steinmeier TL 1994, 'Employer-provided health insurance and retirement behavior,' *Industrial and Labor Relations Review*, vol. 48, no. 1, pp. 124-140.

Kapur, K 1997, 'The impact of health on job mobility: a measure of Job Lock,' *Industrial and Labor Relations Review*, vol. 51, no. 2, pp. 282-297.

Karoly, LA & Rogowski, JA 1994, 'The effect of access to post-retirement health insurance on the decision to retire early,' *Industrial and Labor Relations Review*, vol. 48, no. 1, pp. 103-123.

Madrian, BC 1994, 'The effect of health insurance on retirement,' *Brookings Papers on Economic Activity*, no. 1, pp. 181-232.

Marton, J & Woodbury, S 2006, "Retiree health benefits and retirement,' in *Government spending on the elderly*, ed DB Papadimitriou, MacMillan Press, London, pp. 220-241.

McClellan, M 1998, 'Health events, health insurance, and labor supply: evidence from the health and retirement study,' in *Frontiers in the Economics of Aging*, ed DA Wise, University of Chicago Press, Chicago, pp. 301-349.

Tunceli, K, Short, PF, Moran, JR & Tunceli, O 2009, 'Cancer survivorship, health insurance, and employment transitions among older workers,' *Inquiry*, vol. 46, no. 1, pp. 17-32.

Table 1. Men and women aged 18 to 64 years, Health and Retirement Study, 1992 – 2006

Sample inclusion criteria	Observations	
Consecutive-wave observations[a]	102,016	
Individuals	25,426	
Aged 18 to 64 years at 2nd interview[b]	15,595	
Married at 1st interview	12,088	
Employed[c] at 1st interview	7,373	
Private insurance[d] at 1st interview	5,925	
No fair or poor health, hospitalization, or diagnosis of included[e] disease at any prior interview	4,784	
No non-valid missing data for required variables	4,528	
ECHI[f] at 1st interview	3,082	
	Men	Women
	1,774	1,308
New diagnosis of an included disease	243	136
Hospitalized between 1st and 2nd interview	409	285
Decline in health self-report[g] between 1st and 2nd interview	202	143
Other private insurance at 1st interview	1,446	
	Men	Women
	545	901
New diagnosis of an included disease	74	72
Hospitalized between 1st and 2nd interview	142	197
Decline in health self-report[g] between 1st and 2nd interview	75	111

[a] An observation is defined as two consecutive interviews with the same individual.
[b] '1st interview' and '2nd interview' refer to the pair of interviews that make up an observation.
[c] Working for pay with positive earnings.
[d] Private insurance includes privately purchased or employer-based health insurance. It excludes Medicare, Medicaid and other government-provided health insurance.
[e] Included diseases are cancer, diabetes, lung disease, angina, congestive heart failure, and stroke.
[f] ECHI=Employment contingent health insurance, defined as report of primary insurance from current or former employer or union.
[g] Health decline defined as a drop from excellent, very good, or good at the first interview to fair or poor at the second interview.

Table 2. Treatment and control group definitions

	Treatment group	Control group
Hospitalized	Hospitalized in past 2 years	No self-reported decline, no hospitalization, no diagnosis of any included disease[a]
New diagnosis	(i) Diagnosed with any included disease[a] between 1st and 2nd interview (ii) Same as (i), but without hospitalization or self-reported decline in same period	
Self-report decline	(i) Decline in health status self-report from good or better health at first interview to poor or fair health at second interview (ii) Same as (i), but without hospitalization or new diagnosis in same period	
Cancer	New cancer diagnosis	
Diabetes	New diabetes diagnosis	
Lung disease	New lung disease diagnosis	

[a] Included diseases are cancer, diabetes, lung disease, angina, congestive heart failure, and stroke. In some cases, diagnoses prior to joining the HRS may not be recorded. The HRS also asks about heart attacks, other heart problems, psychiatric problems, arthritis, and, in some years, asthma, high cholesterol, back or foot and leg problems, kidney or bladder trouble, stomach or intestinal ulcers, fractures, and concussion. We do not consider these additional ailments for sample selection or for any measure of health shock.

Table 3. Probability of health shock by disease and gender

New diagnosis	N	% Hospitalized	% Decline in self-report	% Neither	% Both
Men					
None[a]	2,002	22%	11%	70%	3%
Any diagnosis[b]	317	35%	19%	56%	10%
Cancer	97	61%	27%	30%	18%
Congestive heart failure	1	0	0	1	0
Stroke	19	68%	32%	26%	26%
Diabetes	134	17%	8%	77%	2%
Lung disease	70	24%	23%	61%	9%
Angina	7	43%	29%	43%	14%
Women					
None[a]	2,001	21%	10%	71%	2%
Any diagnosis[b]	208	34%	23%	54%	10%
Cancer	67	57%	27%	33%	16%
Congestive heart failure	1	0	1	0	0
Stroke	14	64%	21%	36%	21%
Diabetes	83	18%	23%	65%	6%
Lung disease	46	26%	20%	63%	9%
Angina	4	0	25%	75%	0

[a] Did not report diagnosis of cancer, stroke, heart problem, high blood pressure, diabetes, lung disease, or arthritis during the relevant period.

[b] Reported diagnosis of cancer, stroke, heart problem, high blood pressure, diabetes, lung disease, or arthritis during the relevant period.

Table 4a. Sample characteristics[a], men

	Non-ECHI	ECHI	Healthy	Cancer	Lung	Diabetes	Hosp.[b]	SRD[c]
N	415	1,904	1,409	97	70	134	551	277
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employed at 2nd interview	73%	83%***	84%	73%***	66%***	85%	74%***	67%***
Health insurance at 2nd interview		***						*
Uninsured	6%	3%	3%	1%	4%	2%	4%	5%
ECHI	24%	88%	78%	75%	67%	79%	74%	73%
Spouse ECHI	50%	5%	12%	15%	21%	12%	14%	14%
Government	3%	1%	1%	3%	3%	3%	2%	2%
Privately purchased	15%	2%	4%	4%	4%	2%	5%	5%
Other	3%	1%	1%	1%	0	1%	1%	0
ECHI covers spouse	6%	70%***	59%	56%	54%	60%	59%	57%
ECHI covers other	41%	69%***	66%	61%	60%	65%	61%**	57%***
Age							**	
Age 20-39	0	0%	0%	0	0	0	0	0
Age 40-59	28%	27%	29%	21%	30%	24%	24%	24%
Age 60-63	72%	73%	71%	79%	70%	76%	76%	76%
Nonwhite	11%	9%	9%	7%	6%	12%	9%	15%***
Education								***
High school or less	62%	62%	59%	64%	76%	61%	63%	82%
Some college	5%	5%	5%	5%	3%	8%	5%	4%
College degree	33%	33%	36%	31%	21%	31%	32%	14%
Annual income		*					*	***
Under $20k	5%	3%	3%	3%	9%	3%	2%	7%
$20k-$75k	50%	54%	51%	40%	65%	51%	56%	56%
Over $75k	45%	43%	46%	57%	26%	46%	42%	24%
Physical job	36%	35%	34%	32%	43%	31%	35%	46%***
Stressful job	56%	62%**	61%	68%	56%	57%	60%	61%
Public sector job	2%	5%**	4%	3%	0	7%	5%	2%
Part time job	17%	7%***	8%	6%	11%	10%	9%	8%
Employer size		***						
Under 25 employees	51%	16%	23%	20%	30%	20%	22%	20%
25-99	13%	12%	12%	13%	7%	9%	11%	14%
100 or more	36%	72%	65%	67%	63%	71%	67%	66%
Spouse								
Not employed	18%	37%***	35%	33%	37%	31%	34%	40%
Part time work	16%	22%***	23%	15%*	21%	19%	16%***	14%***
Retired	8%	12%**	11%	16%*	9%	13%	12%	10%
Poor health	9%	14%**	12%	6%*	16%	13%	12%	22%***
Over 65	3%	3%	2%	7%**	4%	2%	3%	5%**

Notes: ECHI=Employment contingent health insurance.
Significance: * p<.1 ** p<.05 *** p<.01 (columns (2) vs. (1) and columns (4)-(8) vs. (3)).
[a] Except where specified, all characteristics refer to the 1st interview.
[b] Hospitalized in previous 2 years.
[c] Decline in self-report of health from good or better to fair or poor.

Table 4b. Sample characteristics, women

	Non-ECHI	ECHI	Healthy	Cancer	Lung	Diabetes	Hosp.[b]	SRD[c]
N	1,381	828	1,428	67	46	83	482	254
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employed at 2nd interview	75%	85%***	83%	73%**	80%	90%*	79%**	73%***
Health insurance at 2nd interview		***						
Uninsured	4%	2%	3%	3%	2%	4%	3%	6%
ECHI	18%	84%	59%	63%	65%	71%	59%	56%
Spouse ECHI	63%	10%	30%	24%	26%	20%	30%	31%
Government	2%	1%	1%	3%	4%	2%	1%	1%
Privately purchased	12%	2%	6%	7%	0	2%	6%	5%
Other	1%	1%	1%	0	2%	0	1%	1%
ECHI covers spouse	3%	46%***	29%	31%	35%	36%	29%	30%
ECHI covers other	39%	58%***	53%	52%	59%	47%	49%*	44%**
Age				**			**	
Age 20-39	1%	1%	1%	0	2%	1%	1%	2%
Age 40-59	47%	47%	50%	34%	35%	41%	43%	43%
Age 60-63	52%	52%	49%	66%	63%	58%	56%	55%
Nonwhite	8%	14%***	12%	10%	9%	19%*	9%*	15%
Education		***		*	*	***	***	***
High school or less	70%	66%	63%	78%	65%	77%	72%	86%
Some college	7%	5%	7%	1%	2%	4%	4%	3%
College degree	23%	29%	30%	21%	33%	19%	24%	11%
Annual income					*		*	***
Under $20k	4%	3%	3%	0	2%	4%	3%	7%
$20k-$75k	52%	52%	69%	51%	68%	59%	54%	68%
Over $75k	44%	45%	48%	49%	30%	37%	43%	25%
Physical job	33%	29%**	28%	30%	39%*	37%*	32%*	44%***
Stressful job	59%	72%***	66%	75%	76%	70%	66%	72%*
Public sector job	2%	3%	3%	0	2%	2%	33%	2%
Part time job	42%	13%***	25%	24%	20%	14%**	22%	21%
Employer size		***						
Under 25 employees	36%	13%	23%	24%	13%	17%	23%	20%
25-99	11%	9%	10%	9%	9%	7%	8%	9%
100 or more	53%	78%	67%	67%	78%	76%	69%	71%
Spouse								
Not employed	24%	36%***	30%	36%	41%*	42%**	33%	36%*
Part time work	9%	12%*	10%	12%	20%**	12%	11%	10%
Retired	22%	24%	21%	36%***	35%**	35%***	28%***	26%*
Poor health	14%	19%***	15%	13%	15%	22%	18%	26%***
Over 65	16%	18%	15%	22%*	20%	22%*	22%***	23%***

Notes: ECHI=Employment contingent health insurance.
Significance: * p<.1 ** p<.05 *** p<.01 (columns (2) vs. (1) and columns (4)-(8) vs. (3)).
[a] Except where specified, all characteristics refer to the 1st interview.
[b] Hospitalized in previous 2 years.
[c] Decline in self-report of health from good or better to fair or poor.

Table 5a. Probability employed[a] first differences and difference in difference[b] from linear probability models, initially employed married women and men aged 18 to 64 with private health insurance

	Cancer		Lung disease		Diabetes	
	(1)	(2)	(3)	(4)	(5)	(6)
			Men			
ECHI	-0.126**	-0.127**	-0.125**	-0.101*	0.043	0.051
	(0.052)	(0.053)	(0.062)	(0.058)	(0.032)	(0.032)
Non-ECHI	-0.008	0.037	-0.349***	-0.340***	-0.106	-0.128
	(0.102)	(0.091)	(0.127)	(0.117)	(0.097)	(0.092)
Diff-in-diff	-0.118	-0.163	0.223	0.240*	0.149	0.179*
	(0.114)	(0.104)	(0.141)	(0.129)	(0.102)	(0.098)
N	1,506	1, 506	1,479	1,479	1,543	1,543
Treated	97	97	70	70	134	134
			Women			
	Cancer		Lung disease		Diabetes	
ECHI	-0.122*	-0.106	-0.067	-0.049	0.008	0.008
	(0.065)	(0.065)	(0.065)	(0.068)	(0.042)	(0.043)
Non-ECHI	-0.081	-0.015	0.015	0.014	0.192***	0.209***
	(0.101)	(0.103)	(0.140)	(0.150)	(0.048)	(0.052)
Diff-in-diff	-0.041	-0.091	-0.082	-0.062	-0.184***	-0.201***
	(0.120)	(0.121)	(0.154)	(0.165)	(0.064)	(0.067)
N	1,495	1,495	1,474	1,474	1,511	1,511
Treated	67	67	46	46	83	83
Controls[c]	no	yes	no	yes	no	yes

Notes: ECHI=Employment contingent health insurance.
Significance: * p<.1 ** p<.05 *** p<.01.

[a] "Employed" is defined as working for pay.

[b] First difference is health shock employment – healthy employment for the specified group (ECHI or other). Diff in diff is the difference between these effects.

[c] Controls for first interview age 20-39 or 40-59, nonwhite, some college, college degree or more, income under $20k, income more than $75k, physical job, stressful job, employer has 25-99 or over 100 employees, part time work, spouse not working, spouse part time, spouse retired, spouse had bad health, spouse over 65, spouse covered by respondent's employer-based insurance, dependents covered by respondent's employer-based insurance and year dummies.

Table 5b. Probability employed[a] first differences and difference in difference[b] from linear probability models, initially employed married women and men aged 18 to 64 with private health insurance

	Hospitalized		New diagnosis		New diagnosis, no hospitalization		Self-report decline		Self-reported decline, no hospitalization	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Men					
ECHI	-0.099***	-0.088***	-0.043	-0.036	0.021	0.028	-0.146***	-0.143***	-0.049	-0.046
	(0.023)	(0.023)	(0.027)	(0.027)	(0.028)	(0.028)	(0.032)	(0.033)	(0.035)	(0.035)
Non-ECHI	-0.097*	-0.100**	-0.109*	-0.113*	-0.128	-0.133*	-0.258***	-0.252***	-0.241***	-0.227**
	(0.052)	(0.051)	(0.065)	(0.061)	(0.081)	(0.077)	(0.074)	(0.073)	(0.091)	(0.089)
Diff-in-diff	-0.002	0.011	0.065	0.077	0.149*	0.161**	0.111	0.109	0.192**	0.181*
	(0.057)	(0.055)	(0.070)	(0.066)	(0.086)	(0.081)	(0.080)	(0.079)	(0.097)	(0.095)
N	1,960	1,960	1,726	1,726	1,614	1,614	1,686	1,686	1,591	1,591
Treated	551	551	317	317	205	205	277	277	182	182
					Women					
	Hospitalized		New diagnosis		New diagnosis, no hospitalization		Self-report decline		Self-reported decline, no hospitalization	
ECHI	-0.055**	-0.044*	-0.069**	-0.059*	-0.031	-0.029	-0.119***	-0.103***	-0.100**	-0.083**
	(0.024)	(0.024)	(0.034)	(0.034)	(0.037)	(0.037)	(0.036)	(0.036)	(0.040)	(0.039)
Non-ECHI	-0.041	-0.016	-0.026	0.007	0.061	0.091	-0.082	-0.070	-0.065	-0.053
	(0.039)	(0.039)	(0.061)	(0.063)	(0.068)	(0.069)	(0.051)	(0.051)	(0.059)	(0.059)
Diff-in-diff	-0.013	-0.028	-0.044	-0.067	-0.092	-0.120	-0.037	-0.033	-0.035	-0.030
	(0.046)	(0.046)	(0.070)	(0.071)	(0.077)	(0.077)	(0.062)	(0.062)	(0.071)	(0.070)
N	1,910	1,910	1,636	1,636	1,566	1,566	1,682	1,682	1,615	1,615
Treated	482	482	208	208	138	138	254	254	187	187
Controls[b]	no	yes	no	yes	no	yes	no	yes	no	yes

Notes: ECHI=Employment contingent health insurance.
Significance: * p<.1 ** p<.05 *** p<.01.
[a] "Employed" is defined as working for pay.
[b] As described for Table 5a.

Table 6. Probability remaining insured, first differences, and difference in difference[a] from linear probability models, initially employed married women and men aged 18 to 64 with private health insurance

	Cancer (1)	Lung disease (2)	Diabetes (3)	Hospitalization (4)	New diagnosis (5)	New diagnosis, no hospitalization (6)	Self-report decline (7)	Self-reported decline, no hospitalization (8)
					Men			
ECHI	-0.000	-0.007	0.011	-0.012	0.004	-0.001	-0.018	-0.009
	(0.014)	(0.026)	(0.010)	(0.009)	(0.009)	(0.012)	(0.015)	(0.019)
Non-ECHI	0.068***	0.024	-0.022	0.013	0.020	0.033	0.020	0.011
	(0.021)	(0.062)	(0.054)	(0.028)	(0.032)	(0.034)	(0.037)	(0.052)
Diff-in-diff	-0.068***	-0.031	0.032	-0.025	-0.015	-0.034	-0.038	-0.020
	(0.026)	(0.068)	(0.055)	(0.030)	(0.033)	(0.035)	(0.040)	(0.055)
N	1,506	1,479	1,543	1,960	1,726	1,586	1,686	1,563
Treated	97	70	134	551	317	177	277	154
					Women			
	Cancer	Lung disease	Diabetes	Hospitalization	New diagnosis	New diagnosis, no hospitalization	Self-report decline	Self-reported decline, no hospitalization
ECHI	-0.011	0.015**	-0.029	0.002	-0.023	-0.019	-0.018	-0.020
	(0.021)	(0.006)	(0.027)	(0.008)	(0.016)	(0.020)	(0.016)	(0.020)
Non-ECHI	-0.007	-0.071	0.044***	-0.010	-0.011	0.040***	-0.021	-0.004
	(0.045)	(0.106)	(0.012)	(0.019)	(0.031)	(0.010)	(0.028)	(0.031)
Diff-in-diff	-0.004	0.087	-0.073**	0.012	-0.012	-0.059***	0.003	-0.017
	(0.049)	(0.106)	(0.030)	(0.020)	(0.035)	(0.022)	(0.032)	(0.036)
N	1,495	1,474	1,511	1,910	1,636	1,540	1,682	1,589
Treated	67	46	83	482	208	112	254	161
Controls[a]	yes	yes	yes	yes	yes	yes	yes	yes

Notes: ECHI=Employment contingent health insurance; Hosp=hospitalized; SRD=Self-reported decline; ND=New diagnosis; ND only= new diagnosis not including hosp or self-reported decline; SRD only=SRD not including hospitalization or new diagnosis.
Significance: * p<.1 ** p<.05 *** p<.01.
[a] As described for Table 5a.