

NBER WORKING PAPER SERIES

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THE ROLE OF EMPLOYER-PROVIDED HEALTH INSURANCE

Cathy J. Bradley
David Neumark
Meryl I. Motika

Working Paper 17223
<http://www.nber.org/papers/w17223>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
July 2011

Bradley, Neumark, and Motika's research was supported by NCI grant number R01-CA122145, "Health, Health Insurance, and Labor Supply." We thank Pamela Farley Short for helpful comments on an earlier draft. We also thank Dr. Mark Pauly and an anonymous reviewer for their helpful comments. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

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The Effects of Health Shocks on Employment and Health Insurance: The Role of Employer-Provided Health Insurance

Cathy J. Bradley, David Neumark, and Meryl I. Motika

NBER Working Paper No. 17223

July 2011, Revised August 2012

JEL No. I18,J22,J38

ABSTRACT

We study how men's dependence on their own employer for health insurance affects labor supply responses and loss of health insurance coverage when faced with a serious health shock. Men with employment-contingent health insurance (ECHI) are more likely to remain working following some kinds of adverse health shocks, and are more likely to lose insurance. With the passage of health care reform, the tendency of men with ECHI as opposed to other sources of insurance to remain employed following a health shock may be diminished, along with the likelihood of losing health insurance.

Cathy J. Bradley

Department of Healthcare Policy and Research

Virginia Commonwealth University

830 E. Main Street

Richmond, VA 23219

cjbradley@vcu.edu

Meryl I. Motika

Department of Economics

3151 Social Science Plaza

University of California-Irvine

Irvine, CA 92697-5100

mmotika@uci.edu

David Neumark

Department of Economics

University of California at Irvine

3151 Social Science Plaza

Irvine, CA 92697

and NBER

dneumark@uci.edu

Background: Employment-contingent health insurance (ECHI) has been criticized for tying insurance to continued employment. Our research sheds light on two central issues regarding employment-contingent health insurance: whether such insurance “locks” people who experience a health shock into remaining at work; and whether it puts people at risk for insurance loss upon the onset of illness, because health shocks pose challenges to continued employment.

Objective: To determine how men’s dependence on their own employer for health insurance affects labor supply responses and health insurance coverage following a health shock.

Data Sources: We use the Health and Retirement Study (HRS) surveys from 1996 through 2008 to observe employment and health insurance status at interviews two years apart, and whether a health shock occurred in the intervening period between the interviews.

Study Selection: All employed married men with health insurance either through their own employer or their spouse’s employer, interviewed in at least two consecutive HRS waves with non-missing data on employment, insurance, health, demographic, and other variables, and under age 64 at the second interview. We limited the sample to men who were initially healthy.

Data Extraction: Our analytical sample consisted of 1,582 men of whom 1,379 had ECHI at the first interview, while 203 were covered by their spouse’s employer. Hospitalization affected 209 men with ECHI and 36 men with spouse insurance. A new disease diagnosis was reported by 103 men with ECHI and 22 men with other insurance. There were 171 men with ECHI and 25 men with spouse employer insurance who had a self-reported health decline.

Data Synthesis: Labor supply response differences associated with ECHI – with men with health shocks and ECHI more likely to continue working – appear to be driven by specific types of health shocks associated with future higher health care costs but not with immediate increases in morbidity that limit continued employment. Men with ECHI who have a self-reported health

decline are significantly more likely to lose health insurance than men with insurance through a spouse.

Conclusion: Men with employment-contingent health insurance are more likely to remain working following some kinds of adverse health shocks, and are more likely to lose insurance. With the passage of health care reform, the tendency of men with ECHI as opposed to other sources of insurance to remain employed following a health shock may be diminished, along with the likelihood of losing health insurance.

Key Messages

- Informs policies regarding the effects of employment-based health insurance on labor supply and continuity of health insurance among those experiencing health shocks.
- Men with employer-provided health insurance appear to experience a form of job lock – or “employment lock” – following a health shock because of the ECHI incentives. Prior estimates of “job lock” may understate the true effects of ECHI because they are confounded by a health shock’s negative impact on employment.
- Those with ECHI are more likely to lose health insurance following some types of health shocks.

Keywords

Health shocks, health insurance, employment

JEL codes

D1, I18, J22

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 since its widespread adoption during and following World War II. There has been a resurgence of this debate with the passage of the Patient Protection and Affordable Care Act (ACA). Employer-based health insurance has often been criticized for constraining employment decisions or creating “job lock.”^[1-5]

A goal of the ACA is to provide continuous health insurance coverage when an individual is diagnosed with a serious disease that raises future costs of health care. Although the Consolidated Omnibus Budget Reconciliation Act (COBRA) allows employees to continue their employer-based health insurance coverage after they stop working, former employees pay the full cost of group coverage for a policy that is usually limited to 18 months – making COBRA a prohibitively expensive option for many and only a temporary measure for those who can afford the full cost of coverage. Our research in this paper informs the debate about two central issues regarding employer-based health insurance: whether such insurance “locks” people who experience a health shock into remaining at work; and whether it puts people at risk for insurance loss upon the onset of illness, because health shocks pose challenges to continued employment.

An unpublished study using Medical Expenditure Panel Survey (MEPS) data reports that nearly one in five individuals reporting fair or poor health lost coverage over a two-year period.^[6] A qualitative study jointly conducted by the Kaiser Family Foundation and the American Cancer Society reported 20 case studies of cancer patients who faced financial difficulty as a result of gaps in the health insurance system.^[7] One of the themes that emerged

was “people who depend on their employer for health insurance may not be protected from catastrophically high health care costs if they become too sick to work” (p. 1).

Using primary data collected from a sample of Detroit women diagnosed with breast cancer, Bradley et al. found that women with insurance through their employer (“employment-contingent health insurance,” or ECHI) are significantly more likely to remain employed relative to women whose insurance is not provided by their employer, and that ECHI reduces the negative impact of cancer on weekly hours worked.^[8] The incentive ECHI creates to remain employed following a health shock should be stronger for men because fewer men are able to switch to their spouse’s policy.^[8] Consistent with this prediction, Tunceli et al.^[9] report the tendency to remain employed after getting cancer if one has ECHI is strongest for men.

While past research has focused on women, in this paper we focus on men. The effects of ECHI on men’s behavior are particularly interesting because men are much more likely to get their health insurance through their employer than are women. We compare the responses to health shocks of those who depend on their own employer for health insurance – who have ECHI – with the responses of those who obtain their health insurance through their spouse’s employer. Men with ECHI are very similar to men who depend on their wives for health insurance, implying that differences in how these two groups of men respond to health shocks may provide a good quasi-experiment to estimate the effects of dependence on one’s employer for health insurance.¹ Nonetheless, we also experiment with different comparison groups in order to obtain a sample of men who are solely dependent on their job for health insurance without the option to switch to a spouse’s policy, compared to men who are not dependent on their job for health insurance. In addition, we estimate the effects of different types of health shocks by distinguishing between shocks that raise the future value of health insurance but do not cause an

immediate reduction in functioning, and shocks that impose both immediate costs and morbidity on the worker. This distinction helps us to measure the employment effects of ECHI without the confounding effects of morbidity, which would tend to dampen ECHI's incentives to remain working.

2. Empirical Approach

We use data from the Health and Retirement Study (HRS) on employed married men with health insurance either through their own employer or their spouse's employer. In the HRS, we observe employment and health insurance status at interviews two years apart, and whether a health shock occurred in the intervening period between the interviews.

The first outcome is remaining employed following a health shock, and the second outcome is loss of health insurance following a health shock. The outcomes are modeled as functions of health shocks (HS), health insurance source prior to the shock (ECHI or spouse's employer), control variables, and unobserved influences (ϵ). We estimate the probability of employment (E) 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 denote the first interview (period 1), second interview (period 2), or the intervening period.

The condition $E_{i1} = 1$ implies that the respondent was employed at period 1, the condition $INS_{i1} = 1$ implies that he had insurance in period 1, and the condition $HS_{i1} = 0$ implies that he was healthy as of period 1, reflecting our sample selection rules. The control variables in X include individual, spouse, and job characteristics.

This equation is estimated as a linear probability model. In addition to entering each of the variables linearly, we include interactions between HS and ECHI, using:

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

In this model, β_1 captures the effect of a health shock on employment for those with ECHI initially, and β_2 captures the effect of a health shock on employment for those without ECHI initially. The difference $(\beta_1 - \beta_2)$ is then the difference-in-difference estimate, identifying how the effect of a health shock on employment transitions is influenced by ECHI. β_3 captures differences in employment transitions between those with and without ECHI, and *without* a health shock, to account for unmeasured differences between workers with ECHI and insurance through the spouse's employer (non-ECHI) that are correlated with remaining employed.

Equation (2) is a re-parameterization of the more standard difference-in-difference specification

$$E_{i2} = \alpha + \beta_1' HS_{i12} + \beta_2' ECHI_{i1} + \beta_3' HS_{i12} \cdot ECHI_{i1} + X_i \gamma + \varepsilon_{i2}, \quad (3)$$

where β_3' is the conventional difference-in-difference estimator. The formulation in equation (2) yields direct estimates of the effects of health shocks for the two groups. The models are equivalent, with the same differentials or effects captured in different combinations of the coefficients.

We estimate the same type of model to study insurance loss where the same parameters capture how the source of health insurance influences the effect of a health shock on the loss of insurance.

In all estimations, we control for individual, job, and spouse characteristics. Individual characteristics include age (20 to 39, 40 to 59, 60 to 64), education (high school or less, some college, college degree or higher), race (white or other), and household income.ⁱⁱ Job characteristics include indicators for whether the job involves a lot of physical activity or stress.ⁱⁱⁱ We control for part-time employment, employment in the public sector, and firm size. We also

include a dummy variable indicating that one or more dependents are insured through the respondent's ECHI.

Finally, we add variables to capture the employment situations of spouses at the first interview. We include dummy variables for spouses not working, working part-time, or retired, which are related to the dependency of the household on the respondent's employment, and we include a control for the spouse's self-reported health status. There are also controls for whether the spouse is older than 65 and if the spouse is insured by the respondent's health insurance plan, both of which address the need to maintain health insurance for the spouse.

2.1 Misclassification bias

We categorize men by whether they have ECHI or have health insurance through a spouse. However, Madrian^[10] reported that 36% of men with their own health insurance have the option to switch to their spouse's policy. This type of measurement error would tend to dampen the estimated differential in the labor supply response to a health shock when using ECHI to classify whether one is dependent on one's own job for health insurance.

We therefore experimented with alternative comparison groups and specifications of ECHI. First, we restrict the sample to married men with non-missing information on their wife's insurance (this reduced the sample size by about 15%). Men with and without ECHI are included in this sample. We assume that employed women with employer-provided health insurance have the option of covering their husbands. The HRS does not specifically ask respondents without employer insurance if they can cover their husbands, and instead only asks if health insurance is available through their employer. Using this information, and assuming that if health insurance is available they could cover their husband, we construct an alternative comparison – between men who either rely on their wife's health insurance or have the option to

switch to their wife's health insurance to men with ECHI and no option to switch to a wife's plan. Next, we estimate these models with the inclusion of single men, assumed to have no other insurance option if they have ECHI. And last, we further restrict the sample to men with ECHI and then compare those with and without the option to switch to their wife's health insurance (results not reported; available upon request).

2.2 *Confounding with morbidity*

Morbidity from the health shock can confound the estimation of how incentives to maintain health insurance affect labor supply responses to ECHI. A way to avoid this type of bias in the estimation of "employment lock," and thereby to focus on how the health shock affects the labor supply response stemming solely from concerns about loss of insurance, is to distinguish between health shocks that cause immediate comorbidity and those that do not. An additional advantage of this approach is that misclassification of the dependence on employment for insurance, if it exists, is likely to be similar across different types of health shocks, so this misclassification should not bias estimates of differential labor supply responses based on ECHI depending on the type of health shock.

We therefore focus, in some of our analyses, on a narrower definition of health shocks – in particular, health shocks entailing a new diagnosis *only*, without either hospitalization or a self-reported decline in health. This analysis isolates health shocks that do not entail an increase in morbidity that could affect a person's ability to remain employed, but which entail increased future health care costs and hence the value of health insurance. Doing so provides a cleaner test of the hypothesis that health insurance locks people into employment. In contrast, health shocks that entail increases in morbidity (such as hospitalizations or self-reported declines in health) may reduce the likelihood of employment independently of ECHI's incentives. Increases in

morbidity that affect employment directly are *most* likely to trigger large self-reported declines in health, whereas new diagnoses *without* a large self-reported decline seem most likely to constitute mainly a “health cost” shock.

A second implication of dependence on employment for health insurance is that those with ECHI may be at greater risk of losing insurance when they experience a health shock that increases morbidities, because such health shocks interfere with work. Thus, we report analyses focusing on those with *only* an increase in morbidity (a self-reported decline in health), hypothesizing that these kinds of shocks are more likely to result in loss of health insurance.

3. Data

We use the HRS surveys from 1996 through 2008. We selected all observations for which the respondent was interviewed in at least two consecutive HRS waves with non-missing data for the employment, insurance, health, demographic, and other variables we use. We excluded the 1992 and 1994 waves because it is impossible to distinguish current versus former employer as the source of health insurance. We narrowed the age range to 64 years or younger at the second interview to avoid respondents eligible for Medicare.^{iv} We then selected the subset of observations in which the respondent was married, employed, and had employment-based health insurance (from their employer or union or their spouse’s employer or union^v) in the first interview of the pair. Respondents were excluded if they were insured by a former employer, any government plan (e.g., Medicare, Medicaid, military insurance), or a privately-purchased policy, or were uninsured at the time of the first interview.

We restricted the sample to healthy men. We selected pairs of observations in which, at the first observation in the pair, the respondent had not previously been diagnosed with lung disease, cancer, stroke, diabetes, angina, or congestive heart failure. We excluded observations

of individuals who had been hospitalized more than once or for more than one night in the past two years, or who described their health status as poor or fair in the past two years. An examination of this initially healthy sample isolates the effects of a new health event rather than an exacerbation of a chronic condition or accumulation of new health conditions.

We define three types of adverse health events, henceforth referred to as 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,” “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 new diagnosis of cancer, lung disease, angina, congestive heart failure, or stroke, reported at the second interview. Our third health shock measure is hospitalization on at least two occasions or for at least two nights between the first and second interview. In addition, we look separately at health shocks consisting of only new diagnoses or only self-reported health declines in the same period, for reasons discussed earlier. For those respondents who ultimately report a health shock, we select the pair of observations bracketing this adverse health event, because the incidence of health shocks in the sample is low. For those respondents who never report a health shock, we randomly select one pair of observations.

We define the ECHI group as those with primary health insurance from the current employer or union as of the first interview. The non-ECHI comparison group includes those with insurance through their spouse’s employer or union.^{vi}

We start with 39,896 consecutive-wave pairs of interviews on 10,258 men. When we restrict the sample to those who are under age 65 at the second interview, and married and employed with health insurance through their own employer or their spouse’s employer as of the first interview, we are left with 2,160 observations. After limiting the sample to men who

initially reported good or better health, who had no prior diagnosis of any of the listed diseases, and who had not reported a hospitalization of more than one night or more than one hospitalization in the prior two years, we have 1,709 observations. Excluding respondents with missing data on the variables required for our analysis, we arrive at the final sample of individuals, consisting of 1,582 men of which 1,379 had ECHI at the first interview, while 203 were covered by their spouse's employer (Table 1).

Table 1 also reports the number of men who experienced health shocks, by insurance source. The most common health shock is hospitalization, which affected 209 men with ECHI and 36 men with spouse insurance. A new diagnosis of the diseases listed above was reported by 103 men with ECHI and 22 men with other insurance. There were 171 men with ECHI and 25 men with spouse employer insurance who had a self-reported health decline.

Table 2 provides information on the relationships between alternative possible health shock measures, including the individual diseases that make up new diagnoses. Rates of hospitalization and self-reported decline (SRD) vary by diagnosis. About 11% of respondents who are not diagnosed with lung disease, cancer, stroke, angina, or congestive heart failure self-report a decline in health status, with the rate more than doubling for those with a new diagnosis of one type or another. Cancer and strokes have the highest rates of hospitalization and SRD. These differences match our expectations concerning the different diseases; some diagnoses have little immediate impact on contemporaneous morbidity or quality of life, while strokes are immediately debilitating or life-threatening.

Thus far, we define the sample in terms of health shocks experienced by men. However, if their spouse also experienced a health shock, then men with ECHI might be more likely to remain at work to cover their spouses. Alternatively, men with insurance through their spouses

might change their employment behavior to increase health insurance coverage, when their spouses experience a health shock. In either case, correlations between men's health shocks and health shocks to their spouses could lead to biased estimates of the effects of interest. To isolate the effects of health shocks to the men in our sample, we also restricted the sample to men whose spouses did not experience health shocks between the first and second interview (using the same definitions as described above, applied to the spouses). These restrictions resulted in a 26% reduction in sample size. When we re-estimated our models using this more restricted sample, the results were qualitatively similar to results from models using the sample selected without regard to spouse health. Therefore, we report results from our original larger sample.

4. Results

4.1. Descriptive statistics

Table 3 reports descriptive statistics by health shock and insurance source. Among men with ECHI at the first interview, 82% are employed at the second interview, the same percentage as for men with insurance through the spouse's employer. Most men with ECHI retain their health insurance through this source (76%) as of the second interview, and a few become uninsured (3%). About a quarter (24%) of men with insurance through the spouse's employer at the first interview gain ECHI by the second interview and only 2% become uninsured. Most men with ECHI cover their spouse (65%) and many also cover other dependents (38%).^{vii} Men with ECHI rather than insurance through their spouse, are, at the first interview, less likely to be employed part-time ($p < .01$), and more likely to work for larger employers ($p < .01$) and in stressful jobs ($p < .01$). Men with ECHI are more likely to have spouses who do not work, who work part-time, who are retired, and who are in poor health ($p < .01$ in all cases).

Relative to healthy men, the univariate comparisons suggest that health shocks involving either hospitalization or self-reported declines reduce employment ($p < .01$). Men who have some kinds of health shocks are more likely to have physical jobs as of the first interview ($p < .05$). Men with lung disease or hospitalizations are more likely to have older spouses ($p < .01$). Spouses of men with some types of health shocks are less likely to work part-time ($p < .05$ or $.01$) and, in the case of self-reported declines, more likely to be in poor health ($p < .01$). Respondents who experienced self-reported health declines were more likely to be nonwhite ($p < .05$) and had lower incomes and education levels (both with $p < .01$).

4.2. *Employment transitions*

Table 4 reports difference-in-difference estimates of the effects of specific disease-related health shocks on remaining employed for those with ECHI versus insurance from a spouse's employer. The first-difference estimates indicate that men with ECHI who are newly diagnosed with cancer are as likely to be employed at the second interview as are otherwise similar healthy men. In contrast, for men with insurance through a spouse, those with a cancer diagnosis are more likely to be employed at the second interview, although the difference is not statistically significant. Thus, the difference-in-difference estimate is negative and statistically insignificant. In contrast, the estimates for those newly diagnosed with lung disease indicate that those with ECHI are relatively *more* likely to remain employed after these health shocks. The point estimate of the effect of the health shock is negative and relatively large for those with insurance through the spouse (non-ECHI). The difference-in-difference estimate is positive, meaning that men who have ECHI and are newly diagnosed with lung disease are more likely to be employed than men with insurance through their spouse's employer. Despite the estimated differential being very large (28.7 percentage points), it is not statistically significant.

Broader definitions of health shocks are reported in columns (3) and (4). In these estimations, we find fairly consistent evidence that those with health shocks – whether they have ECHI or insurance through their spouse’s employer – are less likely to remain employed, as expected. Moreover, for those with ECHI, the evidence of declines in employment is statistically significant for hospitalizations. Nonetheless, the magnitudes of the simple-difference estimates of the effects of health shocks on the two insurance groups are similar, and as a result we do not find statistically significant difference-in-difference estimates indicating that those with health shocks are more likely to remain employed if they have ECHI. These latter estimates are near zero and alternate in sign, suggesting that the true effect may be near zero.

In column (5), however, we find evidence consistent with the hypothesis that ECHI locks those with health shocks into employment. For those with a new diagnosis *only*, the estimated employment effect for those with ECHI is positive and significant (a 19.8 percentage point differential, $p < .01$). This evidence is consistent with the conjecture that new diagnoses in the absence of hospitalization pose less of a barrier for those with ECHI to keep working. In the absence of a health shock, 18% of older men routinely leave employment over a two-year period (Table 3). However, among those with a new diagnosis only and ECHI, the health shock does not affect employment. The net result, as reflected in the difference-in-difference estimates, is that men with an adverse health shock that raises the value of health insurance without increasing morbidity are more likely to remain employed if they had ECHI prior to the shock. The difference-in-difference estimate is large and positive – 30 percentage points – and statistically significant ($p < .05$). For reasons explained earlier, we regard the evidence in column (5) as

providing the cleanest test of the hypothesis that ECHI locks men into employment, because it isolates the effect of future health care costs and avoids the confounding effect of morbidity.

4.3. Insurance

Table 5 explores the extent to which employed men with different initial sources of health insurance remain insured following a health shock. For both hospitalizations and self-reported declines in health, the difference-in-difference estimates indicate that those with health shocks who have ECHI are more likely to lose their health insurance ($p < .05$ for hospitalization, and $p < .01$ for self-reported health declines). The difference-in-difference estimates are to some extent driven by the positive simple difference estimates for those with insurance through the spouse, which are statistically significant. These positive simple difference estimates imply that, among those with insurance through the spouse, those with health shocks are more likely to remain insured. Because the insurance comes through the spouse, the health shock itself poses no barrier to remaining insured. On the other hand, given the health shock, it is not surprising that these couples take steps to retain the health insurance through the spouse's employer.

When we look at new diagnoses in isolation, which should capture those with shocks that increase the value of health insurance but do not increase morbidity, we find no evidence that health shocks lead to insurance loss. This is not surprising given the (relative) absence of an increase in morbidity, coupled with the increased future value of health insurance that boosts the relative employment of those with ECHI and this kind of health shock. However, when we isolate those who have a self-reported health decline *only* – for whom we can better isolate the effects of morbidity on insurance loss – we find that those with ECHI are significantly more likely to lose health insurance.^{viii}

4.4 Alternative estimations

In our alternative estimations where we experimented with different comparison groups and specifications of ECHI, the difference-in-difference estimates were statistically insignificant in estimations predicting employment and insurance loss (results not reported; available upon request). We do not believe these findings alter our main conclusions for four reasons. First, there is an unknown degree of measurement error with regard to classifying potential insurance sources. The HRS does not specifically ask women if they have the option to cover their husband on their insurance policy unless they are actually insured through their employer. Therefore, we cannot say for certain that having employer-based health insurance available is the same as being able to add a husband to the policy. Second, health insurance policies differ in generosity of coverage, premiums, co-pays, and flexibility to choose providers, so policies held by the husband may not be equivalent to policies held by the wife.

Third, it is likely that men do not perceive their wife's job as a viable source for health insurance. The older women covered by the HRS have, or had, fairly weak attachments to the labor force, and older women who are employed may work for firms with inferior benefits. Therefore, the availability of an option for health insurance outside of one's own ECHI does not necessarily imply a reduction in employment lock because the alternative policy may be undesirable (particularly following a new health shock when relationships with new health care providers will be established and new services will be required). In a prior published paper,^[8] we show that women with ECHI, regardless of whether their husband is offered health insurance, are more likely to be employed in the periods following breast cancer diagnosis relative to a group of similar women with insurance through a spouse who are not offered insurance through their own employer.

We see the absence of significant difference-in-difference estimates for insurance loss in the alternative estimations with different comparison groups as reinforcing the view that the men in our sample generally do not regard the insurance their wives get through their jobs as a viable source of insurance. If wives' policies were a viable option, then when we reclassified men's dependence on their own employment for health insurance based on whether their wives are offered health insurance on their jobs, the difference-in-difference estimate of the probability of insurance loss associated with a health shock and ECHI should increase, rather than diminishing. We regard the finding that this estimate diminishes as bolstering the ECHI/non-ECHI distinction to study employment lock or job-lock for men. However, this specification may not be equally appropriate for women, for whom the offer of health insurance through a husband's job may be a viable substitute for ECHI through her own employer, because of better jobs and benefits and more permanent labor force attachment of men. In a study of women newly diagnosed with breast cancer, we found that, among women with ECHI, those who had the option to switch to their husband's insurance reduced labor supply by more than married women without the option to switch to their husband's insurance.^[11]

5. Discussion and Conclusions

This study informs policies regarding employment-based health insurance along two dimensions – labor supply and continuity of health insurance. Men with employer-provided health insurance appear to experience a form of job lock – or “employment lock” – following a health shock because of the incentives that employment-contingent health insurance (ECHI) creates. In addition, those with ECHI are more likely to lose health insurance following some types of health shocks.

Prior published papers on health shocks, employment, and source of insurance find related evidence for men and women with cancer,^[8-9] whereas in this paper we do not find such evidence for cancer-related health shocks. The variation in results should not be viewed as surprising. The samples are small and the studies use different definitions of health shocks, choices of control groups, and study periods. Unfortunately, there is not a readily-available secondary dataset where the incidence of illness in working-age people is sufficiently high to definitively study the influence of ECHI on labor supply following a health shock in large, representative samples. Therefore, the only feasible research strategy is to assemble evidence from disparate data sources, in an effort to see if a consistent and cohesive story emerges.

An important contribution of this paper is the finding that differences in labor supply responses are driven by specific types of health shocks. Health shocks associated with higher health care costs in the future but not with immediate increases in morbidity have a positive effect on labor supply for those with ECHI. We interpret this evidence as reflecting labor supply responses to health shocks that increase expected future health care costs, but do not introduce contemporaneous health problems. This finding has implications for the job lock literature as well. Research on job lock that does not distinguish between health shocks with and without immediate morbidity may understate the extent to which ECHI “locks” some workers into a job with health insurance.

Two limitations are noteworthy. First, we study a sample of married, employed, and initially-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, the HRS participants we study are less vulnerable to loss of employment and loss of insurance than the population at large. Nonetheless, this sample provides a research design that

allows us to isolate the effects of the source of health insurance more convincingly 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. Moreover, most people in the age range we study are married. Second, the HRS is confined to older individuals and our findings may not be applicable to those who are younger, although we view this as a minor drawback for studying the influence of health shocks, which are much more prevalent among older people.

Our study indicates that, for some specifications of health shocks, ECHI encourages continued employment of men following a health shock. Access to alternative sources of health insurance may reduce this employment lock after a health shock. On the one 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 receive appropriate health care. On the other 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.

Endnotes

ⁱ The similarity may reflect the fact that men whose jobs provide health insurance are more likely to be highly-skilled men with higher incomes, while men who rely on their spouses for health insurance may also be relatively high-earning men, owing to assortative mating in marriage markets.

ⁱⁱ In separate estimations, we included dummy variables for each two-year age group between 55 and 64, and for age under 55 years (an age range with few observations). The results were virtually unchanged.

ⁱⁱⁱ We dichotomize these into all/almost all of the time, most of the time, or some of the time versus none or almost none of the time.

^{iv} Most HRS respondents are near the upper end of this age range, although occasionally spouses of the target population are much younger.

^v As union membership is commonly tied to employment with a particular firm, it seems reasonable to assume that losing or changing jobs affects union-provided as well as employer-provided insurance. For this reason, we treat union insurance as ECHI. However, the union-insured workers make up less than 2% of the sample, and excluding them does not meaningfully change the results.

^{vi} As a short-hand, we refer to these two types of insurance as coming through the employer or the spouse's employer.

^{vii} The small share of spouses covered by ECHI (6%) when the respondent is in the non-ECHI group could reflect either both people in the couple having employer insurance and for some reason each being on the other employer's plan, or reporting error.

^{viii} Because COBRA is available to those who experience a health shock, our evidence on responses to health shocks with regard to either remaining employed to retain insurance, or insurance loss, should be biased toward the null hypothesis of no differential effect of health shocks for those with ECHI.

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Table 1. Men under age 65, Health and Retirement Study, 1996 – 2008

Sample inclusion criteria	Observations
Consecutive-wave observations ^a	39,896
Individuals	10,258
Aged 18 to 64 years at 2 nd interview ^b	5,253
Married at 1 st interview	4,354
Employed ^c at 1 st interview	2,770
Respondent ECHI or insurance through spouse employer (non-ECHI) ^d at 1 st interview	2,160
No fair or poor health or hospitalization for more than 1 night or more than 2 occasions in the two years prior to first interview, and no previous diagnosis of cancer, lung disease, angina, or congestive heart failure	1,709
No non-valid missing data for required variables	1,582
Men with ECHI at 1 st interview	1,379
New diagnosis of an included ^e disease	103
Hospitalized ^f between 1 st and 2 nd interview	209
Decline in health self-report ^g between 1 st and 2 nd interview	171
Men with insurance through spouse employer (non-ECHI) at 1 st interview	203
New diagnosis of an included ^e disease	22
Hospitalized ^f between 1 st and 2 nd interview	36
Decline in health self-report ^g between 1 st and 2 nd interview	25

^aAn 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 ECHI or insurance through the spouse's employer includes current employer or union-based health insurance. It excludes privately-purchased or former employer-based insurance in addition to Medicare, Medicaid, and other government-provided health insurance. "ECHI" refers to insurance from the respondent's employer or union.

^e Included diseases are cancer, lung disease, angina, congestive heart failure, and stroke.

^f Hospitalized for at least 2 nights or on 2 occasions since the 1st interview.

^g Health decline defined as a drop from excellent, very good, or good at the 1st interview to fair or poor at the 2nd interview.

Table 2. Probability of health shock by disease

New diagnosis	N	% Hospitalized	% Decline in self-		
			report	% Neither	% Both
None ^a	1,457	13%	11%	78%	2%
Any diagnosis ^b	125	46%	26%	43%	14%
Cancer	72	53%	26%	38%	17%
Congestive heart failure	2	0	0	100%	0
Stroke	11	73%	36%	18%	27%
Lung disease	35	29%	20%	57%	6%
Angina	9	33%	33%	44%	11%

^a Did not report diagnosis of cancer, stroke, angina, congestive heart failure, or lung disease, during the relevant period.

^b Reported diagnosis of cancer, stroke, angina, congestive heart failure, or lung disease, during the relevant period.

Table 3. Sample characteristics ^a

	Insurance source		Health shock				
	Spouse employer (non-ECHI)	ECHI	Healthy	Cancer	Lung	Hosp ^b	SRD ^c
N	203 (1)	1,379 (2)	1,140 (3)	72 (4)	35 (5)	245 (6)	196 (7)
Employed at 2 nd interview	82%	82%	84%	85%	80%	76%***	75%***
Health insurance at 2 nd interview		***					
Uninsured	2%	3%	3%	0	3%	3%	6%
ECHI	24%	76%	70%	71%	63%	66%	67%
Spouse	64%	4%	11%	14%	11%	13%	13%
Government	1%	2%	2%	4%	3%	2%	3%
Privately purchased	0%	2%	2%	1%	0	2%	3%
Other	9%	12%	12%	10%	20%	14%	10%
ECHI covers spouse	6%	65%***	58%	50%	57%	57%	59%
ECHI covers other	1%	38%***	34%	28%	34%	32%	30%
Age							
Age under 40	0	1%	1%	0	0	0	0
Age 40-59	70%	67%	67%	61%	60%	68%	72%
Age 60-63	30%	32%	32%	39%	40%	32%	28%
Nonwhite	9%	9%	8%	14%	6%	11%	14%**
Education							***
High school or less	61%	60%	57%	61%	68%	61%	77%
Some college	5%	5%	6%	4%	6%	4%	4%
College degree	34%	35%	37%	35%	26%	35%	19%
Annual income		**					***
Under \$20k	1%	1%	1%	1%	0	1%	1%
\$20k-\$75k	37%	47%	44%	36%	60%	47%	60%
Over \$75k	62%	52%	55%	63%	40%	52%	39%
Physical job	33%	35%	34%	31%	51%**	31%	42%**
Stressful job	54%	64%***	62%	64%	54%	63%	64%
Public sector job	4%	5%	5%	3%	3%	4%	4%
Part-time job	14%	4%***	5%	3%	9%	5%	6%
Employer size		***					
Under 25 employees	32%	13%	16%	14%	17%	16%	15%
25-99	17%	10%	11%	7%	6%	9%	13%
100 or more	51%	77%	73%	79%	77%	75%	72%
Spouse							
Employed	96%	60%***	65%	65%	60%	64%	60%
Part-time work	10%	20%***	21%	11%**	14%	11%***	12%***
Retired	2%	14%***	12%	15%	11%	16%*	11%
Poor health	7%	15%***	13%	7%	14%	16%	20%***
Over 65	2%	4%	3%	4%	14%***	7%***	4%

Notes: ECHI=employment contingent health insurance.

Significance: * p<.1 ** p<.05 *** p<.01 (columns (2) vs. (1) and columns (4)-(7) vs. (3)).

^a Except where specified, all characteristics refer to the 1st interview.^b Hospitalized for at least two nights or on two separate occasions between 1st and 2nd interviews.^c Decline in self-report of health from good or better to fair or poor.

Table 4. Probability remain employed,^a first differences and difference-in-difference^b from linear probability models, initially-employed married men under age 65 with employer-provided health insurance

	Cancer	Lung disease	Hospitalized	New diagnosis	New diagnosis only
	(1)	(2)	(3)	(4)	(5)
ECHI×health shock	-0.005 (0.085)	0.048 (0.098)	-0.084* (0.049)	-0.015 (0.064)	0.198*** (0.059)
Non-ECHI×health shock	0.103 (0.081)	-0.239 (0.216)	-0.050 (0.084)	-0.034 (0.098)	-0.098 (0.144)
Diff-in-diff	-0.108 (0.093)	0.287 (0.223)	-0.034 (0.076)	0.019 (0.093)	0.296** (0.145)
N	1,212	1,175	1,385	1,265	1,192
Treated	72	35	245	125	52

Notes: ECHI=employment contingent health insurance; non-ECHI=health insurance through spouse’s employer.

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 non-ECHI). Diff-in-diff is the difference between these effects.

^c Controls for first interview age under 40 or 40-59, nonwhite, some college, college degree or more, income under \$20k, income more than \$75k, physical job, stressful job, physical job×health shock, stressful job×health shock, firm size (25-100 or >100 employees), part-time work (fewer than 35 hours), spouse not working, spouse part time, spouse retired, spouse had bad health (fair/poor versus excellent/very good/good), spouse over 65, spouse covered by respondent’s employer-based insurance, dependents covered by respondent’s employer-based insurance, and year dummies.

Table 5. Probability remaining insured, first differences and difference-in-difference^a from linear probability models, initially-employed married men under age 65 with employer-provided health insurance

	Cancer (1)	Lung disease (2)	Hospitalized (3)	New diagnosis (4)	Self-report decline (5)	New diagnosis only (6)	Self-reported decline only (7)
ECHI×health shock	0.027** (0.013)	0.033 (0.024)	-0.004 (0.024)	0.033** (0.014)	0.026 (0.022)	0.033 (0.022)	0.027 (0.025)
Non-ECHI×health shock	0.048 (0.030)	0.064** (0.028)	0.042* (0.024)	0.051** (0.026)	0.098*** (0.028)	0.039 (0.030)	0.102*** (0.034)
Diff-in-diff	-0.021 (0.030)	-0.032 (0.023)	-0.046** (0.022)	-0.018 (0.022)	-0.072*** (0.026)	-0.006 (0.018)	-0.074** (0.032)
N	1,212	1,175	1,385	1,265	1,336	1,192	1,270
Treated	72	35	245	125	196	52	130

Notes: ECHI=employment contingent health insurance; non-ECHI=health insurance through spouse's employer. Controls are the same as in Table 4.

Significance: * p<.1 ** p<.05 *** p<.01.

^a First difference is (health shock insured status – healthy insured status) for the specified group (ECHI or non-ECHI). Diff-in-diff is the difference between these effects.