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Inas Rashad
Georgia State University
NBER

Eric Sarpong
Georgia State University

Georgia State University | Andrew Young School of Policy Studies

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Inas Rashad
Georgia State University and NBER

Eric Sarpong
Georgia State University

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Abstract

Several recent developments in health care in the United States include declining health care coverage, particularly that provided by employers, and a noticeable shift in the burden of medical care costs to employees. If these developments cause employees to feel locked into their jobs, optimal job matches in the labor force will not take place. Partly in response, the federal government has passed laws protecting health coverage for workers who switch jobs, with the passage of the Consolidated Omnibus Budget Reconciliation Act of 1986 and later the Health Insurance Portability and Accountability Act in 1996. In this paper we summarize the current literature on the topic and present some findings using the National Health Interview Survey, focusing on the 1997-2003 period. Our findings are consistent with recent assertions that there is some evidence of job-lock.

Employer-Provided Health Insurance and the Incidence of "Job-Lock": Is There a Consensus?

I. Introduction

There is a lack of consensus in the literature as to what role employer-provided health insurance plays in job retention. It is imperative that selection into jobs providing health insurance be taken into account, as well as a host of other factors, including the separate effect that receiving an attractive benefits package might have. Concern over the "job-lock" phenomenon was one of the reasons the government signed the Health Insurance Portability and Accountability Act (HIPAA) into law in 1996. Becoming effective January 1997, the changes applied to disability extension, the definition of "qualified beneficiary," and the duration of continued coverage as outlined in the Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1986.[1] The HIPAA greatly restricted insurers' ability to exclude preexisting medical conditions from insurance coverage and required the insurer to issue or renew coverage for individuals with previous access to group health insurance coverage.

Studies such as those by Gruber and Madrian (1997) highlight the importance of these laws in reducing the incidence of job-lock, and thus increasing the quality of job matches. Indeed, labor theory predicts that the quality of job matches increases over the life-cycle (and thus tenure is reduced as people match themselves appropriately), contributing to wage growth

[1] The Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1986 was aimed at easing portability restrictions on employer-provided health insurance by requiring employers to continue coverage for up to 18 months after terminating the employment contract. The Act allows a worker and his or her immediate family members who were previously covered by a health care plan to maintain that coverage if a "qualifying event" causes them to lose coverage. These events are: (1) The death of the covered employee; (2) A reduction in hours due to resignation, discharge, layoff, strike or lockout, medical leave or simply a slowdown in business operations; (3) Divorce; or (4) A dependent child reaching the age at which he or she is no longer covered. COBRA does not require the employer to pay for the cost of providing continuation coverage but instead it allows employees and their dependents to maintain coverage at their own expense by paying no more than 102 percent of the premium the employer previously paid. See the US Department of Labor Employee Benefits Security Administration website at http://www.dol.gov/ebsa for more detail.

and productivity, assuming people are paid their marginal product (Jovanovic 1979). If individuals self-select into certain nonoptimal occupations for other reasons, productivity and social welfare may be compromised.[2]

Figure 1 shows the sharp decrease in employer-provided health insurance in the year 2000 in our data set. While 68 percent of individuals 18 years of age and older in the National Health Interview Survey had health insurance coverage through their employers, only 57 percent did in 2003.[3] During this time, the medical care component of the Consumer Price Index (CPI) rose from 234.6 in 1997 to 297.1 in 2003. When divided by the CPI for all items to obtain figures in real terms, this amounts to a 10.5 percent increase in the real cost of medical care between 1997 and 2003. As Figure 2 reveals, the real medical care CPI went from 146.2 in 1997 to 161.5 in 2003 (base year = 1982-4). The period of analysis is thus important when testing the prevalence of job-lock. While laws such as COBRA and HIPAA might have decreased the job-lock phenomenon (increased job mobility), employers are less likely to provide health insurance, which in turn might decrease job mobility.

Our paper is organized as follows. We review seminal papers on job-lock in the next section. We describe our data set, the National Health Interview Survey, in section three. In section four we outline our methodology, and summarize results in section five. Section six concludes.

[2] This is not clear, as the costs associated with job-lock may not outweigh the health benefits associated with having insurance, or the decreased public spending on medical care. There is surprisingly little on the welfare costs of job-lock considering the enormous amount of attention that has been paid to it. Gruber and Madrian (2002) touch upon the possible welfare implications and find welfare losses due to job-lock to be modest.

[3] These numbers are based on our calculations using the NHIS, and are comparable to national figures using the Current Population Survey (see, for example, Gould 2004).

II. Literature Review

The major findings from the growing body of literature on the processes which influence the occupational constraints on workers that are attributable to employer-provided health insurance have essentially been mixed.

Studies Finding an Effect

There are several studies that have concluded that the provision of employer-provided health insurance has played a seminal role in decreasing job mobility, or increasing the "job-lock" phenomenon, whereby people feel locked into their jobs due to the health insurance benefits received through their employers. This is more likely to occur for sick persons, or those with sick family members. These individuals are more likely to have higher medical expenditures, and thus feel locked into their jobs for reasons that include (1) lack of coverage of preexisting medical conditions, (2) costs in transitioning when obtaining new coverage, and (3) fear that new employers are not likely to provide their employees with health insurance, or offer them insurance that is too expensive, a rising trend.[4]

Madrian (1994) finds evidence of job-lock by examining the impact of employer-provided health insurance on job mobility using data from the 1987 National Medical Expenditure Survey (NMES). In particular, she investigates the flexibility that individuals with severe medical conditions have in terms of changing their current health insurance policy in the presence of preexisting conditions exclusions. Madrian finds that job-lock reduces voluntary turnover rate of workers with employer-provided health insurance from 16 percent to 12 percent per year, a decrease of 25 percent. In arriving at this conclusion, she uses a probit model with the probability of quitting employment as the dependent variable, the key independent variable

[4] Although not a new one. Since the late 1980s, employers have become less generous with their insurance policies and have shifted more of the burden to employees (Cooper and Schone 1997; Madrian 2005).

of interest being employer-provided health insurance. She employs a difference-in-differences (DD) estimator to address unobserved individual heterogeneity, an identification strategy which has been used by several other studies on job lock. Her comparison group consists of those with spousal health insurance. In addition to the findings of a negative relationship between job-lock and voluntary turnover rates, her results also indicate that married men without health insurance but with pregnant wives are significantly more likely to switch jobs.

Also employing the NMES, Monheit and Cooper (1994) find evidence of job-lock using a different approach. They predict the likelihood of compensation and insurance status from wage and health insurance equations, and use the predicted values as RHS variables in a job-lock probit equation. Such a procedure is assumed to rid the insurance status variable of contamination from unobservable characteristics. They find that individuals afraid of losing insurance coverage as a result of switching jobs are 3 to 6 percent less likely to change jobs.

Another study that lends support to the positive relationship between employer-provided health insurance and job lock is Buchmueller and Valletta's (1996) study, which relies on the 1984 Survey of Income and Program Participation (SIPP). They employ a DD estimator similar to that of Madrian (1994) with job turnover as the dependent variable, but include respondents' pension coverage and tenure in their probit model to capture firm-specific and person-specific unobserved heterogeneity. Their estimated model, which accounts for the interaction between the job change decisions of the husband and wife, find strong evidence of job-lock among women (married or single) but only weak evidence for men.

In yet another paper on employer-provided health insurance and retirement behavior, Rogowski and Karoly (2000) find evidence of job-lock. Rogowski and Karoly examine the effects of post-retirement health insurance accessibility on retirement decisions of older workers

with data from the 1992 and 1996 waves of the Health and Retirement Survey (HRS). Their results indicate that post-retirement health insurance accessibility has a large positive effect on the decision to retire by older workers. That is, those with employer-provided health insurance are 68 percent more likely to retire than those with no such insurance coverage after retirement.

By using years on the job as a dependent variable, Okunade and Wunnava (2002) re-examine the issue of job mobility using an alternative approach to capture job-lock. Their data come from the 1979 National Longitudinal Survey of Youth (NLSY), consisting of white full-time non-agricultural private sector workers from 1979 to 1996, the year that the Health Insurance Portability and Accountability Act was passed. Their dependent variable is job tenure, which they use as a proxy for job-lock, and the key variables of interest are measures of fringe benefits. Their results suggest a positive and statistically significant relationship between job-lock and fringe benefit coverage.

The lack of research on the effects of employer-provided health insurance on labor supply given some adverse health incident led Bradley, Neumark, Luo, and Bednarek (2005) to re-examine the job-lock issue. Since recent evidence indicates that some segments of the working population have access to health insurance through relatives, the labor supply responses of such segment to illness will be different from that of other worker segments. Using data from Metropolitan Detroit Cancer Surveillance System and the March 2001 through January 2002 Current Population Surveys (CPS), they find evidence of job lock. Particularly, adverse health incidents, as measured by breast cancer diagnosis, reduce women's labor supply significantly for those with insurance through their spouses than for those with employer-provided health care coverage. That is, employer-provided health care coverage encourages women to remain working even intensely in the presence of an adverse health diagnosis.

Stroupe, Kinney, and Kniesner (2001) examine job duration patterns of chronically ill workers or chronically ill relatives of workers in search of evidence of health insurance-related job lock using data on workers in Indiana. They employ a Cox proportional hazard model, and argue that the risk of job turnover will be lower for workers with employer-provided insurance coverage, suggesting that these workers are locked into their jobs. They find a 40 percent reduction in job mobility for chronically ill workers with employer-provided health insurance, relative to equally situated workers without employer-provided health insurance coverage.

Further evidence for this strong relationship between employer-provided health insurance and labor market outcomes comes from Cutler and Madrian (1998). Using data from the CPS and the SIPP, the authors provide evidence to suggest that during the 1980s, increases in hours worked by those covered under employer-provided health insurance were attributable to increases in health care costs. In addition, increases in health care costs had a downward impact on the wages of those individuals covered under employer-provided health insurance.[5]

Dey and Flinn (2005) examine the effect of employer-provided health insurance on job mobility rates and the effect of employer-provided health insurance on economic welfare using data from the 1996 SIPP. Their results indicate that employer-provided health insurance tends to reduce mobility rates. They also find that the employment relationship between employers and workers covered by employer-provided health insurance tends to last longer than would be expected under alternative arrangements. In spite of the above findings, an alternative explanation according to Dey and Flinn is that, since a substantial majority of job changes result in productivity gains, the observed lower rate of mobility in their results may reflect efficient job turnover levels as opposed to job lock.

[5] Due to the fixed-cost nature of employer-provided health insurance, employers have an incentive to hire fewer workers and increase the number of hours worked for these workers. In addition, rising medical care costs and the inelastic nature of labor supply has enabled employers to shift some of this burden onto employees.

The lack of previous research taking unobserved heterogeneity into account when estimating job mobility provided Stinson (2002) with the motivation for her research into the relationship among wages, the hazard of job termination, and the probability of having employer-provided health insurance coverage. Stinson uses data from the 1990 and 1996 SIPP linked to data on job histories from the Social Security Administration. In conducting her analysis, Stinson uses a hazard model formulation to jointly estimate the relationships among wages, job-lock (quit decisions), and employer-provided health insurance. The dependent variable for her structural equation is the probability of quitting, conditional on past job history. Individual and job random effects are included to address unobserved heterogeneity. Stinson finds substantial levels of job immobility of about 30-60 percent. In addition, she finds that increases in the probability of obtaining job-specific employer-provided health insurance or job-specific hourly wages are associated with decreases in the hazard of shorter employment duration.

Johnson, Davidoff, and Perese (2003) estimate the effects of health insurance costs on early retirement for a sample of full-time workers ages 51 to 61 with data from the HRS merged with other survey data. They argue that retiree health insurance constitutes a significant component of the cost of retirement; hence, losing such employer-provided health insurance coverage will influence the decision to retire. They find that insurance costs significantly reduce retirement rates of the sample under review.

Turning to health care legislation such as that passed in the Consolidated Omnibus Budget Reconciliation Act, Gruber and Madrian (1997) find that health insurance continuation

mandates do increase job turnover, influence retirement decisions, and thus reduce job-lock and promote wage gains in subsequent jobs.[6]

Another study that focuses on health care legislation and job mobility is that of Sanz de Galdeano (2006), which analyzes the effects of employer-provided health insurance on job mobility using data from the SIPP 1996-2000 panel. Sanz de Galdeano's study finds evidence to suggest that employer-provided health insurance adversely affects job mobility for all population subgroups by about 31-58 percent. In addition, her evaluation of the impact of the Health Insurance Portability and Accountability Act of 1996 on job mobility finds evidence that is contrary to the intended objectives of the 1996 HIPAA. That is, the 1996 HIPAA failed to remedy the insurance-induced job-lock in labor markets.[7]

Farber and Levy (2000) use the 1979-1999 CPS to study the differences in the decline of employer-provided health insurance availability across all jobs and certain educational categories by examining the fraction of workers in firms: (1) whose employers offer health insurance to some part of the workforce (offer rate); (2) who are eligible for health insurance, conditional on working in a firm (eligibility rate); and (3) who enroll in health insurance plans when they are eligible for it (take-up rate). Their study finds that declines in the availability of own-employer insurance coverage are driven primarily by declines in take-up rates for core workers and declines in eligibility for peripheral (tenure < 1 or part-time) workers. The indication is that access to health insurance is being restricted to core long-term employees to the detriment of peripheral workers.

[6] See Karoly and Rogowski (1994) and Klerman and Rahman (1992) for similar conclusions.
[7] This could be due to the decline in employer-provided health insurance in the same time period.

Studies Finding Little or No Effect

Some studies find no effect of employer-provided health insurance on job tenure or job turnover. Using the 1984 wave of the Panel Study of Income Dynamics (PSID) and the same measure of job-lock, Holtz-Eakin (1994) use a DD estimator and a sample of married men with and without spousal health insurance, and find no evidence of job-lock.

In a paper by Kapur (1998) that uses a DD estimator with the treatment variable being family sickness, the effects of health insurance reforms on hiring by smaller employers and on the job mobility of the costly-to-insure segments of the population were found to be mostly statistically insignificant. For the ease of exposition and comparability, Kapur's sample is comprised of married men only, with employer-provided health insurance. The experimental group consists of men without spousal health insurance. Surprisingly, the evidence suggests that health insurance rating reforms tend to increase job mobility for the sick, redistribute health insurance costs away from the sick towards older workers, and consequently reduce employment opportunities for the latter. In contrast, there is a positive but small effect of health insurance portability reforms on job mobility.

Gilleskie and Lutz (2002) estimate a dynamic multinomial logit model of the effects of employer-provided health insurance on job mobility using data from the NLSY. Gilleskie and Lutz depart from Madrian's (1994) DD estimator by estimating a job-lock equation with offer and acceptance of health insurance indicators on the RHS. These reflect either "good" jobs, which captures job specific heterogeneity on the job switching decision or captures "option-value" (whereby an offer holds value in the eyes of the individual). The authors find little evidence to suggest the presence of job-lock among married males after controlling for positive job characteristics and individual-specific turnover propensities. They find that insurance offers

reduce job mobility to about 12 percent. Not controlling for fringe benefits or health insurance offers reduces the effects of employer-provided health insurance on mobility by about 31 percent for married men. The authors did find small effects of employer-provided health insurance on the job mobility of unmarried males ranging from 10 to 15 percent.

Calls for reforms to health insurance coverage in the US led Slade (1997) to examine the relationship between employer-provided health insurance and decisions regarding occupational choice in his dissertation. Using data from the National Longitudinal Survey of Youth, he estimates models of job mobility and health insurance for a sample consisting of 21-35 year olds. Slade's job insurance estimates reveal that employed individuals with a record of severe illness are significantly less likely (22 percent) to be in jobs with health insurance coverage than equally situated individuals with no record of serious illness. Slade also finds that employed individuals who reside in states with high average health care costs are less likely to be in jobs with health insurance coverage. In addition, he finds that health insurance coverage at one's current employment does not have an adverse effect on occupational mobility in his job mobility equation when controlling for individuals' propensity to change jobs. The estimates from his two equations, health insurance coverage and job mobility, seem to indicate that health insurance portability laws may not have had a positive impact on job mobility and might have even raised the cost of health insurance coverage to some employers with adverse consequences for workers.

While Penrod (1994) in general finds little evidence of job-lock, he finds that it occurs with a small proportion of employed persons. His study utilizes no data on medical conditions or medical expenditures. Other studies that find little or no effect of employer-provided health insurance on job-lock include Berger, Black, and Scott (2004); Holtz-Eakin, Penrod, and Rosen (1996); Mitchell (1982); and Spaulding (1997).

III. Data

The National Health Interview Survey (NHIS), conducted by the National Center for Health Statistics and initiated in 1957, is a nationally representative cross-sectional household survey providing information on the health of the civilian noninstitutionalized US population. It is used extensively by the Department of Health and Human Services to follow trends in illness and disability, and has not previously been exploited in measuring the incidence of job-lock. The NHIS provides demographic and socioeconomic information on individuals, in addition to information on employment, health care coverage, and illnesses. While the survey was initiated in 1957, it has been updated since every ten to fifteen years, and underwent a major change starting with the 1997 survey. Prior to 1997, information on insurance and access to health care was not collected in the core questionnaire. In our analysis, we use NHIS data from 1997 to 2003.

With an annual response rate over 90 percent, NHIS data are collected annually from approximately 106,000 individuals through personal household interviews. Using data from the sample adult core files, we start out with a sample of 226,953 individuals. After accounting for missing observations on our RHS variables and restricting our sample to those with health insurance who are employed and not married, we end up with a sample of 20,517 males and 22,767 females. When we further restrict our sample to those with a family size of one, we obtain a sample of 9,439 males and 7,746 females.

Following Okunade and Winnova (2002), we use a continuous measure of job-lock: years on the job, or job tenure. While we are able to capture years on the job, we are aware that a shortcoming of this paper is the inability to determine whether employer-provided health insurance was provided by the employer throughout the duration of employment or not. We thus

assume that employer-provided health insurance was provided for the individual throughout his duration of employment, not an unreasonable assumption.[8]

We use a novel approach in that we focus on a sample of single (never married or divorced) employed persons who have had some form of health insurance in the twelve months prior to being interviewed, and who report a family size of one. Prior studies that have compared groups with and without health insurance fail to acknowledge that these two groups are very different in many respects. Quality of insurance is not likely to be an issue; as Kapur (1998) finds, there is little correlation between policy quality and medical conditions (Cameron and Trivedi 1991). Information on medical expenditures in the past year is provided, which we control for. Various demographic characteristics are provided in the NHIS, and thus controls for age, race, ethnicity, education, and region are included. One criticism of prior studies is the inability to disentangle the effect of employer-provided health insurance on job-lock (or tenure in this case) from that of other fringe benefits. The NHIS asks questions on paid sick leave, which we control for and use as a proxy for other benefits that are likely to be correlated with this variable. Those who are members of unions are less likely to switch jobs due to the benefits associated with union membership, such as higher wages and various forms of protection. A dichotomous indicator for union membership is therefore included on the RHS. In addition, controls for industry and occupation are included.[9]

Restricting the sample to those with a family size of one allows us to more accurately capture the effect for single individuals. In previous studies, it is not clear that those who are

[8] We also do not distinguish between voluntary and involuntary turnover. Mincer and Jovanovic (1981) estimate that about 75 percent of all new full-time jobs end in two years. We therefore run our models restricting our tenure variable to be greater than two years (results not reported). Doing this yields qualitatively similar results.

[9] These controls partially capture the unobserved characteristics of workers in different industries, and the different policies associated with working in different occupations. Industries controlled for are: primary and construction, manufacturing, communications, trade, financial services, other services, public, and military. Occupations controlled for are: managerial, professional, technical, clerical, private, farming, and military.

single are not supporting other family members.[10] We restrict the sample to employed, single individuals, a group that is actually more likely to be mobile. Many prior studies rest on the assertion that if anyone is job-locked, it is those with employer-provided health insurance who have a family member with a serious health problem. While this may be true, one reason some studies do not find an effect when doing this is because it is difficult to isolate the effect of the family sickness variable, due to the numerous possible confounding factors, many of which are unobservable using most data. The employee may wish to obtain a job allowing him to spend more time with his sick child, for example, or move closer to an appropriate health care facility or school, compelling him to change jobs. In addition, those with families may possess characteristics allowing them to be more likely to have work experience and thus less likely to worry about losing benefits should they switch jobs.

IV. Methodology

Labor tends to have varying degrees of occupational mobility depending on training, experience, level of human capital, job tenure, or employer-provided health insurance. When a person is locked into a job, he or she is constrained in terms of occupational mobility by employer benefits such as employer-provided health insurance, even as their current job becomes unattractive or unsuitable given the individual's abilities.

Prior studies that have used a difference-in-difference approach to capture the effect of job-lock have been in general agreement that if anyone is job-locked, it is those with employer-provided health insurance who are sick or have a sick family member. Many of these studies account for spousal health insurance and family size. Again, while this may be the case, the effect is difficult to isolate in light of the numerous possible confounding factors affecting those

[10] In our NHIS sample, 61 percent of those who are not married have a family size that is greater than one.

in families, many of which are unobservable using most data. A clean approach may thus be to observe a sample that is similar demographically and relatively mobile and thus likely to seek the best job match available: those who are not married who already have some form of health insurance.

In our analysis, we compare two groups – those with and without employer-provided health insurance who have health insurance. We use a difference-in-difference (D-D) methodology in order to estimate the potential effect that our *sick* variable has on the outcome variable, *tenure*. A simplified version of the model is as follows:

$$\boxed{Tenure = \alpha_0 + \alpha_1(EPHI) + \alpha_2(sick) + \alpha_3(EPHI * sick) + \varepsilon},$$

where the dependent variable is the number of years in a given job, *EPHI* is a dichotomous variable that equals 1 if the respondent has health insurance through his employer, *sick* is a dichotomous indicator for having ever had a heart attack, having ever been diagnosed with cancer, or having ever been diagnosed with diabetes, and ε is the error term. As seen from the equation above and the simple table below, the coefficient of interest is α_3. This will tell us the effect that being "sick," or being more likely to have greater potential health care expenditures, has on job tenure independent of confounding factors.

Years on the Job	**Coefficient**	**Difference within groups**	**Difference-in-difference**
EPHI = 0 , Sick = 0	α_0	$(\alpha_0 + \alpha_2) - \alpha_0 = \boxed{\alpha_2}$	$(\alpha_2 + \alpha_3) - \alpha_2 = \boxed{\alpha_3}$
EPHI = 0 , Sick = 1	$\alpha_0 + \alpha_2$		
EPHI = 1 , Sick = 0	$\alpha_0 + \alpha_1$	$(\alpha_0 + \alpha_1 + \alpha_2 + \alpha_3) - (\alpha_0 + \alpha_1)$	
EPHI = 1 , Sick = 1	$\alpha_0 + \alpha_1 + \alpha_2 + \alpha_3$	$= \boxed{\alpha_2 + \alpha_3}$	

A key assumption that we are making is that the two groups are comparable. Indeed, if the control and experimental groups are dissimilar, our analysis will likely yield biased results.

Differences in the means of the dependent variables of interest may indicate a lack of comparability (Meyer 1995; Kapur 1998). We test for this and find our two groups to be comparable. Note that the sample has been restricted to those with health insurance who are single (or divorced) and report a family size of one.

V. Results

Weighted sample means for males and females are shown in Table 1 for the sample restricted to those who are not married and have health insurance (but not yet restricted to those with a family size of one). Average tenure for males is 5.14 years, slightly higher than the female average of 5.12. Average family size for males is 2.64, lower than the female average of 2.77. This explains why we start out with more females but end up with more males once family size is restricted to being no greater than one.

Results are presented in Table 2 using *sick* as the comparison variable. As seen in section four, the coefficient of interest is the one on the interaction (Sick*EPHI), α_3. Columns 1 and 3 do not include controls for industry and occupation for males and females, respectively, while columns 2 and 4 do. We find that sick males and females stay on the job 1.14 and 0.80 years longer due to employer-provided health insurance, although this result is insignificant for females. Paid sick leave is highly correlated with tenure, as is age. While any education is revealed to be better than none in terms of job tenure (the reference group for education is elementary or less), the magnitudes start falling after high school. This is likely due to the

increased prospects that having a better education in terms of searching for a job; these individuals are not as likely to feel locked into their current jobs if the match is not optimal.[11]

We obtain some intriguing results in Table 3. Column 1 simply shows results from columns 2 and 4 of Table 2 for comparison. In the second column of Table 3, we further restrict the samples to those with a body mass index (BMI) less than or equal to 30 kg/m^2, which is the threshold designated by the National Center for Health Statistics in determining whether someone is obese. There is concern that while those who are sick are more likely to be locked into their jobs, they may also be less productive or suffer from discrimination by their employers, and thus less likely to have tenure. Our coefficients would thus be biased downwards. In defining our *sick* variable, illnesses not likely to have an effect on productivity were chosen. Yet these illnesses are positively correlated with obesity, visible to the employer. Several studies highlight the prevalence of discrimination against obese persons, particularly females, who earn lower wages in the workplace (see, for example, Baum and Ford 2004; Cawley 2004; and Hamermesh and Biddle 1994). When restricting the sample to those who are not obese, we expect the magnitude of our coefficients to rise, which is exactly the case, as seen in column 2 of Table 3. Employer-provided health insurance here is associated with a 1.48 year increase in job tenure for males, significant at the five percent level, and a 1.10 year for females, significant at the ten percent level.

In columns 3 and 4 of Table 3, another comparison group is used – those who had real medical expenses greater than $1,000 (base year = 1982-84) in the year prior to being interviewed. These individuals are more likely to be job-locked due to employer-provided health

[11] Having spent years furthering their education, they are also not as likely to have had as many years on the job.

insurance than those without substantial medical expenditures. When using this approach, we find an increase of 0.97 years on the job for males.

VI. Discussion

Although both empirical and anecdotal evidence exists suggesting that mobility constraints in the labor market faced by individuals stemming from the fear of losing one's coverage is endemic, the divide in the literature indicates that there is still some question as to whether job-lock actually persists in the workplace. Although restricted by our data, we find some evidence of job-lock using a sample of employed, unmarried individuals with health insurance, particularly for males. This possibly lends some further support to the conclusion made by Gruber and Madrian (2002) in their critical review of the literature, that employer-provided health insurance plays a significant role in decisions on job change.

Employer-provided health insurance is by far the largest form of health insurance in the US. With this declining, however, and with the percentage of uninsured individuals rising, costs associated with job-lock are likely to rise in spite of recent efforts to reduce these through government legislation (which might have the unintended consequence of discouraging employers from providing health insurance in the first place). Research focused on making the case for an increased governmental role for the provision of health insurance would thus enrich the literature.

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Table 1

Weighted Sample Means, NHIS 1997-2003

Variable	Description	Males	Females
Tenure	Years on the job	5.14 (7.24)	5.12 (7.00)
EPHI	Employer-provided health insurance = 1, 0 otherwise	0.70 (0.46)	0.70 (0.46)
Sick	Presence of heart condition / cancer / diabetes =1, 0 otherwise	0.07 (0.26)	0.11 (0.31)
Sick*EPHI	Interaction	0.05 (0.22)	0.08 (0.27)
Paid Sick Leave	Employer-paid sick leave = 1, 0 otherwise	0.48 (0.50)	0.58 (0.49)
Health Insurance (any)	Any health insurance = 1, 0 otherwise	1.00 (0.00)	1.00 (0.00)
Family size	Number of persons in family	2.64 (1.69)	2.77 (1.66)
Some High School	Some high school education = 1, 0 otherwise	0.09 (0.29)	0.07 (0.26)
High School	High school education = 1, 0 otherwise	0.31 (0.46)	0.27 (0.44)
Some College	Some college education = 1, 0 otherwise	0.32 (0.47)	0.37 (0.48)
College	College education = 1, 0 otherwise	0.23 (0.42)	0.26 (0.44)
Black	Race of the respondent is Black = 1, 0 otherwise	0.13 (0.33)	0.18 (0.38)
Hispanic / Other	Race of the respondent is Hispanic / Other = 1, 0 otherwise	0.06 (0.24)	0.06 (0.23)
Real Medical Expenses	Amount family spent for medical care divided by the Consumer Price Index (base year = 1982-84)	644.55 (1048.03)	650.86 (1043.60)
Married	Marital status is married = 1, 0 otherwise	0.00 (0.00)	0.00 (0.00)
Divorced	Marital status is divorced = 1, 0 otherwise	0.20 (0.40)	0.31 (0.46)
Age	Age of the respondent	33.14 (11.99)	35.17 (13.08)
Union	Union Membership = 1, 0 otherwise	0.02 (0.14)	0.02 (0.14)
Yr98	Dichotomous indicator for year = 1998	0.13 (0.34)	0.13 (0.34)
Yr99	Dichotomous indicator for year = 1999	0.14 (0.34)	0.14 (0.34)
Yr00	Dichotomous indicator for year = 2000	0.15 (0.36)	0.15 (0.36)

Yr01	Dichotomous indicator for year = 2001	0.15 (0.36)	0.16 (0.36)
Yr02	Dichotomous indicator for year = 2002	0.15 (0.36)	0.15 (0.36)
Yr03	Dichotomous indicator for year = 2003	0.15 (0.36)	0.15 (0.36)
Primary	SIC Industry – Primary and Construction = 1, 0 otherwise	0.15 (0.36)	0.02 (0.15)
Manufacturing	SIC Industry – Manufacturing = 1, 0 otherwise	0.16 (0.37)	0.09 (0.29)
Transport	SIC Industry – Transport / Communications = 1, 0 otherwise	0.08 (0.27)	0.05 (0.22)
Trade	SIC Industry – Trade = 1, 0 otherwise	0.23 (0.42)	0.23 (0.42)
Financial Services	SIC Industry – Financial Services = 1, 0 otherwise	0.19 (0.39)	0.43 (0.49)
Service	SIC Industry – Other Service = 1, 0 otherwise	0.14 (0.35)	0.13 (0.33)
Public	SIC Industry – Public Sector = 1, 0 otherwise	0.04 (0.19)	0.05 (0.22)
Military1	SIC Industry – Military = 1, 0 otherwise	0.00 (0.01)	0.00 (0.01)
Managers	SIC Occupation – Managers = 1, 0 otherwise	0.11 (0.31)	0.13 (0.34)
Professional	SIC Occupation – Professional = 1, 0 otherwise	0.13 (0.33)	0.17 (0.38)
Technician	SIC Occupation – Technician = 1, 0 otherwise	0.03 (0.18)	0.04 (0.19)
Sales / Administration	SIC Occupation – Clerical = 1, 0 otherwise	0.31 (0.46)	0.55 (0.50)
Private Business	SIC Occupation – Private Business = 1, 0 otherwise	0.00 (0.02)	0.01 (0.10)
Craftsmen / Laborers	SIC Occupation – Farmers / Craftsmen/ Laborers = 1, 0 otherwise	0.42 (0.49)	0.10 (0.30)
Military2	SIC Occupation Military = 1, 0 otherwise	0.00 (0.00)	0.00 (0.00)
Sample size		20,517	22,767

Standard deviation is reported in parentheses. NHIS sample weights are used in calculating the mean and standard deviation.

Table 2

Dependent Variable: Years on the Job, NHIS 1997-2003

	Males		***Females***	
	(1)	(2)	(3)	(4)
	Basic	Extended	Basic	Extended
EPHI	-0.302*	-0.309*	-0.097	-0.116
	(1.85)	(1.88)	(0.51)	(0.60)
Sick	-0.679	-0.718	-0.505	-0.497
	(1.47)	(1.56)	(1.18)	(1.15)
Sick*EPHI	1.050*	1.138**	0.836	0.804
	(1.92)	(2.08)	(1.64)	(1.57)
Paid Sick Leave	1.407***	1.271***	2.494***	2.181***
	(9.48)	(8.14)	(13.95)	(11.55)
Some High School	1.097**	1.263***	0.354	0.532
	(2.51)	(2.87)	(0.52)	(0.77)
High School	1.421***	1.609***	0.975*	1.176**
	(3.95)	(4.42)	(1.68)	(1.98)
Some College	1.001***	1.338***	0.782	0.789
	(2.83)	(3.69)	(1.37)	(1.34)
College	0.498	0.614	0.588	0.070
	(1.39)	(1.59)	(1.03)	(0.12)
Black	-1.018***	-0.924***	0.207	0.149
	(4.86)	(4.35)	(0.96)	(0.67)
Hispanic / Other	-0.979***	-0.913***	-0.813**	-0.850**
	(3.42)	(3.17)	(2.16)	(2.22)
Real Medical Expenses	0.000	0.000	-0.000	-0.000
	(0.36)	(0.80)	(0.88)	(1.07)
Real Medical Expenses Squared	-0.000	-0.000	0.000	0.000
	(0.03)	(0.39)	(0.77)	(0.98)
Divorced	-0.079	-0.279	-1.197***	-1.268***
	(0.44)	(1.55)	(5.83)	(6.11)
Age	0.301***	0.264***	0.437***	0.407***
	(8.65)	(7.53)	(11.95)	(10.94)
Age Squared	0.001*	0.001***	-0.001***	-0.001***
	(1.87)	(2.89)	(3.44)	(2.61)
Union	0.261	0.255	0.866	0.713
	(0.51)	(0.50)	(1.52)	(1.24)
Yr98	0.232	0.234	0.333	0.265
	(0.54)	(0.54)	(0.78)	(0.60)
Yr99	0.411	0.415	0.445	0.473
	(0.95)	(0.96)	(1.04)	(1.08)
Yr00	0.090	0.143	-0.267	-0.245
	(0.21)	(0.34)	(0.64)	(0.57)
Yr01	0.168	0.224	-0.023	-0.011
	(0.40)	(0.53)	(0.06)	(0.03)
Yr02	0.098	0.108	-0.252	-0.245
	(0.23)	(0.25)	(0.60)	(0.57)
Yr03	0.198	0.207	-0.092	-0.094
	(0.47)	(0.49)	(0.22)	(0.22)
Constant	-6.695***	-2.961	-9.823***	-8.742***
	(8.05)	(0.43)	(9.89)	(7.02)

Observations	9,439	9,233	7,746	7,554
R-squared	0.31	0.33	0.29	0.30
Industry Fixed Effects	No	Yes	No	Yes
Occupation Fixed Effects	No	Yes	No	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes

Note: Absolute values of t-ratios are reported in parentheses. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 3

Dependent Variable: Years on the Job, NHIS 1997-2003
Effect of Interaction for Restricted Samples

	Males			
	(1)	(2)	(3)	(4)
	Health Insurance	Health Insurance & BMI < 30 kg/m^2	Health Insurance	Health Insurance & BMI < 30 kg/m^2
EPHI	-0.309*	-0.368**	-0.321*	-0.359**
	(1.88)	(2.06)	(1.92)	(1.97)
Sick	-0.718	-1.022*		
	(1.56)	(1.89)		
EPHI*Sick	1.138**	1.482**		
	(2.08)	(2.32)		
Medical Exp > 1000			-0.449	-0.432
			(1.08)	(0.95)
EPHI*(Medical Exp > 1000)			0.973**	0.934*
			(2.04)	(1.78)
Observations	9,233	7,404	9,233	7,404
R-squared	0.33	0.33	0.33	0.33
	Females			
EPHI	-0.116	-0.089	-0.019	-0.024
	(0.60)	(0.42)	(0.10)	(0.12)
Sick	-0.497	-0.418		
	(1.15)	(0.85)		
EPHI*Sick	0.804	1.098*		
	(1.57)	(1.86)		
Medical Exp > 1000			-0.163	-0.468
			(0.38)	(0.98)
EPHI*(Medical Exp > 1000)			-0.024	0.369
			(0.05)	(0.65)
Observations	7,554	5,677	7,554	5,677
R-squared	0.30	0.31	0.30	0.31

Note: Controls for paid sick leave, education, race, ethnicity, age, union membership, year of survey, industry, and occupation are included in all regressions. Real medical expenditures in the past year are controlled for in columns 1 and 2. Absolute values of t-ratios are reported in parentheses. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Figure 1

Employer-Provided Health Insurance, 1997-2003
National Health Interview Survey

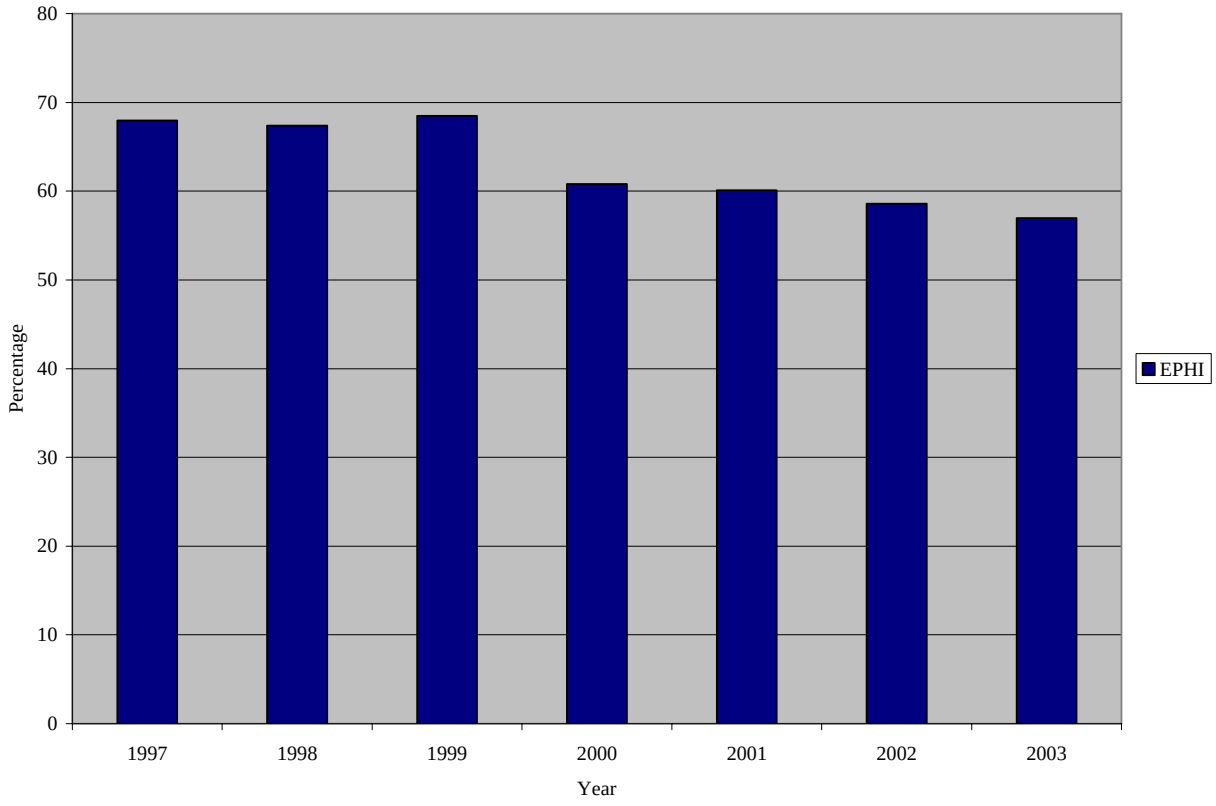

Figure 2

Real Medical Care CPI, 1997-2003
Bureau of Labor Statistics