

# Job Lock: A Literature Review

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“Three in 10 Americans say they or someone in their household have at some time stayed in a job they wanted to leave mainly to keep the health benefits, according to a New York Times/CBS News Poll. The survey provides some of the strongest evidence yet of pervasive concern about the costs of medical insurance and care.”

-*New York Times*, 26 Sept 1991 [14].

“We will strengthen health savings accounts – making sure individuals and small business employees can buy insurance with the same advantages that people working for big businesses now get. We will do more to make this coverage portable, so workers can switch jobs without having to worry about losing their health insurance.”

-President George W. Bush, State of the Union Address, 2006 [17]

## 1 Introduction

Health insurance is a major issue in the United States. Nearly everyday, residents can pick up a newspaper and read a story expounding on the worsening ‘health care crisis.’ Many workers fear losing their job, not simply due to the loss in wages, but even more due to the loss in health insurance coverage. In fact many workers decide to stay at a job whose compensation is less than their marginal product because they fear the loss of their health insurance. This phenomenon is known as ‘job lock.’ The term has received much publicity both in the economics literature and in the popular press. The Economics literature seeks to answer the following three questions:

1. Does job lock exist?
2. If job lock does exist, what is its impact on social welfare?
3. Does current regulation aimed at combatting job lock improve social welfare?

In the following literature review, I will show how the field of Economics has attempted to answer these questions. Section 2 will give a brief background of the concept of job lock, past regulation aimed at eliminating job lock, as well as some other background on health insurance in the United States. Section 3 will detail how economists have attempted to identify job lock. Section 4 will review non-insurance items which contribute to job lock—mainly pensions. Section 5 will analyze how economists have estimated the total welfare impact of job lock, and Section 6 will conclude.

## 2 Background

### 2.1 What is job lock?

The first step in understanding job lock is defining it. The best means for doing this is to first look at what job lock is *not*. Job lock does not occur if an employee wishes to switch jobs but decides not to do because his current compensation is too high. This is simply a choice to value the tradeoff of higher compensation for a more satisfying job. Job lock also does *not* occur if an employee wishes to switch jobs to a higher wage job, but does not because the alternative employment does not offer health insurance. Total compensation for labor supply is given by the sum of wages and fringe benefits. The individual decision of choosing between certain wage-benefit packages is what generally occurs when competitive firms bid for an individual services. A labor market matching model would allow individuals and firms to match based on traditional items such as firm-specific worker productivity, but it could also encompass a match based on specific wage-benefit packages.

There are certain circumstances where job lock does occur. The most prominent of these is the case of ‘pre-existing conditions.’ A worker may develop an illness while is is employed at a job. Subsequently, he may wish to change jobs to a firm with higher compensation and an equivalent health insurance benefit. Nevertheless, if the alternative firm will not cover the pre-existing condition, the health insurance may be of a much lower value to the worker than his or her current insurance simply due to

the pre-existing conditions clause. Secondly, individuals often go through a temporary span of unemployment while searching for a new job. During this period, the individual may be without health insurance. Even if the individual does purchase insurance during unemployment or does find a job relatively quickly, many health insurance plans have a probationary period where certain medical treatments are not covered during the first six months of enrollment. Thirdly, search costs looking for an employer who offers ‘adequate’ insurance—in addition more typical search costs involved in finding a new employer—may preclude the individual from attempting to switch firms even if the new place of employment would offer better wages and health benefits. Finally, switching employers often means changing health plans. Switching health plans often leads to changing doctors. If individuals are sentimentally attached to their doctor, they may decide not to switch jobs for this specific reason.

## 2.2 Legislation to prevent job lock

In 1985, Congress passed the Consolidated Omnibus Budget Reconciliation Act (COBRA), which amends the Employee Retirement Income Security Act (ERISA), the Internal Revenue Code and the Public Health Service Act to provide continuation of group health coverage that otherwise would be terminated. Since COBRA allows workers to change jobs without losing their insurance benefit, Congress hoped that this would end the phenomenon of job lock. Almost all workers are entitled to this benefit whether they quit their job or whether they are fired. Terminated employees pay for the insurance at a rate of 102% of their former employer’s average cost of health insurance. Individuals can purchase the insurance for up to 18 months after their employment is terminated. Firms with less than 20 employees, however, do not need to offer COBRA continuing insurance.

A subsequent 1996 bill named the Health Insurance Portability and Accountability Act (HIPAA)—also known as the Kassebaum-Kennedy bill—enacted a variety of health insurance reforms as well. One of these reforms was to allow individuals to continue to purchase their COBRA insurance even after their 18 months had expired. This benefit was restricted to those a) not terminated for reasons of fraud, b) individuals who are not eligible for other *group* insurance such as through a spouse, c) individuals who were not eligible for Medicare or Medicaid and d) those who have used up their entire 18 months of COBRA benefit. Many of the papers that will be reviewed in this essay will use COBRA—and to a lesser extent the HIPAA—to identify changes in job lock due to the legislation.

### 2.3 Why is there Employer Provided Insurance?

In 2003, 70% of those the insured received their coverage through their employer. If we exclude people with government provided insurance, this rate jumps to 85%[19]. Why is the rate so high? There are four major reasons. The first is historical. During World War II, the American government enacted price and wage freezes the result of which was that many employers were not able to attract the employees they desired. The 1942 Stabilization Act maintained the wage freeze, but effectively allowed employers to avoid the regulation by permitting employers to offer workers variable fringe benefits such as pensions and health insurance. Secondly, employer provided insurance is tax-preferred to individual insurance. Compensation in the form of health insurance is tax exempt, while individually purchased health insurance is not. A variety of articles such as Gruber and Poterba (1994) [8], and Thomasson (2003) [18] have shown that the tax-exempt status of health insurance has led to an increase in demand. Group health insurance also has the advantage of risk pooling based on a non-health related factor: employment. This allows risk diversification for employees. This is of greatest benefit to elderly or sick employees and of the least benefit to young or healthy employees. Finally, group insurance has lower administration costs than individual insurance and has a reduced risk of adverse selection. As firm size increases, load factors decrease significantly. In fact, Gruber (2001) states that a 1988 Congressional Research Service report found that loading factors on health insurance are 35% higher for the smallest firms than the largest firms [6].

### 2.4 Does job loss decrease the probability of having insurance?

Losing one's job often leads to a reduction in wages and benefits. Before one tests whether the threat of losing health insurance causes a reduction in job mobility, one must first answer whether or not there is a correlation between losing one's job and losing health insurance. Two papers give convincing evidence that this is the case. Gruber and Madrian (1997) use SIPP data from 1984-1988 to estimate a fixed effects regression. They find that losing one's job leads to a 20% reduction in the probability of having health insurance [7]. Lin (2005) uses more modern data from the 1998, 2000, and 2002 Health and Retirement Study in order to investigate a linkage between job loss and the probability of having health insurance [10]. If an older worker is displaced, Lin finds that there is a 24.8% drop in the probability of having

insurance from one's former employer three years after the job separation. Displaced workers of any age have a 10% drop in the probability of maintaining insurance of any kind during the first two years of non-employment. If the worker is re-employed within two years, the effect falls to only 2.6% points. Lin indicates that even after the COBRA legislation, there is still a significant correlation between job loss and the loss of health care benefits.

### 3 Identification Strategies

Finding evidence for job lock is not simple; one must find evidence of inaction—one does not change employment even when it is beneficial due to job lock. Most of the work has centered around the COBRA act to evaluate if there was a change in job mobility before and after the act. Some states already had COBRA-like laws on their books so across state variation between the prior state regulation and the new federal COBRA regulation is also used. Other strategies for identification include comparing groups with high and low medical expenses and hypothesizing that job lock would be more severe in those with higher expected medical expenses. Finally, some papers use those with alternative insurance coverage—such as spouse health insurance—as a control group to identify job lock. I will examine each strategy in turn.

#### 3.1 Using Medical Expenses to Identify Job Lock

The Madrian (1994) paper presents the seminal work on job lock. She uses a difference in difference probit model to estimate the impact of job lock [11]. The general framework is as follows:

$$P(\text{JobChange}) = \Phi(\beta_0 + \beta_1 hi + \beta_2 Cost + \beta_3 (hi * Cost) + \gamma z) \quad (1)$$

Here  $hi$  represents a dummy for whether or not the individual had health insurance,  $Cost$  is a variable which identifies the expected medical expense for the individual,  $(hi * Cost)$  is the interaction of the two, and  $z$  is a vector of observable demographic characteristics. Madrian uses three different variables for  $Cost$ , two of which she explicitly claims to give a good indicator of future medical expenses. The first variable is family size. Her hypothesis is that a larger family will, *ceteris paribus*, incur higher medical costs than a smaller family and thus job lock is more of a factor in their job switching decision. Her second variable is a dummy for whether or not the individual

had a pregnant wife at the time of the sample. Her sample comes from the 1987 National Medical Expenditure Survey (NMES) and is restricted to married men ages 20-55, who were employed, but not self-employed at the time of the first interview.

Madrian finds large and significant job-lock effects for both of these variables. The ‘family size’ variable leads to job lock estimates of 25% to 37% reduced mobility, while the ‘pregnant wife’ variable results in a 67% job lock effect.

Neither of these variables, however, is without problems. Family size may not be a good proxy for expected medical expenditure. Those with large families may decide to have large families because the parents are in relatively good health. Further, most insurance has two pricing levels, single and family, and thus the number of children one has may not be a significant factor in increased medical cost (once pregnancy is excluded). The pregnancy variable is also problematic. Males may separate from their jobs more often during the early months of a pregnancy because they need to earn more to support their child. This may take the form of choosing a less ‘enjoyable’ job, but one with a higher pay. This selection issue could overestimate job lock. On the other hand, a pregnant wife may reduce geographic mobility which would mean that the job-lock estimates are understated. Finally, family size and pregnancy are crude measures of expected medical expenses and thus there will be significant measurement error.

To address many of these issues, Kapur (1998) re-estimates Madrian (1994) parameters using the same 1987 NMES study and the same empirical estimation technique, but employs a more intricate ‘*Cost*’ variable [9]. Kapur includes three measures of expected medical costs 1) whether or not the individual has a variety of chronic illnesses, 2) a Medical Conditions Index which weighs each condition by its expected expense and 3) a Health Utilization Index which includes emergency room visits, hospital stays, doctors visits and other measures. Kapur also runs a second set of regressions which limits the data to only those with insurance. The justification for this is that those with insurance are on average older, more educated, and have higher wages than those without insurance. Instead, the new estimation equation is:

$$P(\text{JobChange}) = \Phi(\beta_0 + \beta_1 \text{hispouse} + \beta_2 \text{Cost} + \beta_3 (\text{hispouse} * \text{Cost}) + \gamma \mathbf{z}) \quad (2)$$

Kapur finds results which are statistically not different from zero when using both the full sample and the restricted sample with each of the three

‘refined’ *Cost* variables. Kapur also re-estimates Madrian’s estimates of family size using a slightly altered specification:

$$P(\text{JobChange}) = \Phi(\beta_0 + \beta_1 hi + \beta_2 Cost + \beta_3 hi_c + \beta_4 (hi_c * Cost) + \gamma z) \quad (3)$$

Here *Cost* is equal to Madrian’s family size variable, *hi* is whether or not the individual had health insurance, and *hi<sub>c</sub>* is whether or not the insurance covered the entire family. This regression also produces results statistically indistinguishable from zero.

Finally, Kapur re-estimates Madrian’s pregnancy variable by including pregnancies in 1987 that resulted in births in 1988. Madrian only included those with 1987 births in her data. This fine tuning reduces Madrian’s point estimate by about one tenth and is not statistically different from zero. Thus, using the same data with alternate specifications, Kapur finds no evidence of job lock whereas Madrian found strong evidence.

While Kapur’s arguments are convincing, and each point estimate is near zero, his standard errors do not allow the reader to rule out significant job lock effects. Further, the point estimates are negative with the exception of spouse insurance-pregnancy interaction, which may indicate that there exists small amounts of job lock. A more general criticism is that one must take into account that prior health problems do not effect the value of health insurance to an individual. Only expected *future* medical expenses are relevant to the individual valuation of health insurance. Nevertheless, one would assume that prior medical expenditures—especially for chronic health problems—would be highly correlated with future health expenditures. Another possible problem is that those in poor health increase insurance premiums for employers and thus are more likely to be involuntarily dismissed. If this practice is widespread, it would bias the estimates against finding job lock.

Berger, Black and Scott (2004) find similar point estimates as Madrian and Kapur—depending on the estimation specification—while using 1987 and 1990 Survey of Income and Program Participation (SIPP) data [3]. When family size or dual coverage variables are used, one finds significant job lock but of a smaller magnitude than in Madrian. A large family size reduces job mobility by 4% and dual coverage decreases mobility by 14%. On the other hand, when one conditions on child health problems as proxies of expected medical expenses instead of family size or dual coverage, then there is no evidence of job lock. In fact, for spouse work limitations variable, the coefficient is of the wrong sign.

### 3.2 Using Alternative Health Insurance to Identify Job Lock

As mentioned briefly above, having an alternative form of health insurance—such as obtaining health insurance through a spouse or through Medicaid—should lessen or completely job lock for individuals. Without the fear of losing health insurance, individuals should be free to move between jobs as long as one’s spouse’s insurance covers an individual’s pre-existing conditions.

Madrian (1994) again used this strategy. In equation (1), she uses a dummy for ‘spouse insurance’ for the *Cost* variable. I find this specification Madrian’s most convincing. She finds that job lock is between 25% and 30%.

Adams (2004) uses a different data set to analyze job lock using Madrian’s empirical estimation techniques from equation (1) using ‘alternative insurance’ as the *Cost* variable [1]. Adams employs a pooled cross-sectional sample from the March CPS for each year between 1988 and 2000. He defines job separators as those who switched their three digit industry of employment from the prior year and excludes those who lose their job and return to the same industry to avoid counting those who are on layoff or leave. Adams also uses controls for industry and job characteristics in his  $\mathbf{z}$  vector.

Adams initial estimates of job lock are precisely estimated between 36% and 39%. Astutely, Adams realizes that those with no alternative insurance source and no employer-provided insurance are much more likely to change jobs than those with insurance. For this reason, Adams narrows the sample only to insurance holders and uses ‘family size’ for the *Cost* variable and ‘alternative insurance’ for the *hi* variable. In this specification, the results are a 32% decrease in job mobility due to job lock. Adams also alters his specification to take into account that those with alternative insurance from a spouse may be categorically different than those without a working spouse. After limiting the data to dual-earner households and running the same regression, Adams finds a reduction in mobility of 22%. The finding is unsurprising since Adams used nearly identical estimation techniques as Madrian and thus applying these techniques to new data leads to similar point estimates.

One problem with Adams’ technique is the job separator classification. A vast majority of those who change job stay within the same industry; by excluding these individuals from the sample, Adams data may be misrepresentative of the overall population. Also, the pooled cross sample data may be less reliable than panel data such as the SIPP. Further, using family size

to proxy for expected medical expenditures is subject to the same criticisms as the Madrian paper. Neither Madrian or Adams model explicitly models the possibility of Medicaid eligibility. Ideally, one should include Medicaid eligibility in the ‘alternative insurance’ variable. As a crude alternative, one may wish to exclude the poor from the survey to control for this possibility as a check for robustness of the findings.

### 3.3 Using variation in state legislation to identify job lock

While many researchers view COBRA’s passage as the beginning of the government’s fight against job lock, in reality, many states had similar laws on their books before 1985. On average, most of the state laws were less ambitious than COBRA with mandated continuing benefits of length between 3-6 months. There were, however 10 states with nine or more months of continuing coverage mandated.

In Gruber, Madrian (1997), the authors use this variation in state legislation to identify job lock after COBRA passed [7]. The data they use is the 1985-1988 SIPP for males between the ages of 25-54. A difference in difference estimator is used as follows:

$$P(\text{JobChange}) = \Phi(\beta_0 + \beta_1 \text{MoCov} + \beta_2 \text{HI} + \beta_3 (\text{MoCov} * \text{HI}) + \gamma z + \pi_s * s + \tau_t * t + \epsilon_{it}) \quad (4)$$

Here *MoCov* is the months of continuation coverage available to an individual at the start of the wave, *HI* is a dummy for employer provided health insurance, *s* and *t* are state and time dummies respectively. Using this regression, the authors find a job lock estimate of 14%, about half the estimate of (Madrian 1994). This estimate, however, is similar to Berger, Black and Scott (2004), who also using SIPP data, but employ a ‘dual coverage’ variable to identify job lock. One may worry that states who have more generous laws regarding continuing coverage, may have a more mobile labor pool. It is possible that ‘younger’ states which attract workers and have strong growth may be able to pass the legislation with less protest because macroeconomic growth. Thus, robust evidence of job lock would not be due to the variation in legislation, but instead due to differences in local labor market conditions.

## 4 Confounding factors in estimating job lock

While the previous sections have used a variety of techniques to identify job lock, there are a few major issues which we have not yet examined. Pensions would seem to have a much stronger link to job lock than health care, yet many of the above studies do not take this fact into account. Secondly, men and women may have different degrees of job lock. All of the above studies exclude women from the data sample. Finally, selection is always a problem in any empirical study. Those with small families (or without health insurance) from a spouse may face less (or more) job lock due to expected medical expenses incurred, or small families (lack of spouse) may simple be a proxy for young individuals who are less like to want buy insurance anyway. Below, we will take a look at the pension and the selection argument and examine how various authors have tried to address these problems.

### 4.1 Pensions; Estimates of Female Job Lock

Olivia Mitchell's 1982 study attempted to identify which fringe benefits were the major impediments to labor mobility [12]. Using the Quality of Employment Survey in 1973 and 1977, Mitchell uses a probit analysis to model quit probabilities and job change probabilities for males and females. The variables she uses are race, education, union member, experience, tenure, and wage as well as the fringe benefit dummies. For both quit probabilities and job change probabilities, she finds that having a pension reduces job mobility significantly for males. In the first specification, quit probabilities are reduced 10% and in the second job mobility is reduced 20%. For females, quit probabilities are unrelated to pensions using the probit model, but pensions do have a statistically significant effect on reducing job mobility for women. In all specifications, having health insurance decreased job mobility, but these estimates were not statistically different from zero.

The difference between the pension benefit and health care benefits is more or less the difference between a stock and a flow. A pension benefit is built up over years of service; the more years one works for a company, the higher one's pension is upon retirement. Leaving the company will thus reduce the benefit even if one's new firm offers a pension as well. Since health insurance is an annual flow and one cannot 'accumulate' health insurance over time<sup>1</sup>, if one is able to switch jobs to a firm with equivalent insurance

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<sup>1</sup>With the recent advent of Health Savings Account, this may no longer truly be the case. Citizens can save pre-tax dollars to spend for medical expenses which are not covered by a high-deductible health plans (HDHP). We would consider the HDHP an annual flow,

as one's previous total compensation will not change.

One item to note is that the data used here is relatively old. As women have entered the labor market in increasing numbers, one would expect the male and female estimates of job mobility to converge over time. Secondly, health insurance has become more and more expensive (controlling for inflation) so the 'job lock' impact of health insurance may have grown significantly. Also the recent popularity of the 401(k) compared to pensions, increased labor mobility and decreased the amount of job lock due to pensions.

Buchmueller, Valletta (1996) provides estimates job lock using more modern data, but the authors who also explicitly model a pension's effect on job mobility [4]. The authors use 1983 and 1986 SIPP data and—unlike most studies in this area—estimate job lock figures for both men and women. The authors use a simple probit model where an individual changes jobs if  $V^a - V^o - C > 0$ .  $V^a$  is the value of the new employer wage-benefit offer,  $V^o$  is the value of the individual's current wage-benefit package, and  $C$  is the search costs. They model each variable as follows:

$$V^a = \alpha X + \epsilon_1$$

$$V^o = \beta_0 * w + \beta_1 P + \beta_2 * H + \mu + \epsilon_2$$

$$C = \gamma_0 Z + \gamma_1 P + \gamma_2 H + \gamma_3 S + \gamma_4 (H * S) + \theta + \epsilon_3$$

$X$  are variables from a typically Mincer equation,  $w$  is wage,  $P$  represents pension coverage,  $H$  is employer-provided health insurance,  $S$  is the availability of spousal health insurance coverage.  $\mu$  is a job specific match component in the value of the current job, and  $\theta$  reflects a latent individual-specific turnover propensity. The epsilon's are assumed to be normally distributed.

Using a difference in differences test and using controls for pensions, tenure as well as the job change probability of one's spouse, Buchmueller and Valletta find similar results (25%-31%) as Madrian (1994) for job lock for dual earner married men. While the health insurance job lock measure is not entirely robust—since statistical significance depends on the specification in the equation—the pension variable *always* reduces job mobility greatly. Buchmueller and Valletta find stronger evidence of job lock for married women, possible due to the fact that women have more health expenditures than men. Their job lock estimates for dual earner married women range from 33% to 49%. When using a similar specification for sole earner married

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but the savings accumulated in the HSA could be considered a stock. Since HSAs are portable, individual accounts, they would not induce job lock.

men, single men, and single women, the results for both male groups suggest negative job mobility, but the results are statistically insignificant. For single women, on the other hand, the results are significant and relatively large 35%. Since one finds *more* job lock for women than men, it is odd that most other studies have excluded women from their data sets.

Cooper, Monheit (1993) and Monheit, Cooper (1994) is another set of articles which explicitly models fringe benefits such as pensions, but also attempts to control for selection using a Mills ratio [5] [13]. Using the 1987 National Medical Expenditure Survey (NMES), the authors estimate the following equation:

$$P(Q = 1) = \alpha(W_2 - W_1) + \theta(I_2 - I_1) - \sum \beta_j F_{1j} + X\gamma + \epsilon \quad (5)$$

Here,  $W$ , is the wage,  $I$  is health insurance,  $F$  is other fringe benefits such as pensions,  $X$  are personal costs associated with job mobility. The subscript '2' is for an alternative job and the subscript '1' is for one's current job. The authors assume that non-health insurance fringe benefits are completely lost when changing jobs (eg: sick days, pension, etc.).

Cooper and Monheit believe that the error term includes job specific and individual specific omitted variables which would be correlated with job mobility. For example, a worker with favorable health status may have higher job mobility and also desire less health insurance. Thus they use the inverse Mills ratio to correct for selection. This is preformed through a reduced form probit where the wage and insurance variables are regressed on variables such as demographic characteristics, education, health status, labor market conditions, etc. Through this specification, Cooper and Monheit find that married and single men have a reduced mobility of 23% and married and single women each are 30% less likely to change jobs. These estimates are very similar to the Madrian (1994) estimates.

Although it is wise for Cooper and Monheit to take into account selection, one may not be convinced that their control variables are exogenous. Education is chosen often based on health condition; those with chronic illnesses may not pursue higher education due to a shorter pay back period. Secondly, self-reported health status often includes incredible measurement error. Third, while labor market conditions may be a good exogenous variable in the short run, in the long run people may move to cities where employers offer better health insurance if they have health problems. Thus, none of the variables the authors use can convincingly be shown to completely control for selection.

## 5 Welfare Implications

### 5.1 If job lock exists, is it good or bad?

One cannot assume *a priori* that job lock is welfare destroying. For instance, Becker (1975) claims that job lock may have positive effects for firms [2]. For instance, firms may be able to recover job-specific human capital investments, reduce hiring and recruiting costs, and minimize other fixed costs of employment. In effect, job lock will give employers the incentive to invest more in human capital for their work force due to a diminished threat that the worker will leave. Worker productivity may increase and society may be better off if more human capital investments are made or if the search costs are large.

Unfortunately, many of the above papers simply assume that job lock is bad for the economy. Theoretically, workers are not able to switch to more productive jobs. Thus employees are hurt by lower wages and employers are hurt due to the increased difficulty of finding a productive worker for one's firm. Many papers have used a matching model where job lock reduces the firm turnover and makes a productive match less probable. The general consensus by labor economists is that job lock is welfare destroying, but is this the case in reality?

Gruber and Madrian (1997) attempt to prove that it is. Using variation in pre-COBRA state mandated continuing coverage benefits, the authors attempt to predict future wages by workers depending on the amount of job lock in a state. The estimating equation is:

$$E_{i,t+k} = \alpha + \beta_1 MoCov_{st} + \beta_2 HI_i + \beta_3 (MoCov_{st} * HI_i) + \beta_4 ESep_i + \delta X_i + \pi_s s + \tau_t * t + \epsilon_{it} \quad (6)$$

$E$  is the earnings at time  $t$  for individual  $i$ ,  $ESep$  is the pre-job separation earnings for the individual.  $MoCov$  is the months of continuation coverage available to an individual at the start of the wave,  $HI$  is a dummy for employer provided health insurance. State and time dummies are also included.

In order to test for the impact of job lock on job separators, the authors first estimate the baseline change in earnings for non-separators. Then, they compare those with and without continuing coverage and their future earnings. Gruber and Madrian claim that one year of continuation coverage is associated with a 6.1% increase in earnings the 15 months after leaving a job. Job separating is associated with lower earnings in the short-run—mostly due to temporary unemployment spells, but Gruber and Madrian

postulate that long run wage growth could be aided by job lock legislation.

## 5.2 Welfare Estimates

Unfortunately, estimates of welfare loss from job lock are rare and imprecise in this literature. Much more common is simply estimating the reduced probability of having insurance or changing jobs due to job lock.

Monheit and Cooper (1994) do provide an estimate of welfare loss in their paper. They assume that increased productivity in the economy can be approximated by wages; a worker's wage increase indicates a more productive job match for the employer. The authors analyze the actual wage gain in the sample and then calculate the number of people who would have changed jobs but did not due to job loss. These estimates are calculated in two ways: the first using the actual wage gain and the second using an estimate of the wage change adjusted for selection bias. The authors do this calculation separately for each marital status/gender group.

The total welfare loss estimated by Monheit and Cooper is \$4.8 billion using actual wages and \$3.7 billion using selectivity-adjusted wages. As a percentage of all workers' wages in the sample, the welfare loss is only 0.38% of annual wages or 0.29% of predicted wages. Cooper and Monheit (1993) had point estimates of similar orders of magnitude to Madrian. Thus, despite the large effects on the probability of being insured, job lock seems to have small welfare effects.

## 5.3 Policy Implications

If job lock is a problem, what should politicians do—or not do—about this? Earlier, I described the 1985 COBRA bill as well as the HIPAA of 1996. Each bill served to reduce job lock since those with jobs will find it easier to maintain their employer provided coverage. Problem solved...right?

While these two bills may have mostly solved the 'job lock' problem, they have certainly not solved the health care problem. Further, job lock legislation may *reduce* the amount of people with insurance. How is this possible? Employers know that they will have to cover a former employee for 18 months or more after their termination date. If sicker employees are the ones that decide to continue coverage—since it is harder for them to find equivalent insurance at another firm, or they are more willing to pay for the insurance than a healthy individual—this could increase the cost of health insurance. As the cost of health insurance increases, the number of employers who offer health insurance may decrease.

Secondly, the two bills may increase unemployment. Gruber and Madrian (1997) found that COBRA increased unemployment durations. The authors claimed that this was welfare improving since they believed that longer spells of temporary unemployment are used in productive job search. Their claim was justified by job separators increasing their earnings more after COBRA than before COBRA. Nevertheless, it is possible that an individual will find a productive job match, but decide to delay employment an extra month or two because of COBRA coverage. It is nearly impossible to identify which *portion* of unemployment spells are engaged in productive job search and which portion is used for leisure, home production, or other activities.

Third, these pieces of legislation may reduce on-the-job effort. If we employ the Shapiro, Stiglitz (1982) shirking model, COBRA and HIPAA make unemployment a less unattractive option for workers since they will be able to maintain their health insurance [16].  $\bar{w}$ , the term describing the compensation received in unemployment, has increased because health insurance is less expensive to purchase in unemployment with the new legislation. If quit probabilities  $b$  and the likelihood of getting caught  $q$ , do not change, we would expect unemployment in the economy to increase.

It has not been shown whether or not the benefits which accrue to workers through the COBRA and HIPAA legislation outweigh the three concerns voiced above. The legislation provided two major benefits. First it lowered transaction costs of finding insurance and secondly it reduced the cost of insurance to the temporarily unemployed since employer group insurance is almost always cheaper than individual insurance. Labor economists seem to be of the consensus that these two positive features have outweighed the concerns listed above, but future research should be directed towards examining the unintended consequences of the legislation.

## 6 Conclusion

Now let us return to our original three questions to see how the literature has answered them.

### 6.1 Does job lock exist?

Studies such as Madrian (1997), Adams (2004), Cooper and Monheit (1993) which use proxies for expected medical expenditures or alternative—usually from a spouse—health coverage all find significant job lock. Point estimates range from about 15%-35%. Buchmueller, Valletta (1996) and Cooper and

Monheit (1993) control for pensions and do significant job lock ranging between 20%-30%. Kapur (1998), Berger, Black and Scott (2004) use more refined proxies for expected medical expenditures such as the existence of a chronic illness, Medical Conditions Index and a Health Utilization Index, but do not control for pensions. I find these proxies to more reliably measure expected medical expenses than family size or the existence of a pregnant wife. These studies tend to find point estimates suggesting small amounts of job lock, which are not statistically different from zero. On the whole, I think we can certainly state that job lock exists. Job lock is strongest for those who have pensions, but health insurance does create job lock as well. Kapur; Berger, Black and Scott, however, show that health insurance's effect on job mobility may be overstated.

## 6.2 How does job lock effect overall welfare?

This question has not been adequately address in the literature. Only Monheit, Cooper (1994) give explicit welfare estimates which are a small proportion of overall wages (0.3%-0.4%). Gruber and Madrian (1997) show how job changers have had a higher wages post-COBRA than pre-COBRA but do not estimate the total welfare effect. It is also difficult to disentangle the welfare loss incurred by employees who lose their insurance after losing a job and the welfare loss which occurs from workers not changing jobs due to health insurance job lock. Future research should aim to attempt to more accurately quantify the dollar effect of job lock.

## 6.3 Regulation

The most disappointing part of this literature is that it has only measured the benefits of COBRA and HIPAA. Most papers simply analyze the reduction in job lock or the increase in job-changer wages pre- and post-legislation. None of the major papers looks at the cost of legislation. Pauly (2002) cites the required costs employers incur from the HIPAA legislation due to the fact that they must certify that each employee had  $x$  months of qualified coverage. The author gives a personal example:

“After I visited the Economics Department at Stanford for six months and returned to Penn with full benefits, Stanford found me and sent me such a certificate for my wife and myself.. We do not yet have evidence on whether this provision will generate serious litigation.”

[15]

Further, no estimates have been made as to whether COBRA has made the provision of health insurance more expensive or burdensome for employers. This lack of analysis of the cost side is what is truly lacking in the job lock literature. It should be a fruitful area for future research.

## References

- [1] Adams, Scott; "Employer-Provided Health Insurance and Job Change," *Contemporary Economic Policy*, Vol 22, No 3, July 2004, pp. 357-369.
- [2] Becker, Gary; *Human Capital*, 2nd ed. New York: National Bureau of Economic Research: 1975.
- [3] Berger, Mark; Black, Dan; Scott, Frank; "Is There Job Lock? Evidence from the Pre-HIPAA Era," *Southern Economic Journal*, 2004, 70 (4), pp. 953-976.
- [4] Buchmueller, Thomas; Valletta, Robert; "The Effects of Employer-Provided Health Insurance on Worker Mobility," *Industrial and Labor Relations Review*, Vol 49, No 3 (Apr 1996) pp. 439-455.
- [5] Cooper, Philip; Monheit, Alana; "Does Employment-Related Health Insurance Inhibit Job Mobility?" *Inquiry*, Vol 30, No. 4 (Winter 1993), pp. 400-416.
- [6] Gruber, Jonathan, "Taxes and Health Insurance," NBER Worker Paper 8657, December 2001. [www.nber.org/papers/w8657](http://www.nber.org/papers/w8657)
- [7] Gruber, Jonathan; Madrian, Brigitte; "Employment separation and health insurance coverage," *Journal of Public Economics*, vol 66, 1997, pp. 349-382.
- [8] Gruber, Jonathan; Poterba, James; "Tax Incentives and the Decision to Purchase Health Insurance: Evidence from the Self-Employed", *Quarterly Journal of Economics*, Vol. 109, No. 3 (Aug., 1994), pp. 701-733.
- [9] Kapur, Kanika; "The Impact of Health on Job Mobility: A Measure of Job Lock," *Industrial and Labor Relations Review*, Vol 51, No. 2, (Jan 1998), 282-298.
- [10] Lin, Emily; "health Insurance Coverage and Reemployment Outcomes among Older Displaced Workers," *Contemporary Economic Policy*, Vol 23, No. 4, October 2005, pp. 529-544.
- [11] Madrian, Brigitte; "Employment-Based Health Insurance and Job Mobility: Is there Evidence of Job-Lock," *Quarterly Journal of Economics*, February 1994 p. 27-54

- [12] Mitchell, Olivia; "Fringe Benefits and Labor Mobility," *The Journal of Human Resources*, Vol 17, No 2. (Spring, 1982), pp. 286-298.
- [13] Monheit, Alan; Cooper, Philip; "Health Insurance and Job Mobility: Theory and Evidence," *Industrial and Labor Relations Review*, Vol 48, No. 1, October 1994.
- [14] "Health Benefits Found to Deter Switches in Jobs," *New York Times*, 26 Sept 1991, p. A1.
- [15] Pauly, Mark; "Regulation of Bad Things that Almost Never Happen but Could: HIPAA and the Individual Insurance Market," *Cato Journal*, Vol 22, No. 1, 2002, pp. 59-70.
- [16] Shapiro, Carl; Stiglitz, Joseph; "Equilibrium Unemployment as a Worker Discipline Device," *American Economic Review* Vol 74, 1982, pp. 433-444.
- [17] State of the Union Address, 2006; President George W. Bush; <http://www.whitehouse.gov/news/releases/2006/01/20060131-10.html>
- [18] Thomasson, Melissa; "The Importance of Group Coverage: How Tax Policy Shaped U.S. Health Insurance", *The American Economic Review* Vol. 93, No. 4 (Nov., 2003), pp. 1373-1384.
- [19] "Trends and Indicators in the Changing Health Care Marketplace Section 2: Trends in Health Insurance Enrollment" The Kaiser Family Foundation, <http://www.kff.org/insurance/7031/print-sec2.cfm>; accessed 24 January 2006.