

**“Health Insurance and the Labour Market: Is it Time
to Break the Link?”**

M.A. Major Paper
Department of Economics
University of Ottawa

Presented by **Chirag Sodha** 1780273

Supervised by Dr. Catherine Deri

September 23, 2004

Abstract

The relationship between employees, firms and health insurance in the U.S. has a long history. In this paper I explore the great body of literature dealing with labour market implications of employer provided health insurance. I begin with looking at the structure of insurance and how employers are able to provide the most cost effective insurance. The paper also looks at the issue of health insurance in the United States. In this section I look at the sources of insurance, but as well, incentives created by federal and state legislation to employer provided health insurance. Following that, I examine the concept of compensating wage differentials and explore the empirical evidence of who pays for the insurance; the firms or the employees. I then present the theoretical and empirical evidence of the effects of health insurance on the supply and demand of labour. In the demand section I show that the tax incentives for employers are a significant determinant of the provision of health insurance. I examine the literature on job – lock, which refers to workers who choose not to leave their job because they will lose health insurance benefits, is a key issue regarding the supply of labour. Further I investigate the impacts of COBRA (Consolidated Omnibus Budget Reconciliation Act) and HIPAA (Health Insurance Portability and Accountability Act) legislation on their attempts to alleviate this problem. I survey other mobility issues concerning self employment and retirement.

1 Introduction

The complex relationship between workers, employers and health insurance has been the subject of much research. In this paper, I review the main works in this literature and highlight the effects of having firms provide the majority of Americans with health insurance. In 1995, 71% of Americans have private insurance, of which, 90% receive health benefits through their employer. The remaining seven percent is made up of individual insurance. Another 17% of Americans use public programs to obtain health insurance (Gruber, 1998). These public programs include Medicare, Medicaid and CHAMPUS/CHAMPVA. The recent trends have shown that while public insurance is growing in generosity and in the number of those covered, while the number of those covered by employer provided health insurance is diminishing (Gruber, 1998). In this paper, I focus on employer provided health insurance and its impact on the labour market. I attempt to address the following questions.

The first question is who pays for the insurance? The evidence reported in this paper suggests that the cost of insurance is borne by employees. Employers provide a constant compensation package, where, the company will choose the net wage (actual wage plus cost of insurance) for the employee and may adjust the actual wage to compensate for increases in the cost of insurance.

The second question is why do firms want to offer insurance? The first obvious answer would be to ensure a healthy and productive labour force. Although a noble cause,

employers are more responsive to other benefits. Tax benefits are a major incentive to employers.

Based on reports reviewed in this paper, employers are very responsive to changes in the tax system when making insurance decisions. This has the potential to create concerns about over consumption of health insurance and health care. This distortion has been documented for more than 30 years. In a nine year period (1967 – 1976) health care costs have more than doubled, while during the same period the cost to the health care providers only increased by 35% (Feldstein and Freidman, 1977). Although there were likely many factors inflating the cost of health care; insurance is regarded as the largest cause. Employers may not be making decisions that are in their employee's best interest.

The third issue I review is the effect of employer provided health insurance on labour supply. Health insurance can lock an employee into a job because the employee does not want to lose their coverage (called job – lock). This is caused in part by the pre – existing conditions clause in most group health insurance plans. Job – lock is argued to prevent people from changing employers, which, reduces efficient job matching. In the empirical evidence that I review, most authors are in agreement about the existence of job – lock in the U.S. Buchmeuller and Valetta (1996) estimate that workers are 30 – 50% less likely to switch jobs if their current employer offers health insurance. Thus, employer provided health insurance has implications not only to the demand for labour but more disruptively to labour supply.

The final question I propose is; what are the other effects of health insurance on labour supply? There are several answers to this question. Health insurance is a very important benefit, given the responses on labour force participation by uninsured married women. According to Buchmeuller and Valleta (1999) married women with no form of insurance participate in the labour force 20% more than married women with insurance.

Health insurance also has an impact on those contemplating retirement. Most Americans must rely on Medicare for health insurance during their retirement. Because of the minimum age being set at 65, those wanting to before the minimum age must face the prospect of having no insurance. For this reason many choose to continue working in order to maintain their health benefits. This is called retirement – lock.

The final effect concerns those wanting to start a business. Employment – lock refers to those that choose not to start a business in order to retain their health insurance benefits. In the context of a capitalist society; the creation of new business is essential for efficiency and competition.

The authors of the papers I review are able to offer a few policy suggestions that would tackle the problems with employer provided health insurance. However none of these policy suggestions would rectify all of the hazards created by employer provided health insurance. For example, Gruber and Madrian (1994) suggest: 1) having completely portable health insurance (allowing one to keep their insurance regardless of their

employer); and 2) eliminating the waiting period and the pre-existing conditions clauses. However, these policies fail to address the other distortions caused by employment provided health insurance, such as consumption distortions, employment – lock and retirement – lock.

This paper surveys the important theoretical concepts then continues to report empirical evidence of the effects of health insurance on the labour market. The paper is divided in to the following sections: First, I will review the theory of insurance, followed by history of health insurance in the US. I will then look at the theory and empirical evidence of who pays for the insurance. The paper will continue by exploring the effect of health insurance on the demand and then the supply of the labour market. The effects on the supply of labour are further subdivided into mobility effects and non mobility effects. The final section provides discussion and conclusions.

2 Health Insurance

There are two types of insurance, group and individual. Employers are the only one's who can offer who are legally allowed to offer group health insurance. This policy ties together the labour market with health insurance. As well, the mandated structure of group health insurance creates tax incentives for employers to provide health insurance (Gruber, 1998).

Group insurance is best operated when group participants are randomly pooled because of the benefits of risk pooling. Workplace pooling has the advantage of pooling people

of various risk levels, but, it is an advantage that may be alternatively acquired based on pools determined geographically (Madrian and Gruber, 1994). Because of the regulation restricting group health insurance to employers, all other pooling mechanisms are irrelevant. I will begin with Akerlof's (1970) discussion about adverse selection and then describe features of individual and group health insurance.

2.1 Individual vs. Group Insurance

Akerlof (1970) presents a model of adverse selection in the market for used cars¹. I will adjust his illustration slightly to discuss health insurance. Assuming that health insurance companies do not require a medical check up before coverage; they will not have any information about the person's health status. Because they cannot determine risk, they will not be able to calculate individual premiums. Instead, they will offer insurance at a common cost instead of properly calculating a premium. Those with bad health will use their asymmetric information about their health status to purchase insurance at a cost well below the value of the benefits they receive. Those that value the insurance above its cost may opt out because of the asymmetry in information the insurance company will realize that they have miscalculated premiums based on realized claims. As people leave the plan, the market will fail.

¹ Akerlof (1970) presents the problem of adverse selection, using the example of buying a car he is able to reveal the problems associated with asymmetric information. A consumer has the choice to buy a used car or a new car, however when buying a used car there exists asymmetric information. The owner of the car knows the quality of the car where as the purchaser does not. In the case of a 'lemon' (a poor quality car) the seller has an incentive to lie about the quality to get the highest price. The purchaser of the car will not be able to tell the true quality of the car until after the transaction is complete. The purchasers of used cars know that the problem of asymmetric information exists; therefore price of all used cars will fall.

Because of asymmetric information, in health and life insurance it is not uncommon for potential individual policy holders to be subjected to a medical check up. This allows the insurance company to thoroughly assess the risk; this is known as medical underwriting (Madrian, 1994). The company will base premiums on their expected payout in claims for the policy holder based upon observable health risks and health care costs. This can be a very expensive form of insurance if one is deemed to be high risk. Insurance of this kind eliminates the problem of adverse selection by minimizing asymmetric information.

One possible way to overcome some of the related cost problems associated with individual insurance is to pool risks together. This kind of insurance is called group insurance and is generally cheaper than individual insurance because individual insurance (Madrian, 1994). Under the right circumstances it also deals with the problems of asymmetric information.

If a certain type of insurance is made mandatory such as automotive insurance then the problem of adverse selection is resolved despite asymmetric information. All people must purchase a policy; people are not free to opt out of coverage. This ties low risk people into the insurance pool and forces them to subsidize high risk drivers. In the case of only one insurance company, who is not able to determine risk level, nor do they need to, since all people (high and low risk) are in the same group which allows for the insurance company to estimate future claims to calculate a premium set for all people².

² The premium would be based on the mean insurance policy holder. If low risk people are completely unlikely to make a claim and the high risk people have a perfect chance of making a claim. If there are only two equally numbered kinds of people, then the premium would be based on a 50% chance of loss with the

The present value of the uniform premiums would likely be greater than expected claims for low risk people and less than the expected claims for high risk people. This is known as pooling risks, where low risk people offset the costs incurred by the high risk people (Madrian, 1994).

If the insurance was not mandated, all benefits of risk pooling could be eliminated by adverse selection in high risk people. In the event that people had easy entry and exit into a group insurance, low risk people would value the insurance at less than its cost and would opt out. Which would leave only high risk people, which would drive up premiums until no one values the insurance at its cost.

With group insurance, the risk level of several plan participants are pooled together and premiums are set for the group instead of the individuals. This can create rents for some consumers as some will value the insurance greater than the cost paid (Gruber, 1998).

Health insurance provided by the workplace is the best option for the consumer because the workplace is a natural pooling mechanism. The members are chosen without regard to health risk level avoiding the problem of adverse selection (Gruber, 1998). Adverse selection can be avoided by using some other pooling mechanism unrelated to health status such as location. Group insurance is the optimal consumer choice for health insurance as it is substantially cheaper than individual insurance. As well, the provision of individual insurance is 50% more expensive than group insurance (Madrian, 1994).

average expected loss and number of people in the group. Therefore the money spent by low risk people will never be returned in benefits but will be used to pay claims made by high risk people.

3 Health Insurance in the United States

The state governments of the United States do not offer health insurance to most working class Americans even though health care costs can be quite staggering to lower and middle class Americans. Most choose to deal with the potential of catastrophic financial loss in the event of serious illness or injury with insurance (i.e. organ transplants can be upwards of \$20 000) (Buchmeuller and Valletta, 1996). The majority (71%) of working age Americans have their employers provide their health benefits, while the rest of insured working age Americans receive their benefits through public health insurance plans (Table 1, Gruber, 1998). While the uninsured are not completely unable to receive health care, they do not have the same access to quality care. The uninsured are forced to receive care from publicly funded organizations, such as state hospitals, which generally offer minimal services and require co payment (Anderson, 1997).

In this next section I review the possible sources of health insurance in the US and survey the relevant aspects that affect the relationship between workers, employers and the insurers.

3.1 Sources of Insurance

In this section I outline the major sources of insurance in the United States, the three public insurance plans: Medicare, Medicaid, and CHAMPUS/CHAMPVA, and employer provided health insurance.

Two hundred million of two hundred and thirty million Americans in 1995 had health insurance (Gruber, 1998). Health insurance is largely provided by employers. Seventy-one percent of all non-elderly Americans in 1995 had private health insurance, of which 90% were covered through their employer (Table 1, Gruber, 1998). As well another 17% of the non-elderly were being provided with public health insurance through the CHAMPUS, Medicaid and Medicare programs.

Public insurance is provided predominantly by the state and federal government to low income families through the Medicaid program. This program accounts for three-quarters of non-elderly public coverage (Gruber, 1998). The final quarter of public coverage comes from the next two programs. The Medicare program which is primarily a service for elderly Americans is also used for the non-elderly who are disabled as well as those with renal disease³. The final source of public insurance for those of working age is through military benefits (CHAMPUS/CHAMPVA). However, despite all of these programs there are over 40 million Americans without any form of health insurance (see Table 1), and therefore very minimal access to health insurance.

Medicare provides complete hospital coverage for Americans aged 65 and above (with a couple of exceptions addressed above). Although it is a public program it is not free. This coverage is not paid for in terms of a monthly premium, instead the premiums were paid during the person's working life. If the person did not participate in the labor market, they are then financially responsible for a monthly premium. The program has a second plan with a monthly premium which requires co-payment. As of 2004 the

³ <http://www.cms.hhs.gov/>

monthly premium for standard medical expenses (regular doctor visits, physiotherapy) is \$66 per person. Although there may still be a co payment (Medicare does not cover all of the expenses in some cases) when certain health care services are utilized⁴.

Medicaid is primarily for children and pregnant women. Coverage is also granted to very-low income families (not necessarily receiving welfare) with children less than 18 years of age and serious medical expenses. The income for a family of four must be less than \$25 070 to be eligible. The individual states make the rules as to the type of coverage one receives. There are small levels of co payment which varies by state⁵.

CHAMPUS/CHAMPVA is a program for military families. CHAMPUS refers to those currently in the military and provides medical coverage for the soldier's family.

CHAMPVA is a veteran benefit for families where the veteran had been disabled or killed in action. CHAMPUS resembles employer provided health insurance while CHAMPVA is compensatory for those who are unable to work because of their military service and their families⁶.

Employers are the largest providers of health insurance in the United States. Table 1 originally presented by Gruber (1998) also shows that there has been a decline in coverage in health care by employers from 1988 to 1995. In 1988, 70% of working-age Americans were covered by employers as opposed to 64% in 1995. During this time there was an increase in the purchases of individual medical insurance to reflect the

⁴ <http://www.cms.hhs.gov/>

⁵ <http://www.cms.hhs.gov/>

⁶ <http://www.va.gov/hac/champva/champva.asp>

behavior of the firms. The change was not that companies were eliminating the health benefits they provided. Instead, they were restricting coverage to just the employees and eliminating the coverage of dependants (Gruber, 1998).

Forty million working age Americans do not have any form of insurance. For the forty million Americans without any form of health insurance must pay for regular medical expenses have to be paid out of their pocket. In the event of illness, state hospitals are mandated not to turn anyone away and will provide treatment regardless of the patient's ability to pay (Anderson, 1997).

3.2 A Selected History of Employer Provided Health Insurance in the U.S.

In the following section I will review some of the history of health care and health insurance in the U.S.

Thomasson (2002) looks at the history of health care and health insurance in the U.S. In the 1920s and 1930s American insurance companies did not offer any type of health insurance, they were reluctant to offer insurance for an 'uninsurable loss'⁷. As well, the demand for health insurance was low because medical costs were not nearly as high (in constant dollars) and therefore most Americans at the time simply saved up for medical needs in the future. As time went on insurance companies began to offer a basic form of health insurance. In the pre-war era insurance companies were offering group insurance policies based on broad risk categories. These Blue Shield/ Blue Cross programs offered "community rated" insurance premiums to employers. These premiums reflected a lack

⁷ By uninsurable they meant that if a person dies, they cannot return the loss monetarily.

of knowledge of risk levels of individuals on the part of insurance companies (Thomasson, 2002).

In 1942 the US Government allowed employers to use fringe benefits to lure prospective employees. "During World War II, wage and price controls prevented employers from using wages to compete for scarce labor. Under the 1942 Stabilization Act, Congress limited the wage increases that could be offered by firms, but permitted the adoption of employee insurance plans. In this way, health benefit packages offered one means of securing workers" (Thomasson, 2002, pg 240). This began the relationship between health insurance and employers. This was further helped by the fact in 1954 the federal government made employer expenditures on health insurance exempt from payroll and income taxes.

With a large growth in private insurance providers now interested in offering health insurance there was a corresponding change in insurance practices. Companies began to experience rate their policy holders. This was a practice that took into account the history of claims to determine insurance premiums for employers. By the 1980s all large group insurance policies were being assessed in this way (Thomasson, 2002). Experience rating was also being used on some smaller policies. In small firms, if one employee was found to be expensive for the insurance company the employee may be underwritten out of the policy or the entire company could have their policy revoked.

Cutler (1994) finds that smaller firms may pay premiums 2.5 times greater than large firms due to experience rating. As a result of experience rating, small employers reduced the provision of the benefit. In 1989, 41% of small employers provided medical coverage compared to 34% in 1991 (Feldman et al., 1997). Experience rating has caused large employers to re-evaluate their source of coverage, 63% of large companies (500+ employees) decided to self-insure, where, employers deposit money into a pool used to pay for the employees medical expenses (Gruber, 1998).

There also has been a significant change in the way that Americans receive their health care. There has been a dramatic change towards a managed care model. Health Maintenance Organization (HMOs) and Preferred Provider Organizations (PPOs) eliminate medical choices of workers by only allowing a short list of potential medical care providers⁸. In 1993, 67% of insured workers had this type of coverage (Gruber, 1998).

Because the enrollment costs into health insurance are significant and employers are responsible for the initial payment, firms impose a waiting period before being eligible for coverage. In most cases, this period lasts less than three months and is utilized by 62% of firms with more than 200 employees (General Accounting Office, 1995). As noted by Madrian (1994), another condition implemented by insurance companies is that

⁸ HMOs offer health care through a central health care provider. Insurance plan holders are only covered through their HMO and cannot use their insurance to obtain care from an alternate source. This has proved to be a cheaper option where all treatments have a given cost and there is no variation in the price of treatment. PPOs are similar to HMOs however the patient does have a choice in their health care providers. PPOs provide a list of physicians that will accept their insurance coverage, and patients are free to choose from the list (Gruber, 1998).

insurance companies will not cover medical costs of previously identified medical conditions. This exclusion of coverage usually lasts a year or longer. The pre-existing conditions exclusion can be important to those with significant health concerns. It may take up to two years for a new employee to receive fully covered health insurance. For those with a high demand for health care these restrictions may have a major impact on employment decisions.

The history of changes in the insurance system has only made insurance more expensive for working class Americans. Insurance companies have forced employers to either reduce coverage or eliminate it completely. Because of experience rating, smaller firms are in constant health insurance limbo, with one large claim the benefits for the entire company can be eliminated (Gruber, 1998). These changes may have a serious impact on employer provided health insurance. They have already changed the way employers provide insurance. Firms who have a large enough worker base have started to create their own insurance pool of premiums to pay out the claims their employees submit (Gruber, 1998). Because of high administrative costs, there are waiting periods to ensure worker loyalty before being endowed with the benefit. As well, insurance companies will not pay for treatment of illnesses contracted before the inception of the policy. These two policies are hazardous to labour mobility as those who change jobs are faced with a period of time where they have no coverage in the event of a medical emergency.

3.3 COBRA and HIPAA

The issue of workers being tied to their employer provided health insurance is not an issue that has been ignored by the government. The issue of job – lock, when people do not leave their current job because they do not want to lose their health benefits, is one that has received some attention recently. The following two pieces of legislation attempt to tackle the issue of job – lock without dipping into the coffers of the American public.

In 1985, the US government passed the COBRA (Consolidated Omnibus Budget Reconciliation Act) bill, this aimed at relieving job - lock. This bill nationally mandated what some states had been doing since the 1970s. Companies are required to allow former employees to continue their group insurance with the firm for up to 18 months. Under this mandate, the former employee is financially responsible for the premiums and these premiums cannot be more than 102% of the firm's average cost (Gruber and Madrian, 1997)⁹. This is still the best option for unemployed Americans.

COBRA does a great deal to eliminate the issue of job – lock and does so without any direct government expenditure. One complaint may be that the program still may be too expensive for those newly unemployed (Madrian, 1994). Therefore, the continuation of services would only be used by those with immediate and/or continual health needs. However, compared to costs of individual insurance, COBRA allows for a cost effective means for newly unemployed people to purchase insurance.

⁹ The firm will generally have one premium to pay for their entire workforce. Therefore the average cost would be the premium divided by the number of workers. Since the firm is responsible for enrollment costs they may retrieve a part of this cost by charging the former employee an additional 2% of average costs.

The concept of continuation of health insurance has been recently updated. In response to the data of 1993 that 58% of unemployed people (3.4 million people) between the ages of 25 and 64 were without health insurance, the Health Insurance Portability and Accountability Act (HIPAA) was passed in 1996 (Berger et al., 1999). This law allowed an 18 month extension of coverage after a person had exhausted their COBRA coverage and was not eligible for any other coverage. According to the US General Accounting Office (1995), the estimated number of beneficiaries from this act was roughly 25 million Americans. The main appeal of this reform like COBRA was that it was a non-budget reform.

COBRA and HIPAA seem to be band-aid solutions to the problem of job - lock (see section 6.4). The problem of workers being tied to their insurance is alleviated slightly however, there is still a problem for those that do have a serious illness that requires regular treatment. These people will have to pay two insurance premiums for up to two years until their new policy covers their pre-existing condition. The best part of this legislation is that it has no public costs.

Many of the changes encountered are the result of changing insurance practices, both in premium calculation and access to health care. The cost of health insurance for smaller firms has increased significantly compared to large firms due to experience rating. The changes have created an imbalance in competition between firms for workers. Health insurance is a highly valued benefit (see section 7.2), larger firms who are better

equipped with risk pooling to deal with the financial liabilities than the smaller companies will offer insurance and draw a larger pool of applicants.

4 Who pays for Employer Provided Health Insurance?

Health insurance was a non monetary form of compensation which did not have an effect on the general price level in America during WW2 (Thomasson, 2002). This section will survey how the provision has changed the wages paid by firms. More specifically this section looks at how much the employee is financially responsible for their health insurance.

In Figure 1, originally in Gruber (1998), we can see the trend of real wages and real health insurance costs from 1982 to 1996. From 1982 to 1987 real wages grew faster than real health insurance costs. After that time it is clear that as health insurance cost increased and the real wage paid to employees drops significantly. This is likely because of the increased use of experience rating. From 1987 to 1994 we can see that real health insurance costs rose considerably and real wages responded in the opposite direction. This relationship follows the concept of compensating wage differentials introduced by Rosen (1986).

4.1 Compensating Wage Differentials

Rosen (1986) gives us the concept of compensating wage differentials, which is essential in understanding the determination of who pays for the insurance. He was the first to

recognize that firms pay their employees their marginal revenue product, and any benefit will be subtracted from their MRP and the rest paid in wages.

For the purpose of this paper we will look at a simplified model offered by Gruber (1998). The concept begins one type of fringe benefit, for this paper we will use health insurance. I will assume that coverage is complete (there are no restrictions the insurance will cover any illness or injury); therefore workers are either completely covered or uncovered. Furthermore, we will assume that the provision is individual (non-group) insurance, where, the premium paid is calculated for the individual worker. Finally we will assume that each employee can have a unique compensation structure that may or may not include insurance. The utility function of the worker is given by:

$U = U(W, HI)$, where U is the utility as a function of: W is the wage, and HI the provision of health insurance.

The worker is to be paid at their Marginal Revenue Product as a wage. Individual employees will value health insurance differently therefore only some will take advantage of the plan. The worker will choose to receive insurance if:

$U(W - \Delta W, 1) - U(W, 0) = V \geq 0$, Where ΔW refers to the compensating wage differential. (Gruber, 1998)

Given a perfectly competitive labour market employers will offer insurance if the cost of the insurance (C) is less than or equal to the compensating wage differential: $\Delta W \geq C$ (Gruber, 1998).

Those employees who value the insurance higher than the cost of insurance will be earning rents from the provision of health insurance. Through competition $\Delta W = C$. This illustrates theoretically the fact that employees will be agreeable to foregoing some income for other essential benefits. Employees who value the insurance at its cost or greater (for those that are particularly risk averse, since people are paying for their own risk level) will pay for the insurance, while those that value insurance less than its cost will prefer the higher wage. They will in essence pay for their own benefit as long as they value the benefit at its cost or greater, otherwise they will choose to opt out of the benefit (Gruber, 1998).

4.2 Empirical Results of Compensating Wage Differentials

The empirical testing procedure to check to see if Rosen's (1986) work is observable in the real world seems to be straight forward. A regression of wages on health insurance coverage or costs would be the first approach to verifying compensating wage differentials.

Monheit et al. (1985) used this model to empirically test for the responsiveness of wages to insurance. They use data from the 1977 National Medical Care Expenditure Survey (NMCES). They base their findings on a logarithmic function. They use wages as the dependant variable and use education, experience, sex, race, location and industry as dependant variables. This will help to determine if wages were different based on the provision of health insurance. One result showed that professionals and technical

workers' wages did respond in the expected fashion, although insignificant. They find a positive correlation between wages and the provision of health insurance, where an increase in wages would correspond to an increase in the offering of health insurance. This evidence rejects the theory.

Monheit et al. (1985) findings for professionals and technical workers are consistent with theory but insignificant. Highly productive workers will choose to have some of their compensation in benefits. Highly compensated people will also want to take advantage of the tax breaks that are available to health expenditures, since employees do not have to pay taxes on the health insurance part of their total compensation (Monheit et al., 1985). "High productivity workers may choose to have some share of their compensation in benefits; indeed, given the progressivity of the tax schedule and the deductibility of benefits should rise with underlying productivity." (Gruber, 1998, pg 52)

The first criticism of Monheit et al. (1985) is that more consideration needed to be given to firm size. It has been stated by Cutler (1994), that firm size has an immense impact on the cost of insurance and therefore, bigger firms are more likely to offer it their employees.

Jobs with health insurance tend to be 'good' jobs which typically offer higher wages (Buchmeuller and Valetta, 1996). The availability of insurance is a proxy for 'good' jobs which may pay a higher wage than a 'bad' one.

The second criticism would be that a more efficient test would be a dynamic test instead of a static one. A better method would be to see how real wages respond to health insurance cost changes compared to changes in real wages for non-covered workers. This NMCES data is poorly suited for this application; the wrong signed results should not be surprising (Gruber, 1998).

Woodbury (1983) used a substantially altered model in his study. He modeled the substitutability of wages and insurance benefits. The findings are based on data from 1966 Bureau of Labor Surveys (BLS)¹⁰. The data was divided into four sections by job type and industry: office jobs/non office jobs and manufacturing industry /non manufacturing industry. The data was further subdivided according to firm size.

Woodbury (1983) finds a very high degree of substitutability using firm specific data. Large firms (500+ employees), who typically offer better benefits, are likely to have benefits accounting for 3 – 3.5% more of total compensation than smaller firms.

The problems with this technique are a result of unaccountable data. Tax benefits are based on single earning families or individuals and cannot account for other sources of income. The second limitation is that they cannot assure that the cost of the benefit is exactly the compensating differential (Woodbury, 1983). These results are based upon a better model specification and data than the Monheit et al. (1985) and therefore, the results are more robust.

¹⁰ Specifically the Employee Compensation in Private Nonfarm Economy survey.

Eberts and Stone (1985) exploit variation in the cost of health benefits among school districts in the U.S. from 1972 and 1977 to estimate the impact on wages of increasing insurance costs. In the 5 year period there were changes in the cost of health insurance. They controlled for unobserved worker, district characteristics and other benefits costs. They were able to find substitutability in wages and health insurance. Health insurance cost increase of one dollar caused wages to fall by 83 cents. This paper provides results from a dynamic test and showed that real wages fell when health insurance costs increased.

Gruber (1994) wrote about the mandated maternity benefits of the 1970s. Some states passed legislation that forced all employer provided health insurance to include maternity benefits. This allowed for a very unique look at the concept of compensating wage differentials. Since only women aged 20 – 40 and their husbands would benefit from this mandate, he only used data from this demographic. The goal of this study was to see if the cost of the maternity benefit would be paid for exclusively by the affected group or by everyone through lower wages.

He used a 'differences in differences in differences' approach by comparing the relative wage changes among workers. The regression is based on three differences. He first looks at wage differences before and after the mandate, the second difference makes use of the fact that only some states mandated maternity benefit so he is able to form an experimental and a control group. The final difference looks at changes in wages of 20 – 40 year old women and all other workers (single men and those older than 40). The

results of the regression support the theory of compensating wage differentials; the finding suggests that the cost of the mandate was shifted to the wages of the targeted group. He finds significant declines in wages for married women (20 – 40 years old relative to similar women in the control group). He is able to conclude that the entire cost of the mandate was shifted on to the employees targeted by the mandate.

The authors seem to be in agreement about the existence of compensating wage differentials. They also agree that health insurance, despite having tax incentives for the employers, the costs are generally bourn by the workers. Most of the articles found that insurance and wages are substitutes. The overall message from these papers is that indeed workers do pay for their own insurance.

The burden of these costs is continually being shifted to the employees. However, this is not necessarily bad for employees; individual insurance coverage can cost 50% more than group insurance (Madrian, 1994). Given that employees would have to spend a considerable amount more, they would be in a worse position. This allows employees to receive health benefits without paying the incredible loading costs or premiums of individual plans.

5 Health Insurance Effects on the Demand for Labour - Why is it that Employers Choose to Offer Health Insurance to Their Employees?

There are several reasons that an employer would want to choose to provide health insurance. The first two reasons are offered by Gruber (1998). The workplace offers a

natural pooling mechanism where the group has been assembled by factors that are largely exogenous to health status. Second, there are legislated tax credits to companies that offer health insurance to their employees. The third explanation can be regarded as a type of signaling mechanism (Buchmeuller and Valletta, 1996). Health insurance may be a signal of employee loyalty. These three explanations form the argument as to whether or not a firm should offer insurance.

5.1 Workplace pooling

The Americans with Disabilities Act makes it illegal to use health status in hiring decisions (Madrian, 1994). Therefore the workplace is a natural pooling institution where individuals are chosen regardless of their health status. This is an important requirement to a fully functioning group health insurance market.

Larger workplaces can take advantage of economies of scale that naturally occur with a large employee base. The administrative costs of health insurance are fixed thereby creating increasing returns to scale. As more employees join, the individual responsibility for the administrative costs falls asymptotically towards zero. The marginal cost of an additional covered employee decreases as the number of insured increases.¹¹

¹¹ First start off with the total cost function for the employer; we will assume that the administrative costs are fixed regardless of group size:

$C = A + N \cdot P$, where C is cost of insurance for the group, A is the administrative cost, N is the number of employees and P is the individual premium.

Rearranging this function so that the output (Number of employees insured), in terms of the input (total health insurance expenditure), is isolated gives us:

$$N = (C - A)/P$$

Doubling the inputs:

$$(2C - A)/P > 2N = 2(C - A)/P = (2C - A)/P - A/P$$

We can see that doubling the total cost of insurance more than doubles the number of employees covered by the insurance plan. Or that doubling the number of covered workers will cost less than double the cost.

For small firms the benefits of risk pooling can become negligible. Since there are fewer people to offset one another's premiums and claims insurance companies may be weary that insurance is being purchased for one or two employees that are significantly sick. Therefore, insurance companies will demand higher loading fees¹² which results in higher costs for small companies, as much as 40% more than large employers (Madrian, 1994).

For smaller companies, one employee with a serious medical condition could cause insurance to become unaffordable to the company for years to come. There is the possibility that some small firms would introduce unofficial discriminatory hiring practices (Madrian, 1994).

5.2 Employer Tax Benefits

After the government allowed employers to offer fringe benefits to their employees they also created incentives for employers to provide health insurance. In 1954, the government made employer expenditures on health insurance tax deductible (Thomasson, 2002). This, combined with the profitability at the time of group insurance to insurance companies started the relationship between employers and health insurance (Thomasson, 2002).

Gruber and Poterba (1996) examine the U.S. tax codes and determined the fiscal benefits available to firms offering health insurance. They found that the health insurance

¹² Loading fees are the administrative costs incurred by the insurance companies and refer to the costs of selling the insurance policy such as, salaries of employees, commission paid to the sellers of policies, costs of office buildings used, computer costs, and initial administrative costs of the insurance plan.

benefits paid by the employer are not subject to payroll taxes in the same way that employee's wages are. These tax subsidies decrease the after tax cost of insurance to the employer. Gruber and Lettau (2004) report that in 1999, the health insurance related tax breaks cost the state and federal governments lost \$100 billion in revenues. This creates large subsidies on the cost of insurance to employer provided health insurance rather than insurance obtained outside the labour market. Gruber and Poterba (1996) estimate that the relative price of health insurance to employers is reduced 27% due to the tax subsidy.

5.3 Elasticity of Health Insurance Demand

In this section I report how employers' health insurance decisions are influenced by tax codes. In the empirical evidence, the authors all conclude that changes in taxes do significantly alter the provision of insurance. Taxes have an effect on the relative price of insurance, if the tax rate increases; the tax deductible for the company increases, which reduces the employer's actual cost of health insurance. Since the cost of insuring the workforce has decreased for firms, they will be more likely to offer insurance or offer more insurance.

The first estimation technique used by Feldman et al. (1997) uses variation in premiums to identify price sensitivity of offering insurance. They used data from 1995 from the Minnesota Department of Health survey. They find that 95% of firms with more than 50 employees are offered a health insurance benefit, while only 64% in smaller firms. Therefore they use data from small employers. They find that small firms are very responsive to changes in premiums. They find an elasticity of -0.0174. A monthly

increase in per employee premiums of \$10 would decrease the probability of being offered insurance by 17%. This is interesting because a decrease in taxes would have the same effect on employer costs as an insurance company increase in prices.

Gentry and Peress (1994) offer an alternate method of estimation. They use regional data compiled from the US Bureau of Labor Statistics Occupational Compensation Surveys from 1988 – 1992. Their estimation technique uses variation in tax codes across states and cities to identify the price elasticity of making health insurance available to employees. They find that a 1% increase in the tax rate would increase the percentage of workers who are offered insurance by 1.84% which is significant.

The criticism of this procedure is that there may be a correlation between the tax policies of states and the preference of insurance in that state (Gruber and Lettau, 2004). States/cities which inhabit people with strong preference for health insurance may be offering substantial tax credits to employers.

Royalty (2000) takes a similar approach to that of Gentry and Peress (1994). She uses data from the 1988 and 1993 CPS surveys, but she modifies the estimation procedure. She creates an instrument for marginal tax rates using income tax differences across states. She compares tax effects on two other fringe benefits: sick leave and pension offerings. This is in response to the problems associated to the Gentry and Peress (1994) paper of tax levels being a proxy for health care demand in specific states. She finds an

increase in taxes by 1% also increases the probability a worker is eligible for health benefits by 0.8% - 1%. These results are consistent with other studies.

Gruber and Lettau (2004) find results that fit into the range of previous negatively signed estimates. They offer a new estimate. Not only did they study the response to tax changes on being offered insurance, they also looked at how tax changes effect how much employers spend on health care. They use a different approach than their predecessors by using Employment Cost Index (ECI) data from 1983 – 1995 instead of standard firm-specific micro data. The ECI data is richer than that of firm level data, by offering greater compensation information as well as information on a sample of workers within each firm. This allows them to factor in worker preferences as well as tax code effects.

Gruber and Lettau (2004) find that the elasticity of offering employment to be -0.25 and the elasticity of health insurance spending to be -0.7, with respect to after tax prices. This corresponds with the literature above. A one percent decrease in the after tax price of health insurance will increase the probability of being offered insurance by 0.25% and increase health insurance spending by 0.7%. They conclude that a major reduction in taxes could have disastrous consequences on employer provided health insurance.

In simulations Gruber and Lettau (2004) we able to find significant responses to simulated tax changes. They find that if health insurance were not tax deductible at all,

the after tax price of insurance would increase, and therefore the chance of being offered health insurance falls by more than 15%.

The evidence shows that employers do respond to changes in the tax codes. Firms may be taking tax concerns into consideration when making the decision to offer insurance. These papers generally agree as to the effects of simulated tax changes could have a serious impact on the provision of health insurance. Tax decreases increase the relative price for employers and thereby discourages employers from offering health insurance. Taxes during the 1980s decreased, and it is not surprising that firms reduced their health insurance spending and offering of the benefit (Table 1, Gruber, 1998).

5.4 Consumption Distortions

The tax credits for health insurance can create distortions on employees' consumption choices (Gruber and Lettau, 2004). With the evidence reported by Gruber and Lettau (2004) we saw that increasing the tax rate, which reduces the actual paid cost of the firm, will cause employers to spend more on insurance. This can lead them to over insure¹³ their employees. Since employees accept lower wages to receive benefits¹⁴, increases in employer health insurance costs due to over insurance will be offset by falling real wages (see Figure 2). This forces employees to spend a greater part of their income towards health insurance/care instead of consumer products (Gruber and Lettau, 2004).

¹³ Over insurance refers to firms buying health insurance policies that are more generous than the employees need. They will offer coverage for very unlikely events.

¹⁴ Through the concept of Compensating Wage Differentials.

The social costs of this incentive to employers can be serious. The increase in health insurance coverage towards more generous plans can cause a kind of health care inflation. "Since much of the extremely rapid rise in health care costs can be attributed to the growth of insurance coverage during the past 25 years, this tax subsidy is responsible for much of what is widely perceived as a 'health care crisis'" (Feldstein and Freidman, 1977, pg 156). This is the moral hazard problem because, "insurance leads to excess consumption, in the sense that individuals will consume medical services past the point where the marginal utility of an additional service is equal to its marginal cost" (Gaynor et al., 1999, pg 141). Since more treatments are now covered, there may be a group of people who did not receive the treatment due to financial restrictions and may cause more demand for the treatments and given fixed capacity by health care providers, the costs of the treatments will go up (see Figure 3). This only furthers the financial burdens of the uninsured and underinsured.

Feldstein and Freidman (1977) look at this problem theoretically based on 200 000 federal employees. They provide models on how taxation effects employee health care decisions and costs. They find that the tax subsidies do significantly alter optimal behavior for various types of families. Households would choose very different levels of health insurance coverage if the subsidy was eliminated.

They also note from 1958 to 1967 the cost per day of hospital care increased by 117% while hospital costs increased by 35% (Feldstein and Freidman, 1977). They find that most of the increase can be attributed to the provision of health insurance, with the

remaining effects being general price level and advances in technology (Feldstein and Freidman, 1977). They conclude that over-insurance as a result of tax subsidies has substantially increased the cost of health care.

5.6 Health Insurance and Employee Retention

Health insurance can motivate loyalty in employees. This is a very desirable effect for employers. Enrollment and training costs of an employee can be quite high and benefits such as health insurance and pensions can help employee retention. Those labour market participants that have a high demand for insurance may prove to be reliable and loyal employees.

Bachmeuller and Valletta (1996) raise the question to the negative correlation of the incidence of insurance and propensity to change jobs. They argue that the provision of group insurance is itself an incentive for the employee to remain with the firm. The firm may factor in the quit probability based on tenure with previous employers on their own hiring policies. In short they argue loyal workers get the 'good' jobs.

Mandated policy discussed above has created incentives for employers to provide health insurance. Health insurance is a lure for prospective employees, which may have serious side effects. If the theory of job – lock is correct then those that offer health insurance are also creating a kind of worker loyalty.

The history of employer provided health insurance has shown that the fiscal responsibility of this benefit is now becoming too great for employers. Insurance company policies have changed the way that their employees are provided health care and who provides the insurance.

There is also a clear conflict of interest in the provision of health insurance. Health insurance is endogenous in the formula to determine employer tax liabilities therefore some companies may be minimizing taxes and not maximizing worker welfare.

Employers are making consumption decisions for their employees but are not looking at utility, but instead their tax bill. The simple conclusion is that employers are being held accountable for a major part of social wellbeing, however they are after tax profit maximizers, and health care concerns are a minor interest.

In the following section, the supply side issues of health insurance are addressed and I will show how they may have a bigger impact on the economy as a whole.

6 Labour Supply – Job Mobility

Health insurance is a very attractive benefit to labour force participants (see section 7.2). As a result it may have a significant impact on the labour decisions made by workers. As noted above, there are barriers, such as pre-existing conditions, within the insurance industry that have an impact on the labour market. The restrictions on eligibility and pre-existing conditions factor into workers' decisions to leave their current job. As people get older they are likely to experience some medical conditions/diseases and if those

conditions require continuous treatment they may become job – locked. Some pre-existing conditions exclusions can last up to two years. If the medical costs are sufficiently high, an employee will not be able to leave their job. These people will be working for insurance, where the lack of medical benefits would be a larger negative income shock than the loss of income (Madrian, 1994).

6.1 Efficient Job Matching

Firms search for workers that match the level of productivity required to fill the vacant position within the firm. As the need for productivity increases so does the wage, if $w = MRP$, that should be paid. Workers may not always be able to use their increased productivity due to experience/training/education for their current employer if opportunities for higher productivity jobs are unavailable. If opportunities for advancement are few or non existent within one's work place, there may be appropriate opportunities available from other employers. Highly productive workers with little hope of advancement with their company will have a Pareto improving outcome by joining firms with a lack of highly productive workers. The worker will no longer be forced to work at a job that fails to utilize his/her abilities and the firm will be able to increase production with a more productive worker producing an efficient job match.

The problem with job-lock is that it disrupts the flow of employees. Workers that have a high demand for health care or are particularly risk averse will choose not to base their employment decisions on efficient job matches but on the provision of insurance

(Madrian, 1994). This can create problems for the American economy by preventing highly efficient job matches from taking place.

In order for the labour market to operate efficiently, the market participants must move freely between all possible suppliers and demanders. The labour supply is not moving solely based on the supply and demand of labour but instead on their health needs.

Although it seems unlikely that firms would be unable to lure labourers, there would be a cost. Firms in high demand of high productivity workers will just bid up the price of high quality labour which is inevitably paid for by the consumers.

6.2 Theory of Job – Lock

In the above model of compensating wage differentials by Gruber (1998) there are not any signs of job mobility impairments. Because of perfect competition for labour $\Delta W = C$, in equilibrium. If a worker chooses to leave their current job for another one they will simply ask their new employer to take C off of their wage. The model illustrates the concept of compensating wage differentials well however, it is not very realistic. Labour decisions are based upon the wage being offered only. Health insurance costs and coverage are uniform throughout the labour market. Therefore, workers are selecting employers based upon efficient job matches.

I will expand the previous model as lead by Gruber (1998) and resolve some of the issues that make the previous model unrealistic. The first flaw is employers are not able to set employee-specific benefits packages. Employers are not allowed to offer insurance to

some workers and not others and still hope to maintain their tax benefits. If firms engaged in the procedure then most rents enjoyed by workers would be cancelled out by higher administrative costs. As well, it is virtually impossible for firms to develop worker specific compensating wage differentials without explicitly revealing employee preferences. This indicates that there must be some match-specific rents for workers attached to some job matches (Gruber, 1998).

The second flaw in this model is that employers do not have the same insurance costs. Loading factors on insurance purchases are much larger for small companies than larger ones, as well; there is a lot of variation in insurance premiums across firms (Cutler, 1994). Workers are unable to obtain health coverage at the same price across employers.

Consequently, workers who have a very high valuation of health insurance will choose to work for employers offering it. Also, firms that can inexpensively provide health coverage will offer it. Workers will only opt in to insurance plans if their valuation of the benefit is at least the same as the compensating wage differential, if not greater.

Similarly, employers will only offer insurance if the cost of the insurance is less than the compensating wage differential (Rosen, 1986). With this alteration, all labour market participants will earn some rents if there is the provision of health insurance and the employees value the benefit more than the cost of the benefit (Gruber, 1998).

The following model now allows for the possibility of negative effects on labour mobility as a result of the health insurance benefit. Suppose an employee, who has employer



provided health insurance, receives a job offer from another employer. Assume that the offer is for a higher productivity job (with higher wage than the total compensation the employee is currently receiving), and that the new firm does not offer health insurance (or will not cover them for an extended period). If the employee's current wage plus their valuation of insurance is greater than their new compensation package they will reject moving to the more productive job. Given a high enough value of insurance, no offer will lure the employee. "This represents a welfare loss of from job lock: productivity improving switches are not made." (Gruber, 1998, pg 13) This model can be extended to a situation where there are many employers. In the case where the new firm is offering health insurance the applicant may be reluctant to forgo insurance even for a short time.

6.3 Job – Lock Evidence

Each year in the United States 20 million Americans change jobs, of which, 12 million have health benefits. This group also is responsible for 7 million dependants¹⁵. There is also an uncountable group of Americans who do not leave their jobs because of health insurance concerns. A survey conducted by CBS/New York Times in 1991 (New York Times 06/06/1991) reported that 30% of Americans stayed at their job because they did not want to lose their health insurance. The following papers make use of pre COBRA data to explore the evidence of job – lock.

Cooper and Monheit (1993) were the first to empirically test for job - lock. They used data from the 1987 National Medical Expenditure Survey. The study looks at the

¹⁵ General Accounting Office (1995)

probability of leaving a job based on the likelihood of gaining or losing health insurance and their current health insurance status. They use an indicator of leaving one's current job as the dependent variable. The independent variables are current health insurance and probability of gaining and losing health insurance in another job.

Using a Probit regression their results support the hypothesis of job - lock. They find that both married and unmarried men with health insurance are significantly less likely to change jobs. They estimate that those without insurance are approximately 23% less likely, than those without any employer provided health coverage.

Madrian also provides evidence of job lock in her 1994 paper. Madrian uses a difference in difference regression to determine if workers are suffering from job lock. Her methodology requires knowledge of turnover rates, insurance status and health status (expected health care costs) in order to develop estimates of job-lock. As health status is difficult to ascertain, she proxies for health demand such as family size and pregnant wives.

Madrian (1994) uses a difference in difference estimation technique and is described by the following matrix (pg 31):

	No Employer Provided Health Insurance	Employer Provided Health Insurance
No Other Insurance	M_{00}	M_{01}
Other Health Insurance	M_{10}	M_{11}

The simple test for job lock would be to compare the values of M_{11} and M_{01} . We would expect that those with employer provided insurance and another source of health coverage would be more likely to change jobs than those without alternative coverage. Therefore $M_{11} - M_{01} > 0$. This is a consistent estimator if we assume all differences are a result of job lock. However this is not true "if individuals with other insurance are more likely to change jobs for other reasons not related to job lock." (Madrian (1994) pg 31) Subtracting $M_{10} - M_{00}$ from the simple test will eliminate the effect of other benefits from the simple test for job lock due to insurance. The estimate for job lock would be the following formula: $(M_{11} - M_{01}) - (M_{10} - M_{00})$.

Madrian reports data on males from the 1986 National Medical Expenditure Survey (NMES). She uses data from men aged 20 – 55 and used spousal insurance, size of family and pregnancy as explanatory variables in separate regressions. She reports an overall job lock estimate of 25%, which indicates that those with employer provided health insurance are 25% less likely to leave their current job than those without insurance.

Holtz - Eakin (1994) also uses a difference in difference regression model on data from the 1984 Panel Study of Income Dynamics. He estimates a probit equation and includes data for the interaction of spousal and employer provided insurance. His outcome is very different from many other studies. He does find a job lock figure of 1.6%; however it is not statistically significant.

Buchmueller and Valletta (1996) argue that benefits are rewards to loyal workers. If this is the case then the estimate for the probability of changing jobs for those with insurance will be understated as some of those insured are insured because they are less likely to quit than others. The job-lock figures could simply be describing the low propensities to quit.

Using 1984 Survey of Income and Program Participation (SIPP) data, they account for individual turnover characteristics by including tenure. Their results find no significant evidence of job-lock among men. However, their results for women are similar to previous studies, showing a job-lock estimate of 30 – 50 %.

These results seem to have mixed conclusions. Some authors report evidence of job - lock while others find that their results are statistically insignificant. Although the sum of these results does seem to indicate that job – lock may have a detrimental effect on the labour market by prohibiting efficient job matches.

6.4 Job – Queuing

There may be a parallel effect to job – lock, which I call job – queuing. This is a result of people who are currently uninsured (because they are unemployed, or their current employer does not offer the benefit) but who have a high enough valuation of health insurance such that they are eager to find an employer based on health coverage concerns.

Given Madrian's (1994) difference in difference technique it is possible that some cells of the matrix could be over estimated. That is that M_{00} is made up of two parts, first the exogenous quit rate that results from workers want to change employers for reasons other than health insurance, the second is the unobservable desire of employees to gain insurance. The desire for insurance overestimates what has been assumed to be the exogenous quit rate, which through the job lock formula overestimates the incidence of job – lock. The actual unobservable M_{00} is less than the estimated values for M_{00} used in the previous papers. Rearranging the formula to estimate job – lock slightly gives us: $M_{11} - M_{01} - M_{10} + M_{00}$. With this formula it is easy to see how if M_{00} is overestimated then the estimate for job – lock will also be overestimated. The job queuing for health care portion of quit propensities will be different, therefore causing the job lock estimate to be biased as it includes some job queuing effects.

Anderson (1997) is the first to empirically find evidence of this parallel phenomenon to job – lock that she calls job – push. She used National Longitudinal Survey of Youth (NLSY) data from 1979, which looks at 14-21 year olds. This was the longest panel of data that has been used to study job – lock. This data allowed Anderson to estimate a more sophisticated model than previous attempts. She uses a similar methodology as that of Madrian (1994), and as a result finds that men with a pregnant spouse are less likely to change jobs by 34%. Anderson finds another potential force at work in the study of job – lock; using a first difference to test for job – lock she finds evidence of job - push. As Anderson describes, “I focus mainly on pregnancy as a pre-existing condition since if

individuals are truly locked into a job this pre-existing condition, the hazard (probability of changing jobs) should increase in the post-pregnancy period” (Anderson, 1998, pg 13). After factoring in the post pregnancy data, she finds half of her estimate for job – lock is in fact due to job – queuing.

6.5 Has COBRA and HIPAA Worked?

Job – lock seems to be a legitimate concern. So has COBRA and HIPAA worked?

Although determining whether or not HIPAA has worked would be quite difficult to ascertain as it is a new policy, there has been some work done on the effectiveness of the COBRA legislation. The data presented by Gruber and Madrian (1994) and (1997) supports that COBRA did increase the number of unemployed Americans with health insurance. In the context of this section we are more concerned with its effects on labour mobility.

Gruber and Madrian (1994) look at the effects of continuation of services. They begin characterizing of those that separate from their jobs. First job separators tend to be younger and have a lower demand for health insurance than older workers with families. Second those that separate from jobs are likely leaving jobs that did not offer health insurance.

They use panel data from the Survey of Income and Program Participation (SIPP) from 1984 – 1988, using males from ages 25-54. The exclusive use of males is to ensure that the sample includes, “workers who are highly attached to the labour force,” (Gruber and

Madrian (1994) page 94). They use a probit regression model, where the variable of the probability of leaving one's job is dependent on age, education and insurance status. The authors' ultimate conclusion is that the increase in likelihood of being covered after job loss is 20%. They find that the continuation of coverage is a catalyst for job separation. They find that those that do make use of continuation coverage have a more productive job search, which results in higher wages.

Gruber and Madrian (1997) attempt to find the effectiveness of COBRA policy's on alleviating the incidence of job – lock. They used data from SIPP from 1987 the year that COBRA took effect in America. They identify unemployed labour market participants and follow them during their unemployment spell.

They use a probit regression model to determine if workers are more likely to leave their current job based on continuation of coverage mandates. They find that there is a 14% increase in the probability of labour transition after the implementation of COBRA. This figure is half of the magnitude of the job – lock figures reported by Madrian (1994). This suggests that the COBRA legislation did improve labour mobility.

They find that those with continued benefits have much higher incomes eight months after job separation than those who did not receive health insurance from their previous employer. They provide hope that COBRA may allow for more efficient job matching.

Ultimately the COBRA policy is effective in its primary goals. It increases the health insurance coverage for the recently unemployed. The most important effects as to the general welfare of the economy are a little more vague. Madrian and Gruber (1997) find that there is an increase in quit rates among those with employer provided health insurance, however are not able to significantly link it to more efficient job matches. The unemployment spell does increase (by approximately 2 days) which is a positive sign for efficient job matches, however it is insignificant. Further study needs to be done in order to have conclusive evidence for the effects of continued coverage.

6.6 Employment Lock

Health insurance benefits also distort other aspects of the supply of labour. A second distortion, employment lock, refers to when potential entrepreneurs choose not to quit their jobs instead of becoming self employed. The creation of new enterprise is very important in the context of a capitalist society.

Empirical evidence in this area is limited to just a couple of papers. Holtz-Eakin, Penrod and Rosen (1994) were the first to look at this possible effect of health insurance. They used data from the SIPP and PSID using data from 1984 – 1986. They are able to find some evidence of employment lock however most results were statistically insignificant. Using a probit regression model they estimate the rate of employment lock to be 9.2% - 15.3%. Although the results are not conclusive, it gave rise to another study.

Wellington (2001) also explores the issue. She uses 1993 CPS data to look at the self employment decisions of those with spousal insurance coverage. Using a difference in difference regression model where the probability of becoming self employed as a function of spousal insurance. She finds that men are more likely to start a new business given a steady source of health insurance. The probability of a man being self employed increases by 2.3 – 4.4% given he has spousal coverage. For women the probability of being self employed increases 1.2 – 4.6% if their husbands have employer provided health care. She estimates the percentage of those self employed would increase 2 – 3.5% if a universal health care policy were adopted.

Having employers provide insurance to their employees creates a bond. Whether the employee is tied to their employer or to their insurance is what will be explored here. If workers do not change jobs they may be stuck in the same position for longer than they should. Unless the employee has reached the pinnacle of their field they may have the opportunity to receive a promotion due to experience, training or education. However, if one is tied to their insurance, then regardless of self-improvement they may not switch employers.

The original mandate of employer provided health insurance was to increase labour supply during World War II; however, it may have had the opposite effect as many people may never explore the labour market again. The federal government has attempted to alleviate this phenomenon by allowing the newly unemployed to continue

their insurance from their previous employer. Although this should allow for workers to find new work and still have insurance during the waiting periods.

There is still a problem with the pre-existing conditions policy. If a person with a serious medical concern leaves their current job for a new one, after the initial waiting period for insurance the worker is forced to pay for two insurance policies until their new one will cover all of their medical needs. In this way, the legislation does not achieve all of its goals.

Given Anderson's (1998) paper the effects of job - lock may be overestimated, if applicable at all. Further study on this issue is necessary to be able to conclusively reject the concept of job - lock. It is still important to note that insurance affects more than mobility but also has other effects on labour supply.

The creation of new firms is essential in a capitalist society where competition is encouraged. Employment - lock has the potential of creating serious problems for the U.S. economy.

7 Labour Market Decisions – Non-Mobility

The provision of employer provided health insurance has an impact on those not in the labour force and those looking to exit the labour force. Those looking to retire have conflicting concerns. Older Americans who are contemplating retirement must also recognize that their health is also deteriorating and their decision is effected by the

provision of health insurance. Some Americans are given health insurance as part of their pension package, and for others they must wait until the age of 65 when they are eligible for the Medicare program.

Insurance is important to American families and therefore if the primary (and only) source of income does not include a health insurance benefit then the secondary labourer in the family will have to respond. It is conjectured that this could have an impact on younger children as their mothers leave their domestic duties to join the work force in order to provide insurance to the entire family. Ultimately, the effects on female labour responses illustrate the value that families place on insurance.

7.1 Retirement

There are rents that workers enjoy through the provision of health insurance. The realized rents increase as the demand for health care increases, as table 2 shows the incidents of major illness increase as people age. Therefore, older workers earn significant rents from being employed. Because of the pooling of risk in group health insurance purchases, the rents enjoyed by paying less for the insurance than the worker values it are extremely important to workers with a retirement decision.

For those wishing to retire before the age of 65 when they become eligible for Medicare may be influenced by their endowment of insurance¹⁶. In a Gallop poll, 63% of

¹⁶ Medicare is a publicly funded program to provide health care to older Americans. The eligibility age requirement 65 and above.

Americans reported that they would wait until the age of 65 to retire because of the eligibility requirements of the Medicare program (Gruber, 1998).

The first report on the issue of retirement decisions based on health insurance concerns was in 1994 by Gustman and Steinmeyer. The authors look at the issue of retirement decisions of employees based on employer provided post-retirement health insurance coverage. They look to find the effects of employer provided retirement health insurance on the age of retirement, share of employees retired at age 62. They use an extensive amount of data: 1969 – 1979 data from the Retirement History Study (RHS), 1977 NMES data, 1983 – 1986 Survey of Consumer Finances and 1988 CPS.

They find small effects of employer provided retirement health insurance on the average age of retirement (lower by 1.3 months), and the share of the labour pool that is retired at the age of 62 (increased by 1%). They find that employer provided retirement health insurance makes the average retirement age to converge at the point of eligibility for early social insurance benefits (age 62). Retirement decisions are delayed until the date of eligibility and hurried after the date of eligibility.

A comparable approach is taken by Karoly and Rogowski (1994) who used SIPP data from 1984 – 1988 which does not include post-retirement insurance information. They used firm size, industry and region to proxy for retiree benefits. They used this proxy in the regression for early retirement. They are able to report estimates that retiree coverage increases the probability of early retirement by 8 % to 47%.

Blau and Gilleskie (1997) also look at the effect of retirement health insurance on their retirement decisions but also on the mobility decisions of workers aged 51 – 62. They note that a key problem with the Karoly and Rogowski (1994) is that they do not have information about employer provided retirement health insurance. They cite that the use of industry size, firm size and region as a proxy for retirement insurance leads to misleading results because of unobservable heterogeneity.

They construct a dynamic stochastic model of employment behavior of older workers. They use HRS data from 1992 and 1994 which contained specific data about retiree health insurance obtained through interviews. They are unable to find any significant results for the provision of employer provided retirement health insurance on job mobility. They are able to find that the provision of insurance increases labour force exit rates from 7.6% to 9.6%. It is also reported that labour mobility is significantly reduced with this benefit for older workers. At age 61, a person with retirement insurance is 11% more likely to retire than those without.

Rust and Phelan (1997) look exclusively at Americans who only have social security and Medicare as their retiree package. They used 1969 to 1979 data from 58 – 63 year olds from the RHS. They chose to look specifically at middle to low income males who do not have a pension plan. They use a dynamic programming model which allows them to accurately model the dynamic structure of social security and the individual's decision process. They ultimately find that those who can only rely on Medicare will post-pon

their retirement until they are eligible at age 65. They find that social security causes retirement to peak at the ages of 62 – 65. Their results are internally consistent, where the peak retirement rates are converge to the eligibility requirements of social security¹⁷ and Medicare.

7.2 Entry Decisions and How Much to Work

Health insurance may also play a role in decisions by secondary workers. One working spouse can provide health coverage to their entire family and if the primary worker is covered there may not be a secondary earner in the family. In couples where the husband is the only one employed and is without health insurance, the wife may be more likely to work, and at a place offering the medical coverage. The accessibility of insurance by the primary worker may have an impact on the labour decisions of the other worker in the family.

Buchmueller and Valletta (1999) provide a report on secondary laborers decisions. They use CPS from 1993. They create a model of wife's hours worked and participation as a function of their husband's employer insurance status. Their results are quite clear. They find that the husband having a medical coverage provision in his compensation package reduces both the number of hours worked (36%) and on the labour force participation of the spouse (12%).

Olsen (1998) looks at the incidence of wives working based on the fact that their husbands do not have employer provided health insurance. He used data from the 1993

¹⁷ Eligibility for early social security benefits begin at age 62 and full benefits at age 65.

CPS on working age married families. From the data he is able to make a few observations. Sixty one percent of women without spousal insurance were working full time compared to 44% of women whose husbands are provided with health insurance.

He is also able to find that uncovered working women are likely to work four hours more per week than those with coverage. He finds not having spousal insurance increases the chance of full time employment by 7 – 9%. As well, it influences number of hours worked by 1.78 – 4.23 hours per week. Overall he reports that wives are very responsive to health insurance coverage for their family.

These are interesting findings especially when taken into the context of a universal health care mandate. Such a mandate could significantly reduce the female labour force participation. However, if a mother staying home with their children is important to their development, there are positive effects as well. These finding may be influenced by US tax structure, such as the marriage tax penalty for dual earning couples (Feldstein and Feenburg, 1996). These current forces which are moving in opposite directions may be offsetting one another.

Although, these effects seem trivial in comparison with the other effects of employer provided health insurance, they both show negative effects. Since Medicare is only provided to those 65 years of age and older, those that do not have a particularly generous pension package will wait for coverage. Health care is more important for older Americans than it is for younger Americans (see table 2) and this conflicts with the

retirement decision. The result of the effects on female labour supply demonstrates the importance of this benefit to Americans.

8 Conclusion

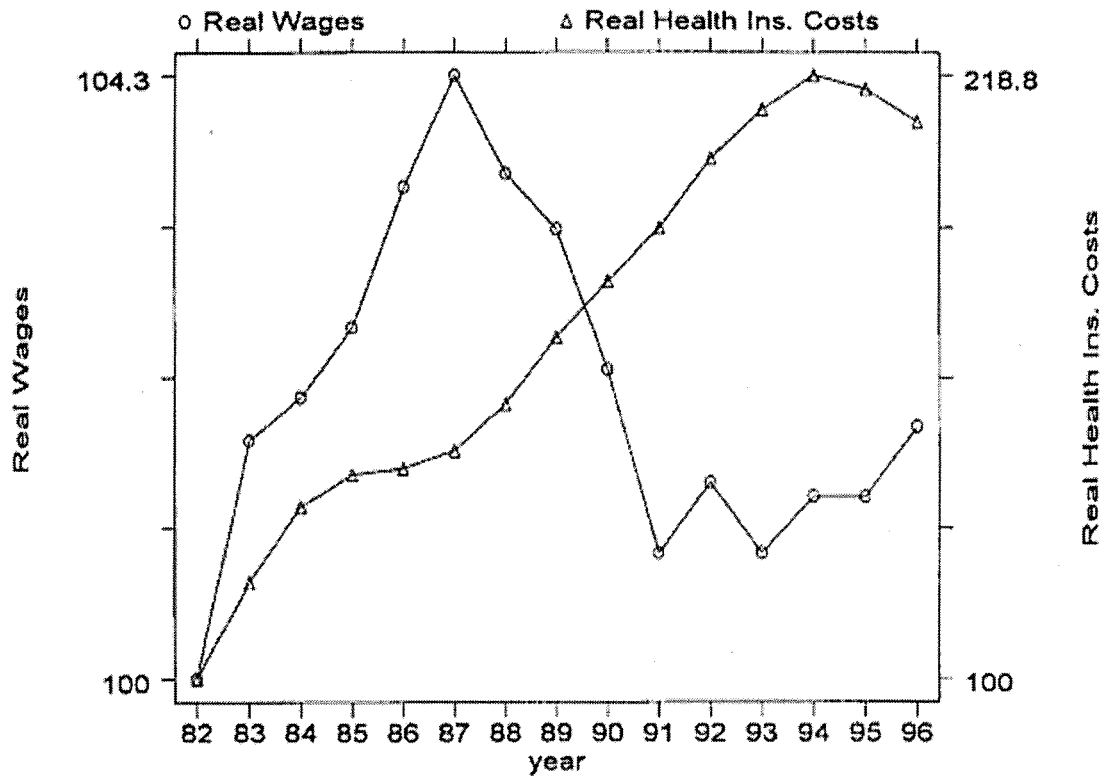
The connection between health insurance, workers and employers has serious implications to the general well being of the American economy. The connection is not based on economic principals; in fact the connection causes all sorts of distortions. If health insurance was obtained from a source other than one's employer then there would not be any labour market distortions or consumption distortions. The connection would be hard to break considering the number of Americans who are covered by their employer. Bearing in mind the cost differences between individual and group insurance, group insurance would be preferred for most. This is only obtained through one's employer.

The evidence shows that employers are responsive to changes in insurance costs through tax codes. The study of elasticity of demand draws a link between employer insurance decisions and taxation. Employers may not be making decisions that solely benefit their employees. This has serious implications to the moral hazard problem which will inflate the cost of health care, which creates a spiral effect. Insurance causes people to over use the system, which drives up costs, which drives up premiums. As premiums increase so does the cost of health care (Feldstein and Freidman, 1977).

Job – lock is an issue that has already received some legislative attention. However, the COBRA and HIPAA policies are ill-equipped to deal with consumption and labour supply distortions. An insurance structure that provides insurance exogenous to the employer would alleviate the concerns. To provide insurance, the issue of adverse selection will arise unless the insurance is mandated. If the abolishment of employer provided health insurance is legislated and groups are formed by a state monopoly then adverse selection will not apply. Furthermore, the benefits of risk pooling and increasing returns to scale in insurance increase as the number of participants increase and the risk is more diversified. A larger group could lead to a reduction in premiums which may start the process of stabilizing health care costs.

Based on the results presented in this paper it does not seem as though the health insurance market in the United States is sustainable. The current system is driving up health care costs as well as having negative effects on labour supply. All adverse effects of employer provided health insurance could be answered by a nationally mandated and provided health insurance plan. This would create a monopsony in the health care market, which would allow for the government to control necessary health care costs. Employees would not be job – locked, people would be free to start a new enterprise and retirement decisions would be made considering savings and utility instead of when one is eligible for the crucial public benefit.

Figure 1



Source: Gruber (1998) from the 1996 Employment Benefits Research Institute.

Figure 2

Wage response to increase in health insurance costs

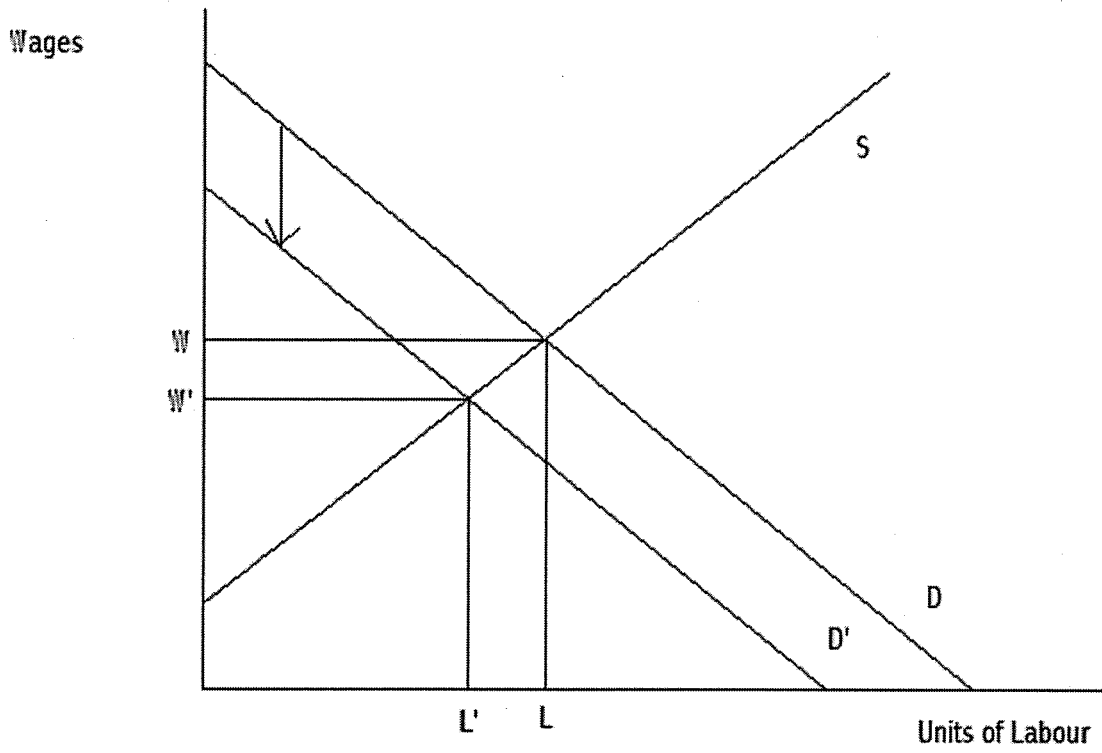
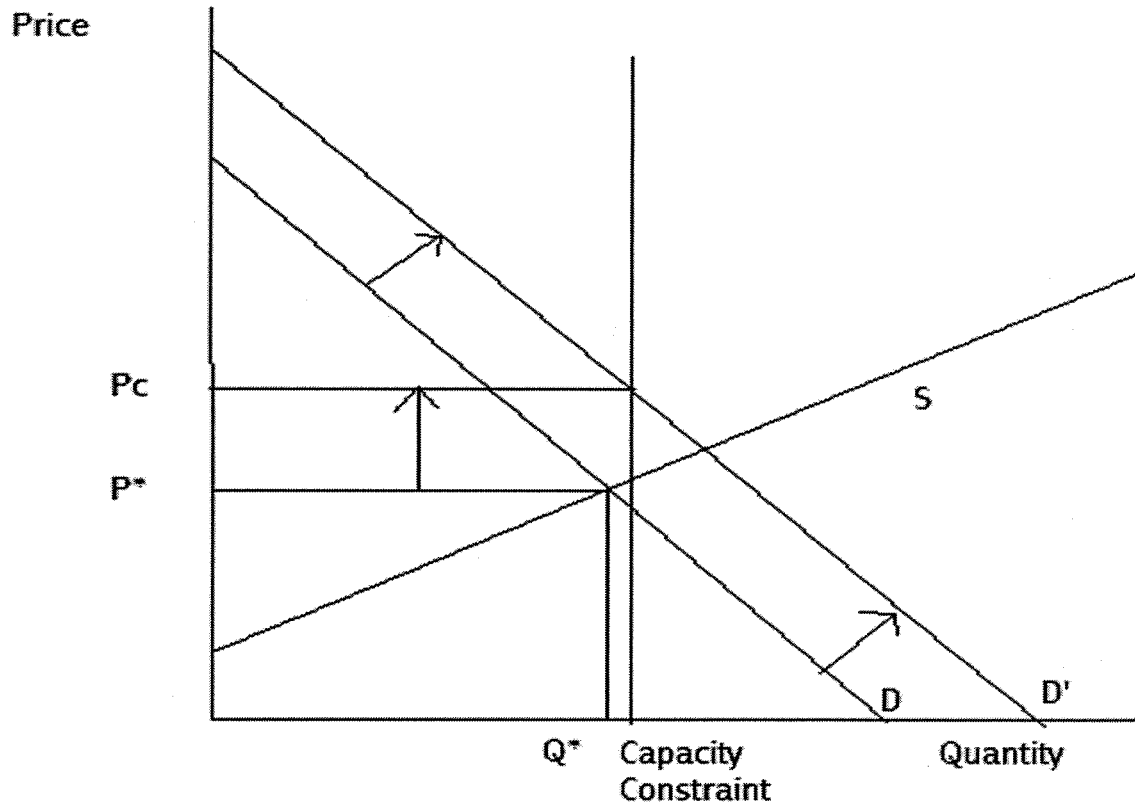


Figure 3

Supply and Demand for Health Care



Suppose the supply of health care is fixed and below capacity. When plans are made more generous the demand for these services will shift to the right and the equilibrium would be to the right of capacity which is not an option. Therefore the health care providers will expand production to capacity at the price where demand intersects the capacity constraint line. The effects are increasing price and quantity to operating at capacity.

Table 1

Table 1: Sources of Health Insurance Coverage for Non-Elderly Population Over Time

	1988	1989	1990	1991	1992	1992 (revised)	1993	1994	1995
Non-Elderly Persons (Millions)									
Population	213.8	215.7	217.8	220.0	222.5	225.5	228.0	229.9	231.9
Total Private	160.1	161.4	159.3	158.6	157.7	158.6	159.9	162.8	163.9
Employer	148.6	148.9	146.8	146.7	144.7	145.4	144.6	146.3	147.9
Own Name	70.8	71.3	70.4	70.3	68.9	69.0	72.2	75.2	75.9
Dependent	77.8	77.6	76.4	76.3	75.8	76.4	72.4	71.1	72.1
Other Private	11.7	12.6	12.6	12.0	13.1	13.3	15.4	16.4	16.0
Total Public	28.1	28.1	31.1	33.6	35.1	36.0	38.1	38.9	38.4
Uninsured	32.4	33.1	34.4	35.2	37.14	38.3	39.3	39.4	40.3
Percentage of Non-Elderly Population									
Population	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Private	74.9	74.8	73.1	72.1	70.9	70.3	70.1	70.8	70.7
Employer	69.5	69.0	67.4	66.7	65.0	64.5	63.4	63.6	63.8
Own Name	33.1	33.1	32.3	32.0	31.0	30.6	31.7	32.7	32.7
Dependent	36.4	36.0	35.1	34.7	34.0	33.9	31.8	30.9	31.1
Other Private	5.5	5.8	5.8	5.5	5.9	5.9	6.7	7.1	6.9
Total Public	13.2	13.0	14.3	15.3	15.8	16.0	16.7	16.9	16.6
Uninsured	15.2	15.3	15.8	16.0	16.7	17.0	17.3	17.1	17.4

Source: Gruber (1998) from Employment Benefits Research Institute (1996)

Table 2

Table 4: Health Risks by Age					
	25-34	35-44	45-54	55-64	65+
Self-Reported Health					
Fair	9.5	11.9	15.6	24.9	36.1
Poor	1.1	1.5	4.1	6.4	11.4
Incidence of Specific Diseases					
Stroke	0.4	0.8	1.6	3.6	7.4
Cancer	1.6	2.4	4.7	9.7	13.3
Heart Attack	0.3	1.1	3.8	7.7	13.3
High Blood Pressure	10.1	18.2	29.1	41.9	49.8
Emphysema	0.4	1.0	2.6	5.2	8.0
Diabetes	1.7	3.0	5.7	9.8	14.7
Heart Disease	0.8	2.2	6.1	11.9	22.2
Health Care Utilization					
Admitted to Hospital?	9.2	6.8	8.7	11.0	20.1
Nights in Hospital	5.5	6.8	9.3	11.8	13.8
Prescribed Medicines?	52.9	55.6	61.1	71.1	81.9
Number of Medicines	5.2	6.6	11.5	14.7	18.5
Visit to Doctor?	64.1	67.1	71.1	77.9	85.8
Number of Visits	4.6	4.6	5.5	6.0	7.4
Medical Expenditures					
Mean	1176	1135	1395	2144	2877
Standard Deviation	4025	3537	4001	6532	7070

Source: Gruber and Madrian (1996)

Notes: Compiled from Tables 4.1 -4.4 in Gruber and Madrian (1996). From the 1986 – 1987 Current Population Survey. Self Reported health refers to the percentage of the age group that responded that they had fair or poor health.

References

- Akerlof, G. (1970). "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," *The Quarterly Journal of Economics*, 84 (3), 488 – 500.
- Anderson, P. (1997). "The Effect of Employer – Provided Health Insurance on Job Mobility: Lob – Lock or Job – Push?" *Unpublished Paper, Dartmouth College*.
- Berger, M. et al. (1999). "Health Insurance Coverage of the Unemployed: COBRA and the Potential Effects of Kassebaum-Kennedy," *Journal of Policy Analysis and Management*, 18(3), 430 – 48.
- Berger, M., D. Black and F. Scott (2004). "Is there Job – Lock? Evidence from the Pre – HIPAA Era," *Southern Journal of Economics*, 70(4), 953 – 76.
- Blank, R. (1989). "The Effect of Medical Need and Medicaid on AFDC Participation," *The Journal of Human Resources*, 24, 54 – 87.
- Blau, D. and Gilleskie (1997). "Retiree Health Insurance and the Labor Force Behavior of Older Men in the 1990s," *NBER Working Paper #5948*.
- Buchmeuller T. and R. Valletta (1999). "The Effect of Health Insurance on Married Female Labour Supply," *Journal of Human Resources*, 34 (1), 42 – 70.
- Buchmeuller T. and R. Valletta (1996). "The effects of Employer-provided Health Insurance on Worker Mobility," *Industrial and Labor Relations Review* 19, 439 – 455
- Cooper, P. and A. Monheit (1993). "Does Employment Related Health Insurance Inhibit Job Mobility?" *Inquiry* 30, 400 - 416
- Cutler, D. (1994). "Market Failure in Small Group Health Insurance," *NBER Working Paper #4879*
- Feldman R., B. Dowd, S. Leitz, L. Blewett (1997). "The Effect of Premiums on the Small Firms Decision to Offer Health Insurance," *Journal of Human Resources*, 32, 635 – 658.
- Eberts, R and J. Stone (1985) "Wages, Fringe Benefits and Working Conditions: An Analysis of Compensating Differentials," *Southern Economic Journal*, 52, 274 – 80.
- Gaynor, M, D. Haas-Willson and W. Vogt (1999). "Change, Consolidation, and Competition in Health Care Markets," *Journal of Economic Perspectives*, 13 (1), 141 – 64.

Gentry, W. and E. Peress (1994). "Taxes and Fringe Benefits Offered by Employers," *NBER Working Paper* #4764.

Gilleskie, D. and B. Lutz (1999). "The Impact of Health Insurance on Dynamic Employment Transitions," *NBER Working Paper* # 7307.

Gruber, J. (1994a). "The Incidence of Mandated Maternity Benefits," *American Economic Review*, 84, 622-41.

Gruber, J. (1998). "Health Insurance and the Labor Market," *NBER Working Paper* #6762.

Gruber, J and M. Hanratty (1993). "The Labor Market Effects if Introducing National Health Insurance: Evidence form Canada," *NBER Working Paper* #4589.

Gruber, J. and M. Lettau (2004). "How Elastic is the Firm's Demand for Health Insurance?" *Journal of Public Economics*, 88, 1273 – 93.

Gruber, J and B. Madrian (1997). "Employment Separation and Health Insurance Coverage," *Journal of Public Economics*, 66(3), 349 – 82.

Gruber, J. and B. Madrian (1996). "Health Insurance and Early Retirement: Evidence from the Availability of Continuation of Coverage," in D. Wise eds. Advances in the Economics of Aging. Chicago: University of Chicago Press.

Gruber, J. and B Madrian (1994). "Health Insurance and Job Mobility: The Effects of Public Policy on Job-Lock," *Industrial and Labor Relations Review* 48, 86 – 110.

Gruber, J. and J. Poterba (1996). "Fundamental Tax Reform and Employer-Provided Health Insurance," in H. Aaron and W. Gale, eds. Economic Effects of Fundamental Tax Reform, Washington: Brookings Institute.

Gustman, A. and T. Steinmeier (1994). "Employer-Provided Health Insurance and Retirement Behavior," *Industrial and Labor Relations Review*, 48, 124 – 40.

Folland, S., A. Goodman, and M. Stano (2004) The Economics of Health and Health Care. Upper Saddle River: Pearson/Prentice Hall.

Holtz-Eakin, D. (1994). "Health Insurance Provision and Labor Market Efficiency in the US and Germany," in Blank, R&D and R. Freeman, eds. Social Protection vs. Economic Flexibility: Is There a Tradeoff? Chicago : University of Chicago Press.

Holtz-Eakin, D., J. Penrod, and H. Rosen (1994). "Health Insurance and the Supply of Entrepreneurs," *NBER Working Paper* #4880.

- Kapur, K. (2004). "The Impact of Health Insurance on Small Firm Employment," *Journal of Risk & Insurance*, 71 (1), 63 – 90.
- Karoly, L and J. Rogwski (1994). "The Effect of Access to Post- Retirement Health Insurance on the Decision to Retire Early," *Industrial and Labor Relations Review*, 48 , 103 – 23.
- Madrian, B. (2002). "Health Insurance Portability: The Consequences of COBRA," *Regulation*, 21(1), 27 – 33.
- Madrian, B. (1994). "Employment-based Health Insurance and Job mobility: Is There Evidence of Job-Lock?" *The Quarterly Journal of Economics*, 27 – 54.
- Moffit, R. and B. Wolfe (1992). "The Effect of the Medicaid Program on Welfare Participation and Labor Supply," *The Review of Economics and Statistics*, 74(4), 615 – 26.
- Monheit, A., M. Hagan, M. Berk and P. Farley (1985). "The Employed and Uninsured and the Role of Public Policy." *Inquiry*, 22, 348 – 64.
- Montgomery, E. and J. Navin (1996). "Cross-State Variation in Medicaid Program and Female Labor Supply," *NBER Working Paper #5492*.
- Olsen, C. (2002). "Do Workers Accept Lower Wages in Exchange of Health Benefits?" *Journal of Labor Economics*, 20(2), S91 – 114.
- Olsen, C. (1998). "A Comparison of Parametric and Semi parametric Estimates of the Effect of Spousal Health Insurance Coverage on Weekly Hours Worked by Wives," *Journal of Applied Econometrics*, 13 (5), 543 – 65.
- Rosen, S. 1986. "The Theory of Equalizing Differences," *Handbook of Labor Economics*, 1, 614 – 92
- Royalty, A. (2000). "Tax Preferences for Fringe Benefits and Workers Eligibility for Employer Health Insurance," *Journal of Public Economics*, 75 (2), 209 – 227.
- Rust, J. and C. Phelan (1997). "How Social Security and Medicare Affect Retirement Behavior in a World of Incomplete Markets," *Econometrica*, 65, 781 – 831.
- Thomasson, M. (2002). "From Sickness to Health: The Twentieth-Century Development of U.S. Health Insurance," *Explorations in Economic History*, 39 (3), 233 – 53.
- Thomasson, M. (2000). "The Importance of Group Coverage: How Tax Policy Shaped U.S. Health Insurance," *NBER Working Paper #7543*.

Wellington, A. (2001). "Health Insurance Coverage and Entrepreneurship," *Contemporary Economic Policy*, 19 (4), 465 – 78.

Woodbury, S. A. (1983) "Substitution between Wage and Nonwage Benefits," *American Economic Review*, 73 (1), 166 – 82.