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ABSTRACT

This paper provides a broad and general overview of the relationship between the U.S. health care system and the labor market. The paper first describes some of the salient features of and facts about the system of health insurance coverage in the U.S., particularly the role of employers. It then summarizes the empirical evidence on how health insurance impacts labor market outcomes such as wages, labor supply (including retirement, female labor supply, part-time vs. full-time work, and formal vs. informal sector work), labor demand (including hours worked and the composition of employment across full-time, part-time and temporary workers), and job turnover. It then discusses the implications of having a fragmented system of health insurance delivery--in which employers play a central role--on the health care system and health care outcomes.

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The U.S. Health Care System and Labor Markets

I. Introduction and Motivation

There is no universal provider of health insurance or health care in the United States. Rather, a patchwork system of institutions exists, each covering different subgroups of the population. Certain types of health insurance are provided as a condition of employment, while other types of health insurance are more readily available when individuals are not employed or not fully employed, while still others are available regardless of employment status. The two most significant sources of health insurance coverage in the U.S. are employers, who collectively insure 63% of the non-elderly (<65) population, and governments, who collectively cover 17% of the non-elderly population (Fronstin, 2004). Other types of insurance, such as individually purchased policies or coverage obtained through other institutions or organizations, cover about 7% of the non-elderly population with health insurance coverage.[1] But a non-trivial fraction of the population, 18% or 44.7 million individuals, are uninsured (Fronstin, 2004).

As its title suggests, this paper considers the relationship between the U.S. health care system and the labor market. Section II describes some of the salient features of and facts about the system of health insurance coverage in the U.S., particularly the role of employers. Much academic and media attention has been focused on the presumption that the relationship between

[1] Note that some individuals may have more than one source of health insurance coverage, so the sum of the fraction of individuals with the various sources of health insurance discussed in this paragraph plus the fraction of the population uninsured may add to more than 100%.

the labor market and the type(s) of health insurance coverage available to individuals may motivate some individuals and firms to make different labor market decisions than they would otherwise, in ways that adversely impact overall labor market performance. Section III summarizes the empirical evidence on this issue, examining how health insurance impacts labor market outcomes such as wages, labor supply (including retirement, female labor supply, part-time vs. full-time work, and formal vs. informal sector work), labor demand (including hours worked and the composition of employment across full-time, part-time and temporary workers), and job turnover. But the implications of the relationship between employer provided-health insurance and the labor market are not limited to labor market outcomes. Section IV discusses the implications of having a fragmented system of health insurance delivery--in which employers play a central role--on the health care system and health care outcomes. The paper concludes in Section V.

II. Health Insurance Institutions in the United States

The most prevalent type of health insurance, covering 63% of the non-elderly U.S. population, is employer-provided health insurance coverage (Fronstin, 2004). Some of those covered, about half, receive this type of insurance by virtue of their own employment, while the rest receive it as dependents of a spouse or parent who is employed. Employers in the U.S. who provide health insurance do so voluntarily, and many individuals (17% of those not self-employed) work in firms where such benefits are not offered (Fronstin, 1999). Even in those firms where health insurance is provided as a benefit, not all employees are necessarily eligible, and those who are eligible must generally elect coverage in order to receive it. Indeed, only 62% of wage and salary workers are eligible to receive health insurance benefits through their own

employment, and 17% of those individuals decline the coverage that is available to them (although they may receive health insurance from another source) (Fronstin, 1999). Some employers also provide health insurance to former employees who have retired, so-called "retiree" health insurance. At present, about 29% of firms employing more than 500 workers offer health insurance to current and future retirees (Fronstin and Salisbury, 2003, citing the Mercer/Foster-Higgins *National Survey of Employer-Sponsored Health Plans 2002*); the fraction of firms offering this coverage, however, has been declining quite substantially over time and is likely to continue to decline.

Various types of government insurance programs cover most, but not all, of the population who are not covered by employer-provided insurance. It is interesting that even at the governmental level, there is no single unified health insurance program. By far the largest government health insurance program is Medicare. Medicare was implemented in 1965 to provide health insurance coverage to individuals aged 65 and over, many of whom were left uninsured or underinsured upon their retirement when coverage through their former employers ceased.[2] Medicare also covers some individuals under age 65, specifically those who are disabled and eligible for Social Security Disability Insurance. Currently, Medicare covers over 96% of those over age 65, and 3% of those under age 65 (Fronstin, 2003 and 2004).

Medicaid is a state-run health insurance program funded jointly by the federal and various state governments (some states call the program by different names, for example, in California the program is referred to as Medi-Cal). Historically this was a health insurance program for public assistance recipients, primarily low income single mothers and their children, and also a source of supplemental insurance for the low income elderly. In recent years it has

[2] At the time the federal Medicare program was implemented individuals were not eligible for Social Security benefits until age 65.

been expanded to provide coverage to non-welfare-eligible individuals in families with modest incomes, particularly children through the SCHIP program (State Children's Health Insurance Program). There is great heterogeneity across states in the eligibility requirements for Medicaid and in the benefits that are actually provided. Overall, 9% of the elderly are covered by Medicaid, as are 13% of the non-elderly (Fronstin, 2003 and 2004). The federal government also provides health insurance to members of the uniformed services and their families. About 3% of the non-elderly population is covered by this type of health insurance (Fronstin, 2004).

Various other types of private insurance cover about 7% of the non-elderly population, and perhaps as much as a third of the elderly population (Fronstin, 2003 and 2004). These include individually purchased policies from private insurance companies (such as Blue Cross/Blue Shield), insurance provided through membership organizations such as a trade union or professional association, university-provided health insurance for college students, and supplemental insurance for the Medicare-eligible elderly (often referred to as Medigap coverage).

This patchwork system of health insurance coverage leaves many people uninsured: those who do not have health insurance through their own or a family member's employment, who are not old enough or disabled enough to qualify for Medicare, who are not eligible or decline to participate in Medicaid, and who either cannot afford or choose not to purchase health insurance in the private market. The estimated 43 million uninsured individuals in the U.S. represent about 17% of the non-elderly population (Fronstin, 2003). Due in large part to Medicare, only a small fraction of the elderly (65+), about one percent, are uninsured.

It is interesting to consider why the U.S., in contrast to most other developed countries, has a health insurance system in which employers are the primary providers of insurance rather

than the government, at least for the non-elderly.[3] The U.S. has repeatedly rejected broad attempts to "socialize" either medical care or health insurance provision. The first such initiative, during the 1930s, failed despite the concurrent genesis of so many other government social programs (including Social Security, Unemployment Insurance, and the Aid to Families with Children program, the precursor to contemporary public assistance programs for low income families). The most recent initiative was the failed Clinton administration attempt at national health reform in 1993 (there have been other unsuccessful attempts in the interim).

Even though there are some limited examples of U.S. companies providing health insurance coverage before World War II, employer-provided health insurance, as an institution, really came into being during the two decades following the War. In the absence of universal government-provided health insurance coverage, market forces pushed employers into their role as the primary providers of insurance. These market forces are several, and include: a substantial price advantage given to employers through the tax code since firm health insurance expenditures on behalf of their employees are not counted as taxable income to either the firm or the employees; significant economies of scale that derive from providing health insurance to a large group of individuals; and the ability to pool individuals into insurance groups in a way that largely overcomes the problem of adverse selection that plagues the individual market for health insurance.

III. Empirical Evidence on Health Insurance and Labor Market Outcomes

With this understanding of how the various U.S. health insurance institutions work, we can now consider the relationship between health insurance and various different labor market

[3] It is also interesting to consider why employers are the primary providers of *health* insurance, but not other types of insurance.

outcomes. This section describes some of the key empirical estimates of the relationship between health insurance and labor market outcomes, including retirement, employment, full-time vs. part-time work, and job turnover. It does not, however, go into great detail on the strengths and weaknesses of the various empirical studies that are cited. Currie and Madrian (1999), Gruber (2000), and Gruber and Madrian (2004) provide greater detail on the data and methods used in many of the studies cited in this paper (and many others), and offer opinions on the relative merit of the different empirical approaches.

Retirement and the Labor Supply of Older Workers

Perhaps the most important labor market outcome to consider is employment itself—how does health insurance affect individual participation in the labor market? The potential impact of health insurance on labor force participation derives from the fact that for some individuals, being employed is the cheapest (and perhaps even the only) way to obtain health insurance, while for other individuals, *not* being employed is in fact the cheapest way to obtain health insurance. Health insurance will be a more important factor in the decision about whether or not to be employed for individuals who place high value on health insurance—those with high anticipated medical expenditures either for themselves, or their dependents. Because medical expenditures tend to increase with age, individuals approaching retirement should be particularly interested in maintaining their health insurance coverage.

It should not be surprising, then, that the most widely studied facet of labor force participation that has been examined in the literature on health insurance and labor market outcomes is retirement: to what extent does health insurance determine when and how individuals choose to withdraw from the labor force? Health insurance is a potentially important

determinant of retirement outcomes because some types of health insurance are more portable across the transition from work to retirement than are others. For example, employer-provided health insurance is typically lost upon retirement; in companies that provide retiree health coverage, however, employer-provided health insurance is portable—individuals retain their coverage even after they retire. Health insurance that comes from a source other than one's own employment would also be portable, including individual health insurance purchased in the private market or employer provided coverage obtained as a dependent through one's spouse (as long as the spouse does not lose coverage).

If health insurance is not portable across the transition from work to retirement, the potential loss of health insurance coverage associated with leaving the work force creates a deterrent to retirement. Thus, we would expect retirement rates to be higher among those with portable health insurance. Once individuals reach age 65 and are eligible for Medicare, losing health insurance coverage completely is no longer a concern for those workers previously covered by employer-provided health insurance. Thus, after age 65, retirement rates among those with non-portable insurance will no longer be lower, and indeed, may increase if individuals have postponed retirement until becoming eligible for Medicare.[4]

The empirical evidence on health insurance and retirement largely concurs with these theoretical predictions. Several studies have found consistent evidence that individuals whose employers provide retiree health insurance leave the labor force earlier than individuals whose employers do not. For example, Rust and Phelan (1997) estimate that retiree health insurance increases the probability of retiring before age 65 by 12% to 29% (the effects vary with age); Karoly and Rogowski (1994) and Rogowski and Karoly (2000) estimate effects ranging from

[4] If individuals value their current health insurance coverage more than Medicare, which is not implausible, there may still be some deterrent to retirement from having non-portable health insurance coverage even after individuals are eligible for Medicare.

47% to 62%; while Blau and Gilleskie (2001) estimate effects ranging from 26% to 80%. Madrian (1994a) finds that individuals with access to retiree health insurance leave the labor market between 6 and 18 months earlier than individuals who do not have access to retiree health insurance and are also much more likely to retire before the age of 65.

Individuals who are covered by non-employment-based health insurance, for example, through policies purchased individually in the private market, through trade associations, or Medicaid, also have a type of health insurance coverage that is portable across the transition from work to retirement. Rust and Phelan (1997) extend their analysis to these other types of portable health insurance, and find that as with retiree health insurance, individuals with such coverage also have higher retirement rates than individuals who would lose their health insurance coverage upon retirement. Johnson, Davidoff and Perese (2003) look at the health insurance related costs of retiring more generally, and find that the higher are these costs, the less likely individuals are to retire.

One set of institutions designed to increase the portability of employer-provided health insurance, both across the transition from work to retirement and across other types of labor market transitions as well (e.g. job change), are state and federal "continuation of coverage" laws. These include two well-known federal laws that go by the acronyms COBRA (for the Consolidated Omnibus Budget Reconciliation Act) and HIPAA (for the Health Insurance Portability and Accountability Act). COBRA and other similar state-level continuation of coverage laws mandate that employers must allow employees and their dependents the option to continue purchasing health insurance through the employer's health plan for a specified period of time after coverage would otherwise terminate, even if the employee is no longer employed by

the firm.[5] HIPAA restricts the ability of insurers to impose preexisting conditions exclusions on individuals who change their health insurance coverage.[6] Both of these laws reduce the costs in terms of potential health insurance coverage loss associated with either retiring or changing jobs.

Although no research has yet been done on the impact of HIPAA on retirement, Gruber and Madrian (1995) examine the effect of COBRA and its state-level precursors on retirement. They find that among those with employer-provided health insurance, these continuation of coverage laws increase the probability of retiring by 30%; in contrast, among those without employer provided health insurance for whom the laws provide no benefit, continuation coverage has no effect on retirement. These results, using a relatively exogenous source of variation in the portability of health insurance, confirm that retirement is very sensitive to health insurance availability.

An interesting thing happens at age 65 when individuals become eligible for Medicare. Even for those individuals with employer-provided health insurance that does not continue into retirement, leaving the labor force no longer implies a loss of health insurance because individuals are covered by Medicare. Thus, Medicare eligibility should provide a strong retirement incentive for those individuals not eligible for retiree health insurance. And indeed, a substantial fraction of 64-year-olds do retire at age 65 when they become eligible for Medicare. Empirical research has to date been unable to precisely quantify the magnitude of this Medicare effect because age 65 also happens to be the Social Security normal retirement age and the age at which many pension plans provide full retirement benefits. With so many other factors motivating retirement that are coincident with Medicare eligibility, it is difficult to quantify

[5] Minnesota, in 1974, was the first state to pass a continuation of coverage law. Several states passed similar laws over the next decade. See Gruber and Madrian (1995, 1996) for more detail on continuation of coverage laws.

[6] See Berger at al. (1999) for more detail on the health insurance portability aspects of HIPAA.

exactly how big each of the respective effects are. But the evidence on how other types of health insurance affect retirement suggest that Medicare eligibility should be very important as well.

One idiosyncratic feature of Medicare relative to other types of health insurance that also generates interesting variations in retirement behavior is that Medicare only covers individuals and not spouses or dependent children. As a result, the retirement decisions of two individuals without retiree health insurance who are both about to turn 65, one with a spouse who is younger and the other with a spouse who is older, could be quite different. For the individual with the older spouse, retirement at the age of Medicare eligibility will result in a loss of health insurance coverage for neither spouse—both will be covered by Medicare (the older spouse already is). In contrast, retirement at the age of Medicare eligibility for the individual with a younger spouse will result in a loss of health insurance coverage for the spouse if the spouse was covered as a dependent on the employee's plan and not through his or her own independent coverage. Interestingly, Madrian and Beaulieu (1998) find that men with younger wives are less likely to retire than are men with older wives *until* their spouses also become eligible for Medicare. Thus, retirement is affected by not only one's own Medicare eligibility, but also the Medicare eligibility of one's spouse.

Health insurance also impacts the nature of the transition from work to retirement. Some individuals move from full-time work to full-time retirement, while others pursue a more gradual transition from work to retirement, moving from full-time work to part-time work (so-called bridge jobs), and then eventually to full-time retirement. Although many older workers, when asked, express a desire to make a gradual transition from work to retirement, it may be difficult for many to actually do this before becoming eligible for Medicare while also maintaining health insurance coverage. This is because employer-provided health insurance in the U.S. is typically

contingent upon full-time employment; very few employers provide health insurance benefits to part-time employees. Individuals with retiree health insurance, however, can retire from their full-time job and move to a different part-time or self-employment job while maintaining health insurance through their former employer. Research has shown that individuals with retiree health insurance are indeed much more likely to make a gradual transition from work to retirement than are individuals without retiree health insurance (Quinn, 1997). Thus, health insurance that is portable across the transition from work to retirement appears to be an institution that enables individuals to retire both when and how they desire.

Health Insurance Eligibility through Government Public Assistance Programs and Labor Supply

While much of the research on how health insurance affects labor force participation has been directed at the issue of retirement, older individuals are certainly not the only ones whose employment decisions are impacted by health insurance. Another margin along which health insurance might affect labor market outcomes is through the labor supply decisions of potential public assistance recipients. A key feature of the two primary public assistance programs in the U.S. (TANF, or Temporary Assistance for Needy Families, and SSI, or Supplemental Security Income) is that, in addition to cash and other benefits, recipients qualify for Medicaid—health insurance provided by the states to public assistance recipients and (potentially) other low income individuals. Because the groups who qualify for these types of programs—low income single female-headed families and the low income disabled and elderly—tend to qualify for low-wage, low-skilled jobs without health insurance, the coupling of Medicaid with public assistance encourages individuals to sign up for and to remain enrolled in public assistance programs.

Overall, the literature suggests that health insurance availability, and Medicaid in particular, has either no (Meyer and Rosenbaum, 2000; Blank, 1989; Montgomery and Navin, 2000; Decker, 1993; Ham and Shore-Sheppard, 2003) or a small effect (Yelowitz, 1995; Moffit and Wolfe, 1992; Winkler, 1991) on the labor force participation of low income single mothers. This is somewhat surprising given the potential importance of health insurance for this population and their children. On the other hand, there is some evidence that the decision to participate in welfare programs, conditional on labor supply decisions, is fairly responsive to the availability of health insurance (Ellwood and Adams, 1990; Moffit and Wolfe, 1992; Decker, 1993; Yelowitz 1996, 1998a and 1998b, 2000), an interesting finding in its own right, and one with important public policy implications.

The Labor Supply of Married Women

Married women, and to a lesser extent married men, are another group whose labor force participation is likely to be impacted by the availability of health insurance coverage. Although most of the interest in the effect of health insurance on labor force participation in both policy and academic circles has been focused on older workers and public assistance recipients, the potential impact in terms of aggregate effects on total hours worked may very well be largest for prime-aged workers, particularly married women who are typically estimated to have a large labor supply elasticity. Given the responsiveness or married women to wage changes, one might expect sensitivity to the availability of health insurance coverage as well.

Because most companies that offer health insurance make it available to both employees and their spouses, many married women receive health insurance coverage through their spouses. Whether or not a married women has health insurance through her spouse turns out to be a very

important factor in whether and how much married women work. Married women with health insurance through their husbands are 7-20 percentage points less likely to work than are women without health insurance from their spouse (Buchmueller and Valletta, 1999; Olson, 1998; Schone and Vistnes, 2000; Wellington and Cobb-Clark, 2000). Among those that do work, they are much more likely to be employed in part-time jobs that typically do not provide health insurance than full-time jobs (Buchmueller and Valletta, 1999; Olson 1998; Schone and Vistnes, 2000; Wellington and Cobb-Clark, 2000). Thus, for married women, the lack of health insurance from a spouse's employment seems to have a strong influence in motivating married women to find jobs with health insurance themselves.

Bradley et al. (2005) find large differences in the labor market responses of married women to health shocks based on whether these women have health insurance attached to their own or their spouse's job. This study, which tracks the labor market behavior of working married women diagnosed with breast cancer, finds only small reductions in the labor force participation and hours worked of women with breast cancer whose health insurance comes through their own employment, but large reductions in both labor force participation and hours worked for those whose health insurance comes through their spouse.

In one of the few studies of health insurance and the labor market using non-U.S. data, Chou and Staiger (2001) examine the effects of health insurance on spousal labor supply in Taiwan. Before March, 1995 when Taiwan implemented a new National Health Insurance program, health insurance was provided primarily through one of three government-sponsored health plans which covered workers in different sectors of the economy. Historically these plans covered only workers and not their dependents. Thus, own employment was the only way for most individuals to obtain health insurance. There was one exception—coverage for spouses

was extended to government workers in 1982, and subsequently to children and parents as well. By exploiting this variation in the availability of dependent health insurance coverage, Chou and Staiger (2001) are able to identify the effect of health insurance on employment. They estimate that the labor force participation rate of women married to government employees declined by about 3% after they were able to obtain coverage as spousal dependents relative to the labor force participation rate of women married to other private-sector workers. They estimate similar declines in labor force participation for the wives of private-sector workers following the 1995 implementation of National Health Insurance which made health insurance available to all individuals. Their results are largely corroborated in an analogous study by Chou and Lui (2000) using a different dataset on labor force participation in Taiwan.

A study of married women's labor supply in Spain uncovered another interesting link between health insurance finance and female labor supply (De la Rica and Lemieux, 1993). In Spain, health care is provided by the government and financed out of a mandatory payroll tax paid partially by the firm and partially by the employee. Payment of the payroll tax entitles both workers and their spouses and dependent children to health care, as well as to a pension and sick leave. Among men, compliance with the payroll tax is nearly universal. Among married women, however, over one-quarter of those who are employed work in the "underground" economy where "required" taxes are not paid.

Only two studies have empirically examined the effect of health insurance on the labor force participation decisions of prime-aged men. The first, by Wellington and Cobb-Clark (2000), examines the effect of spousal health insurance on the employment decisions of both husbands and wives. As noted earlier, they find large effects of husbands' health insurance on the labor force participation of married women. They also find an effect of spousal health

insurance on the labor force participation of married men: having a wife with health insurance reduces husbands' labor force participation, although the effect is less than half the size of that estimated for married women.

The only other study of health insurance and employment among prime-age men, Gruber and Madrian (1997), exploits the continuation of coverage mandates discussed earlier in the context of retirement to consider the impact of health insurance on the transition from employment to non-employment and on the subsequent duration of non-employment. This study finds that the availability of continuation coverage increases the likelihood of experiencing a spell of non-employment by about 15% and also increases the total amount of time spent non-employed by about 15%.

Overall, the body of empirical literature on the effects of health insurance on the labor supply of married women and other prime-aged workers gives strong and consistent support to the notion that health insurance affects individual labor supply decisions. When there is a ready source of health insurance available not attached to one's own employment, individuals (particularly married women) are much less likely to be employed. This suggests that the institutional link between health insurance and employment may be a significant factor in the employment decisions of individuals.

There are many other less-studied avenues through which health insurance is likely to impact labor supply. The link between Medicare coverage and the receipt of Social Security Disability Insurance for disabled individuals under the age of 65 could act as a deterrent for work among the disabled, or at least work that would be sufficient to disqualify them from further disability payments and the health insurance (Medicare) that accompanies these benefits. University-provided health insurance to students operates in a similar way. Individuals can

participate in a student health plan if they maintain their student status, which typically involves registering for a certain number of credit hours and maintaining satisfactory grades. Employment, or at least full-time employment, may jeopardize an individual's ability to maintain status as a student. Thus, some students who value their health insurance may be deterred from entering the labor market. Anecdotally, this tends to take the form of delaying graduation.

Health Insurance and Job Choice

Beyond the full- vs. part-time dimension labor supply, health insurance also has the potential to impact the initial choice of where to work and subsequent decisions about whether to change jobs, including the choice about whether or not to become self-employed. Economists are interested in the issue of job turnover because it is the process by which workers are reallocated away from jobs where they are less productive and into jobs where they are more productive. Impediments to productivity-enhancing job turnover are thus a barrier to economic growth.

Why does health insurance impact job turnover? There are several reasons. One obvious reason is that not all employers offer health insurance. Individuals who have employer-provided health insurance and place a high value on it will be reluctant to switch to a company that does not provide health insurance. In addition, individuals who don't have employer-provided health insurance and who place a high value on it may attempt to find jobs at companies that do provide health insurance. An interesting piece of evidence on this front comes from the behavior of married men who are working in jobs without health insurance. Married men without health insurance but who have pregnant wives are two-times more likely to change jobs than married men without health insurance whose wives are not pregnant (Madrian, 1994b). The impending

birth of a child clearly increases the value of health insurance, and these men clearly respond by changing jobs, presumably in an attempt to find something with health insurance.

A second reason that health insurance affects the job turnover decisions of individuals is that not all employer-provided health insurance plans are equal, at least not for an employee who contemplates changing jobs. In addition to variation across employers in the generosity of the health insurance package in terms of copyaments, deductibles and what is and is not covered, there are two more subtle issues to consider. The first is that many employers exclude preexisting conditions for a certain period of time.7 So, even though a new employer and one's current employer may appear to provide identical coverage, the coverage of the new employer may in fact be vastly inferior for families with medical problems if these problems are not covered under the terms of a preexisting conditions exclusion restriction. The second issue is that employers do not generally offer their employees free choice amongst the universe of medical providers in the health insurance plans that they provide. Thus, an employment change that is accompanied by a health insurance change may also necessitate a medical provider change. Individuals who value relationships with their current doctors may be averse to changing health insurance plans even if preexisting conditions are not an issue.

My own research on the relationship between health insurance and job turnover suggests that health insurance is indeed an important factor in the decision to change jobs. One interesting finding is that among individuals who have employer-provided health insurance, those who also have coverage through the employment of a spouse are much more likely to change jobs than those that do not (Madrian, 1994b). In essence, health insurance coverage through a spouse's employment is portable across the transition from one job to another and is

[7] HIPAA restricts the circumstances under which employers can impose preexisting conditions exclusions in their health insurance plans.

one way to skirt the preexisting conditions exclusions that may be in place at a new employer. Another interesting finding is that COBRA, in addition to motivating retirement among older workers, also motivates job turnover among younger workers (Gruber and Madrian, 1994). COBRA makes the health insurance from one's former employer portable across jobs, at least for a limited time, but long enough to skirt preexisting conditions exclusions.

Beyond my own work, the broader literature on health insurance and job choice is more divided. About one-third of the papers studied find that health insurance significantly impacts the job choice decisions made by workers, with a potential loss of health insurance as a result of job change acting as a deterrent to job turnover, and a potential gain in health insurance leading to increased mobility (Cooper and Monheit, 1993; Madrian, 1994b; Gruber and Madrian, 1994; Anderson, 1997; Stroupe, Kinney and Knieser, 2001; Bansak and Raphael, 2005). Another one-third of the papers find no significant relationship between job choice and health insurance (Mitchell, 1982; Holtz-Eakin, 1994; Penrod, 1994, Holtz-Eakin, Penrod and Rosen, 1996; Slade, 1997; Kapur, 1998; Spaulding, 1997). And the remaining third find evidence that varies by empirical specification or the sub-group analyzed, or effects that are not statistically significant at standard levels (Buchmueller and Valletta, 1996; Brunetti, et al. 2000; Madrian and Lefgren, 1998; Berger, Black and Scott, 2004; Gilleskie and Lutz, 2002). It is interesting to note that a fair number of the studies that find a significant effect of health insurance on job choice obtain estimates that are fairly similar in magnitude—that the potential loss of employer-provided health insurance associated with job change reduces job mobility by 25-50% (Cooper and Monheit, 1993; Madrian, 1994b; Buchmueller and Valletta, 1996; Stroupe, Kinney and Kniesner, 2001).

It is also interesting to consider the relationship between health insurance and job turnover from the employer's perspective. For an employer that offers health insurance coverage, a sick employee is costly in two ways. First, a sick employee may be less productive. Second, a sick employee (or a healthy employee with sick dependents) is likely to generate higher insurance claims. Because of their medical expenditures, these employees may be relatively more attractive targets for layoffs. The link between health insurance and employment may thus have an adverse impact on families with medical problems if these problems lead to claims-based layoffs (see Anderson 1997).

Health Insurance and Labor Demand

In addition to its impact of the employment and job choice decisions of individuals, health insurance may also affect the labor demand decisions of employers. There are two features of health insurance provision that are particularly salient in this regard. The first is that health insurance is a fixed cost of employment. Expected employer expenditures on health insurance do not increase when the weekly hours worked by their employees increase, and they do not increase when compensation increases. They only increase when more employees are hired. This feature of employer-provided health insurance, its fixed-cost nature, gives firms an incentive to economize on the costs of providing health insurance in two ways. The first is by hiring fewer employees but at longer weekly hours—this is one way to maintain production while reducing the overall costs of providing health insurance. The second is by hiring fewer but more productive employees—employees who can produce more than the average employee would. Cutler and Madrian (1998) provide partial evidence that firms have substituted long weekly hours for fewer workers as health insurance costs have increased over recent years.

Moreover, the effects are nontrivial. The increase in weekly hours associated with the increase in health insurance costs between 1980 and 1993 resulted in a change in average weekly hours among those with health insurance equivalent to roughly half the change in labor input that is observed in a typical recession. Baicker and Chandra (2005) examine the impact of rising health insurance costs on employment and find that a 10 percent increase in health premiums reduces the aggregate employment rate by 1.6 percent.

The second feature of health insurance that is salient to the labor demand decision is the distinction between full- and part-time workers in the tax treatment of employer expenditures on health insurance. Employer expenditures on health insurance are usually not subject to taxation—with one caveat: employers must satisfy a set of Internal Revenue Service nondiscrimination rules which stipulate that if a firm is to provide health insurance, it must make it widely available to substantively all employees. In essence, employers cannot selectively decide that they will provide health insurance to some employees and not to others, either because of favoritism, or as a cost-saving measure. However, certain groups of employees, namely part-time, temporary and seasonal workers, are exempt from the requirements of the nondiscrimination rules. Thus, employers can deny health insurance coverage to part-time, temporary and seasonal workers while still obtaining favorable tax treatment for their health insurance expenditures on full-time permanent employees. As health insurance becomes more expensive to provide, the non-discrimination rules give employers an incentive to hire part-time and temporary workers in lieu of full-time workers as a way to economize on insurance expenditures. This could account for some of the phenomenal growth in the temporary services industry over the past two decades.

More concrete evidence that employers substitute from full- to part-time workers in the face of higher health insurance costs comes from the state of Hawaii. In 1974, Hawaii mandated employer provision of health insurance to full-time, but not part-time workers. Thurston (1997) finds that those industries most affected by the mandate, namely industries in which relatively few full-time workers were covered by health insurance, saw large increases in the fraction of workers employed in part-time jobs. In contrast, industries in which almost all full-time employees were already receiving health insurance saw little shift in the fraction of full- vs. part-time workers. Baicker and Chandra (2005) also find a shift to part-time employment as a result of recent increases in health insurance costs.

Thus, health insurance affects both the size and composition of the work force that firms' employ. As health insurance becomes more costly to provide, employers have an incentive to reduce their health insurance costs by substituting overtime for employment, skilled labor for unskilled labor, and part-time and temporary workers for regular full-time employees.

Health Insurance and Wages

A final labor market outcome of interest, wages, is determined jointly by the labor supply decisions of individuals and the labor demand decisions of employers. From the firm's perspective, providing health insurance imposes an additional compensation cost on the employer and will reduce the level of wages it is willing to offer for a given level of labor input. From the worker's perspective, employer-provided health insurance is simply another form of compensation and will reduce the level of wages required to supply a given level of labor input. In a competitive labor market, the level of total compensation received by employees will be determined by worker productivity. The composition of that compensation between wages and

fringe benefits will be dictated by the value that employees place on having employer-provided health insurance relative to the cost to the employer of providing it. If employees value employer-provided health insurance at less than the cost to the employer of providing it, the firm will not be able to pass the full cost of offering the insurance onto workers in the form of lower wages and will opt not to provide health insurance. That employers do provide health insurance would seem to indicate that at least some employees are willing to accept a wage reduction at least equivalent to the cost to the firm of providing the insurance.

Given the inherent risks of being uninsured, risk-adverse individuals should value having some sort of health insurance, although as noted above in Section II, there may be more than one way to obtain this insurance. The value to employees having *employer-provided* health insurance have already been mentioned: the tax deductibility of employer expenditures on health insurance, economies of scale from providing health insurance to a large group of individuals, and the ability to pool individuals into insurance groups in a way that largely overcomes the problem of adverse selection that plagues the individual market for health insurance. These advantages of employer-provided health insurance are potentially large, and we should expect many employees to be willing to accept a wage reduction at least equivalent to the cost to their employer of providing health insurance. However, some individuals have cheaper health insurance available from another source (for example, the government or a family member), and they may place a very low value on having employer-provided health insurance from their own employer.

Despite the strong presumption of a trade-off between wages and health insurance, the early literature on this topic was focused not on the magnitude of the wage-health insurance tradeoff, but on the reasons why researchers could not find support that there is one (Currie and

Madrian, 1999). The fundamental problem was a lack of appropriate data for estimating the magnitude of any such relationship. More recent studies that have been careful in both finding suitable data and specifying the empirical relationship have found evidence of a wage-health insurance tradeoff. Gruber and Krueger (1991) and Gruber (1994) exploit exogenous changes in the cost of benefits offered to workers and find that essentially the full amount of these cost increases are passed onto workers in the form of lower wages.[8] Royalty (2003) examines the choices that workers make among health plans within a given firm when those plans receive different employer subsidies and require different employee contributions and finds evidence of an incomplete tradeoff between wages and health insurance. Baicker and Chandra (2005), exploiting variation in health insurance costs driven by variation in medical malpractice payments, similarly find an incomplete tradeoff between wages and health benefits. These recent studies all concur that there is a trade-off between wages and health benefits, but the magnitude of this trade-off, that is, whether workers are willing to accept a dollar-for-dollar reduction in wages in exchange for receiving health benefits or something less, is still open to question.

Health insurance may also affect wages through mechanisms other than a direct trade-off between wages and fringe benefits. For example, health insurance has the potential to affect the job matching process. As discussed earlier, the costs of relinquishing health insurance upon job change may lead individuals to remain in their current jobs even if higher productivity job alternatives are available. This productivity loss would presumably result in lower levels of compensation as well. Gruber and Madrian (1997) find evidence that unemployed individuals

[8] Gruber and Krueger (1991) exploit changes across states in the cost of offering workers compensation insurance that are largely driven by changes in the medical component of workers compensation. Gruber (1994) exploits the widespread adoption of maternity benefits following the Pregnancy Discrimination Act of 1978 to estimate the impact on wages of this type of additional health insurance.

who have access to continued health insurance coverage while out of work spend more time unemployed (presumably searching for better jobs) and are subsequently reemployed at higher wages.

IV. The U.S. Health Insurance System and Health Care Outcomes

Despite a large and growing body of literature on the impact of U.S. health insurance institutions on labor market outcomes, surprisingly little attention has been focused on the effect of U.S. health insurance institutions on health outcomes. As Levy and Metlzer (2004) noted in a recent survey of the literature on health and health insurance: "Literally hundreds of studies have documented the fact that the uninsured have worse health outcomes than the insured…Very few of these studies establish a causal relationship between health insurance and health, however." Beyond the question of whether health insurance as a general proposition impacts health is the question of whether, or how, the U.S. health care *system* impacts health.

The U.S. system of health insurance provision is anything but stable for most individuals. Although some people may never experience a spell without health insurance, the type of health insurance coverage that individuals have is likely to change several times over the course of a lifetime as individuals change jobs or move between different types of public, private, or other coverage. And many people will experience not only changes in the source of their health insurance coverage, but also intermittent or sometimes lengthy spells without any coverage. What implications does the patchwork-quilt nature of the U.S. health care system have for health?

One way in which the system can impact both health and medical care expenditures is through its effect on the incentives to invest in socially efficient preventative care or disease

management. Some forms of preventative medicine have both short-term costs and short-term benefits (e.g., a flu vaccine). Others, however, have short-term costs but much longer-term benefits (e.g., weight control, smoking cessation, diabetes management). Under the current system of health insurance provision in the U.S., no one may have the appropriate incentives to make socially efficient investments in preventative care if the costs accrue in the short-term (or on an ongoing basis) but the benefits (lower costs in the future) accrue only many years hence.

Any investments in health that yield a payoff beyond an insured's expected tenure with the insurance provider (either an employer, a public insurer, or a private insurer) will not be cost effective for the insurer to provide. And individuals, who are largely insensitive to the price of medical care by virtue of being insured, will also have little incentive to make personal investments today that lead to reduced social costs in the future. Moreover, to the extent that some types of preventative measures involve investments that are not specific to the insurer or the insured (e.g., investments in computer systems to help doctors monitor patient conditions that are not specific to the patients covered by a particular insurer), the large number of agents in the current system will result in a free-rider problem and underprovision of socially valuable preventative investments.

Beaulieu, Cutler and Ho (2003) discuss these problems for the specific case of diabetes management. They analyze monitoring systems that reduce the long-run costs of diabetes, but that yield a pay-off only over the time span of several years. They note that from a social perspective, the long-run benefits of these monitoring systems far exceed the costs. But, from the perspective of a profit-maximizing insurer, the private benefits to the firm are negative for the first few years, and the firm only begins to break even after a decade. As a consequence,

firms with high levels of turnover are unlikely to invest in such systems because other insurers are the ones who will reap the benefits.

Another way in which the system can impact health is through disruptions in the continuity of care as individual move between different health insurance providers or between spells of insurance and uninsurance. The "start-up" costs of interacting with the health system following a change in health insurance (e.g., finding a new doctor) may lead individuals to delay getting treatment. Or, individuals who lose health insurance coverage may delay getting needed treatment, hoping to obtain insurance coverage before things get "too bad". Individuals who are transitioning from one doctor to another as a result of a change in health insurance coverage may also generate increased medical expenditures through the duplication of tests or diagnostic procedures done to generate measures of baseline health status or to determine an appropriate course of treatment. Their health may also suffer if there are miscommunications between the old and new medical care providers about the nature of an individual health condition and/or its treatment.

V. Conclusion

There is an important relationship between labor market outcomes and the institutions and rules governing health insurance provision in the U.S. Health insurance is an important factor in almost every labor market decision made by individuals: whether to work, where to work, and how much to work. It is also an important factor in the human resource decisions made by employers: how many workers to hire, whom to hire, and how to structure the terms and conditions of employment.

An important lesson to be learned from the experience of the U.S. is that while employer provision of health insurance is a convenient way to finance insurance benefits without involving the government budget directly, not everyone is tied to the labor market. Reliance on and encouragement of employer provision of health insurance will invariably result in government programs to fill in the gaps—to cover the otherwise uninsured either in whole or in part. But it is the interplay between these various institutions, some tied directly to the labor market and others not, that results in distortions of the labor market decisions of individuals and firms. This type of fragmented system may also lead to inefficiencies in the provision of health care services, such as inadequate investments in disease management of preventative medicine.

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