Health insurance as a productive factor☆

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HIGHLIGHTS

- Empirically show that workers with health insurance miss 76:54% fewer work-days
- On-the-job search endogenizing the impact of health insurance on sick leaves
- In equilibrium, firms offering health insurance are larger and pay higher wages
- Calibrate the model and show impact of changes on taxes and insurance costs
- Preliminary results show that preventive care is better than curative care.

ARTICLE INFO

ABSTRACT

In this paper, we present a less-explored channel through which health insurance impacts productivity: by offering health insurance, employers reduce the expected time workers spend out of work in sick days. Using data from the Medical Expenditure Panel Survey (MEPS), we show that a worker with health coverage misses on average 76.54% fewer workdays than uninsured workers, after controlling for endogeneity. We develop a model that embodies this impact of health coverage in productivity. In our model, health insurance reduces the probability that a healthy worker gets sick, missing workdays, and it increases the probability that a sick worker recovers and returns to work. In our model, firms that offer health insurance are larger and pay higher wages in equilibrium, a pattern observed in the data. We calibrated the model using US data for 2004 and show the impact of increases in health costs, as well as of changes in tax benefits of health insurance expenses, on labor force health coverage and productivity.

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1. Introduction

At the core of the US health system is the role of employers as the main source of insurance for the population at work age (18 to 64 years old). This role generates a peculiar interaction between health care and labor markets. Because health insurance costs outside the

workplace are prohibitive to most workers, employers can distinguish themselves by offering health coverage to their employees and obtain a hiring edge over firms that do not offer insurance. On the other hand, as health costs have increased, the labor force's health coverage has become a primary source of variable costs for employers. The increase in health care costs during the last decade was followed by a reduction in the fraction of workers covered by their employers. Consequently, the number of uninsured rose from 36.5 million in 1994 to 45.7 million in 2008, the latter figure representing 17.4% of the non-elderly population. The interaction between the labor market and health insurance in a scenario of rising health care costs is also harmful to labor productivity, since a number of employers hire workers as part-time

or contract employees in order to reduce health insurance expenses. Similarly, many workers decide not to move to a job that seems a better match in terms of total productivity but does not offer health insurance. Therefore, a better understanding of the impact of employer-based health insurance on labor market outcomes seems fundamental to estimating the real cost of the US health insurance system.

In this paper, we present a second channel through which health insurance impacts productivity. By offering health insurance, employers reduce employees' expected time out of work in two ways: by reducing the probability a worker gets sick (preventive medicine) and/or increasing the probability a worker recovers from illness (curative medicine). This productivity cost was estimated to be substantial. In 2003, 69 million workers missed a total of 407 million days of work due to illness. This is equivalent to a loss in output of $48 billion, if we value their missed work time at their actual wages (Davis et al., 2005).[1] Our empirical results using data from the Medical Expenditure Panel Survey (MEPS) show that an insured worker misses on average 76.54% fewer workdays in a 2-year period than an uninsured worker, resulting in 5.5 more workdays in a year.[2] This reduction in missed workdays implies not only that any given worker becomes a more valuable asset for the firm, but also that fewer sick days reduce the firm's expenses in paid leaves for ill absent workers.

We develop an on-the-job search model that embodies this impact of health coverage in productivity through fewer sick days. In our model, employers decide not only which wages to offer, but also whether to offer a health care option to their employees. Offering health insurance has an impact on the probability that a worker gets sick, misses workdays, recovers, and returns to work. Through this framework, we match several features empirically observed in the connection between labor market and health insurance coverage. For example, in our model, companies that offer health insurance will be larger in equilibrium as well as offer a higher wage. The reason for higher wages is derived from the productivity boost of health insurance; once employees are working more in expected terms, losing a worker becomes more costly for a firm. In order to avoid workers accepting outside offers, firms offering health insurance pay higher wages. This positive relation between health coverage and wages is also corroborated by our empirical findings with the MEPS. More specifically, according to our empirical results, increases in firm size and wage earned are positively related to the probability of a worker having health insurance coverage. Surprisingly, these labor-related variables are more important predictors of health coverage than health characteristics, such as health habits or addictions.

Once we calibrate the model using US data for 2004, we evaluate the impact of a series of policy changes in the health insurance sector on labor market outcomes. We find that a reduction in health insurance tax subsidies from 35% – as estimated by Gruber (2010) – to 31.5% generates a reduction in the share of firms providing health insurance from 59% to 40%. Once fewer firms offer insurance, the share of covered workers drops by 5.42%, while the fraction of sick workers goes up by 13.96%. We also show that a 10% increase in health insurance premiums reduces the proportion of workers with health coverage by 15.43%, increasing the number of workers sick in steady state by 39.64%. In addition, we consider a scenario in which the government mandates that all firms provide health insurance. We show that a mandate reduces firms' aggregate profit but increases previously uninsured workers' utility, while the total welfare effect is positive. Finally, we consider the difference in impact of improvements on preventive versus curative care. We compare the case of a governmental investment in medical research that makes preventive methods 10% more efficient to the case in which

such an investment is made to improve curative methods (which also become 10% more efficient). Our results show that, although both medical advances have positive impact, choosing to invest in preventive instead of curative care generates a slightly higher gain in labor force's health coverage and consequently a reduction in the number of sick workers in steady state. Keep in mind that in this exercise we did not take into account potential differences in costs of implementing such advances, that may be considerable.

The next section discusses the related literature. Section 3 describes the data, while Section 4 describes our econometric specifications. Section 5 presents empirical results to motivate the model's main hypothesis, which is the positive effect of holding health insurance on worker productivity. Section 6 describes the model while Section 7 presents comparative statistics and policy experiments. Finally, Section 8 concludes the paper.

2. Related literature

Many scholars have attempted to explain the predominance of employer-provided health insurance in the United States. There are two current leading explanations for this phenomenon. The first explanation has to do with the U.S. tax system, in which firms receive a tax benefit when they provide nondiscriminatory health insurance to their employees. Gruber and Poterba (1996) estimated that the tax-induced reduction in the "price" of employer-provided health insurance is about 27% on average. Woodbury and Huang (1991), Gruber and Poterba (1994) and Gentry and Peress (1994) concluded that taxes are an important factor in the provision of fringe benefits, although, not surprisingly, there is a wide range in the magnitude of the impact of taxes on fringe benefits. The second explanation is the cost advantage that employers gain by reducing adverse selection and lowering administrative expenses through pooling. Together these two factors reduce the cost of providing insurance in large firms relative to small groups. Brown et al. (1990) and Brugemann and Manovskii (2009) hypothesized these factors as the reasons why large firms are much more likely to offer health insurance than smaller ones.

Regarding the effect of health insurance provision on wages, the empirical literature is inconclusive. The conflicting evidence highlights the difficulty associated with isolating the impact of health insurance on labor market outcomes. In principle, we should expect that employees pay for the cost of employer-provided health insurance through lower wages. Similar to general human capital, health remains in possession of the worker as he moves from one job to another, so employers are unable to recover an investment in employees' health. Surprisingly, Monheit et al. (1985) estimated a positive relationship between the two. However, their result does not seem to be robust since Gruber (1994), Gruber and Krueger (1990) and Eberts and Stone (1985), using different datasets and methods, found that most of the cost of the benefit is reflected in lower wages.[3] A problem with these studies, addressed by subsequent research, is the possible endogenous relationship between health provision and wages. This endogeneity comes from the fact that workers may choose to invest in health through insurance coverage and health habits, knowing that healthier individuals are more productive and obtain higher wages. Several scholars attempted to handle this problem by looking for instrumental variables to obtain a more accurate measure of the health-wage relationship. Leibowitz (1983) used health insurance expenditures as an instrumental variable; she used the RAND Health Insurance Study (RHIS) to estimate the wage/fringe benefit trade-off. The RHIS is considered an "ideal" database to test this trade-off, as it is an individual-level database that includes

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[1] More medical care consumption was shown to reduce the number of missed workdays due to illness. Stratman (1999) shows that the productivity effect of doctor visits is substantial for all conditions analyzed. For example, individuals with influenza can cut work loss by 2.5 days and those with chronic asthma can cut work loss by 7 days by visiting a physician.

[2] As usual, we controlled for observables and endogeneity.

[3] Gruber (1994) uses statewide variation in mandated maternity benefits, Gruber and Krueger (1990) employ industry and state variation in the cost of worker's compensation insurance, and Eberts and Stone (1985) rely on school district variation in health insurance costs to estimate the manner in which wages are negatively affected by health insurance provision.