Impact of health savings accounts on precautionary savings, demand for health insurance and prevention effort

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ARTICLE INFO

ABSTRACT

The paper examines the influence of health savings accounts (HSAs) on optimal savings, insurance demand and prevention effort over the course of a lifetime. This paper adds to the literature by investigating HSAs as both a form of insurance and as saving vehicle in an expected utility framework. Assuming no regulatory constraints on the deductible, we show that individuals voluntarily choose a positive deductible and increase their savings with HSAs. If the government-imposed minimum deductible becomes too great, however, individuals may instead choose to remain in traditional insurance. We determine the effect of HSAs on prevention effort. We find that an increased tax subsidy may worsen moral hazard issues. Assuming partial risk aversion to be less than or equal to one, individuals will either invest less in the health preservation effort and more money in the HSA or vice versa. However, they will never increase both effort and savings simultaneously as was intended when HSAs were introduced.

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1. Introduction

Tax-favored[1] Health savings accounts (HSAs), which are required to be combined with a high-deductible health plan, were recently introduced in the United States. HSAs are tax favored in that the insured do not have to pay income tax on HSA deposits and the earned interest on the balance is not subject to tax, too. The balance of an HSA can be used for both the out-of-pocket expenses that accompany a high-deductible health plan and for medical treatments that are not covered by the health plan.[2] The U.S. government pursued multiple objectives with the introduction of HSAs. It intended to increase individual responsibility through two dimensions: first, providing incentives through the HSA tax shelter

to save more for future health expenses; and second, encouraging individuals to participate more consciously in their health care by making cost-conscious decisions and tracking physician car and decisions. Thus, the moral hazard of medical care should be reduced with HSAs. The U.S. government also aimed to increase the number of citizens with health insurance through the introduction of HSAs.

The first aim of this paper is to determine whether the combination of an HSA with a deductible has the potential to attract customers from traditional insurance. Therefore, an expected utility framework is developed where individuals can insure against increasing health costs and/or privately accumulate money over the course of their lifetime. We include the tax-favored savings for health care costs seen in HSAs. As individuals can withdraw unused money from an HSA at older ages by simply paying back the tax subsidies they received, HSAs are a savings instrument of a very interesting nature, where higher pay-offs are perfectly positively correlated with the occurrence of health costs. Thus, this paper investigates HSAs as both a form of insurance and as a savings vehicle to determine whether the effects of HSAs are driven by protection against losses due to illness costs or rather by savings motives. We show that, without any regulatory constraints on the minimum deductible, it is individually optimal to choose a positive deductible. If the government-imposed minimum deductible

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[2] Individuals can also withdraw money for other purposes. In that case, they must pay back the money saved on taxes and an additional fee might be imposed.

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becomes too great, however, individuals may instead choose to remain in traditional insurance.

The second aim of this paper is to investigate whether HSAs have the potential to reduce moral hazard and increase savings as intended by the U.S. government. For this reason, we include in the model the possibility that individuals can privately invest in prevention. We show that, with an increased tax subsidy, moral hazard issues may in fact worsen. Assuming partial risk aversion to be less than or equal to one, individuals will either invest less in the health preservation effort and more in the HSA or vice versa. However, they will never increase both effort and savings simultaneously as was intended when HSAs were introduced.

How to allocate acquired wealth over the course of an individual's lifetime has been the focus of research for some decades. In the absence of risk, Leland (1968) and Kimball (1990) argue that it is best to have even consumption over time when time preferences and interest equal. The introduction of financial uncertainty into such a decision will lead to an intuitively similar result. In this case, a necessary condition for optimal consumption is that the expected utility of consumption must be equal at all times. Palombo (1999), for example, shows that simulated consumption patterns seem to estimate real-life behavior considerably better when health care expenditures are taken into account.

Regarding health risk, the overall effect on consumption patterns over a lifetime has been source of controversy. Most work on this relationship employs an empirical approach. For example, Starr-McCluer (1996) examines whether individuals without health insurance save more than insured individuals because they face a higher income risk due to medical treatment. She finds no evidence to support that hypothesis in U.S. data. On the contrary, Starr-McCluer concludes that individuals with health insurance have significantly higher savings than comparable individuals without health insurance. These results may be partly explained because health insurance markets are imperfect and suffer from adverse selection. Sloan/Norton (1997) provide empirical evidence that private long-term care markets suffer from such market imperfections while Cutler and Zeckhauser (1998) find adverse selection in the plan choice of health insured. According to the theory of adverse selection, lower risk types may be interested in rather accumulate savings than to purchase unfair insurance.

In contrast to the results of Starr-McCluer, Gruber and Yelowitz (1999) show that individuals enrolled in the medicaid program in the U.S. have significantly fewer savings than comparable individuals without health insurance.[3] Kotlikoff (1989) shows that, from a theoretical point of view, health risk will increase or reduce savings depending on whether illness increases or decreases marginal utility. However, empirical work on the influence of illness on utility has not reached an unambiguous result.[4] As the focus of this paper is on the financial aspects of falling ill, this controversy will not have an influence on the results presented here.

Regarding HSAs, several previous papers estimate demand effects after the introduction of HSAs. Feldman et al. (2005) predict that HSAs will attract a substantial number of U.S. citizens. They find that a quarter of those choosing an HSA had no health insurance before the introduction of HSAs. Remler and Glied (2005) make a controversial assessment of the potential of HSAs to attract uninsured individuals. They do not think that HSAs will be an option

for many uninsured because they will only receive a very small or no tax shield due to their low income. This view is shared by others such as Hoffman and Tolbert (2006). Remler and Glied (2006) find that HSAs have the potential to increase cost-sharing in health care and, thus, reduce moral hazard. Cardon and Showalter (2007) theoretically demonstrate that HSAs will lead to higher deductibles and copayments in health insurance. In addition, they conduct a simulation and find that, in the absence of adverse selection, HSAs will induce an increase in overall welfare.

Other types of savings accounts for health expenditures have been the focus of previous work as well. Zabinski et al. (1999) examine the potential attractiveness of medical savings accounts for families.[5] They show that the introduction of medical savings accounts leads to a crowding-out of comprehensive coverage. In particular, high-risk families might suffer a decrease in welfare. This result is confirmed by Green et al. (2006). In previous work on flexible spending accounts,[6] Cardon and Showalter (2003) show that individuals will invest more if their risk aversion or the maximum loss is higher. When absolute risk aversion decreases, individuals will invest less with a higher income and more with a higher tax rate.

Our paper provides a new, theoretical approach to the influence of HSAs on savings behavior, the demand for health insurance and prevention effort over the course of an individual's lifetime. We use a theoretical model similar to the one used by Kotlikoff (1989) who examines incentives for switching from traditional health insurance to medicaid. We employ Kotlikoff's general set-up to HSAs and expand it to address moral hazard problems.

Previous work also exists on moral hazard issues in health insurance regarding preventive effort. This kind of moral hazard has been discussed theoretically and empirically in the literature. In a one-period theoretical model, Zweifel and Manning (2000) examine prevention efforts when the prevention level is unobservable to the insurer. They find ambiguous results. However, there is empirical evidence that higher out-of-pocket expenses and co-payment rates significantly reduce the demand for preventive care.[7] Our paper expands the existing literature by specifically examining prevention and HSAs.

The remainder of the paper is structured as follows: After the introduction, the optimal savings and demand for insurance without tax incentives is considered. It is shown that full insurance is optimal if insurance is offered at actuarially fair rates, i.e., prices that equal the expected loss expenses. In the presence of a positive deductible, a savings incentive is created. In the second part of the paper a tax shelter like that provided by an HSA is included in the analysis. Under such a framework, individuals voluntarily choose a positive deductible. However, if the minimum deductible required by regulation becomes too great, they may prefer to stay in traditional insurance. In addition, incentives to choose a deductible health plan are increased when HSAs are introduced. The third part of this paper examines the influence of HSAs on prevention effort and finds that, with an increased tax subsidy, moral hazard issues may worsen. Assuming partial risk aversion to be less than or equal to one, individuals will either invest less in the health preservation effort and more in their HSA or they will choose a higher effort level and save less. The analysis ends with a brief conclusion.

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[3] Other aspects have been discussed as well. For example, Japelli et al. (2007) consider quality of care in an empirical study with data from Italy. They find that lower health care quality induces individuals to accumulate higher precautionary savings.

[4] See Evans and Viscusi (1990) and Viscusi and Evans (1991).

[5] Medical savings accounts were a predecessor of HSAs in the U.S.

[6] Flexible spending accounts are the predecessors of HSAs and have characteristics that are generally very similar to HSAs.

[7] See, e.g., Roddy et al. (1986); Lillard et al. (1986) and Keeler and Rolph (1988).