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U.S. tax policy and health insurance demand: Can a regressive policy improve welfare?

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ABSTRACT

The U.S. tax policy on health insurance is regressive because it subsidizes only those offered group insurance through their employers, who also tend to have a relatively high income. Moreover, the subsidy takes the form of deductions from the progressive income tax system giving high income earners a larger subsidy. To understand the effect of the policy, we construct a dynamic general equilibrium model with heterogenous agents and an endogenous demand for health insurance. A complete removal of the subsidy may lead to a partial collapse of the group insurance market, reduce the insurance coverage and deteriorate welfare. There is, however, room for improving the coverage and welfare by extending a refundable credit to the individual insurance market.

1. Introduction

The premium for employer-based health insurance in the U.S. can be both income and payroll tax deductible while individual health insurance (IHI) purchased outside the workplace does not offer this tax break. This tax policy is regressive in two ways. First, data indicate that labor income is positively correlated with the access to employer-based health insurance, thus workers with higher earnings are more likely to enjoy the tax break. Second, conditional on having access to employer-based health insurance, the progressive income tax code in the U.S. makes the policy regressive because high income individuals in a higher marginal tax bracket receive a larger tax break than those in a lower tax bracket.

We show that despite its regressiveness the deduction policy is welfare improving. Our result relies on the key difference between employer-based health insurance and IHI. The former, also called group health insurance (GHI), is required by law not to discriminate among employees based on health status, while in the latter insurance companies have an incentive to price-discriminate and offer favorable terms to healthy individuals. Insurance outside the workplace, therefore, offers less pooling and less risk-sharing. Pooling in GHI, however, relies on healthy agents, who are sensitive to the changes in the cost of insurance, to voluntarily cross-subsidize agents with higher health expenditures. Eliminating the tax subsidy can trigger a spiral of adverse selection and a rise in the group insurance premium. We show that completely abolishing the current policy can collapse the pooling in the GHI market and result in a welfare loss due to an increased exposure to health expenditure risks.

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Our work is a contribution to the literature of dynamic equilibrium models with heterogenous agents in incomplete markets.[1] We add to this literature by incorporating idiosyncratic health expenditure risk which is partially insurable according to the endogenous insurance decisions. Our paper is also related to the literature on fiscal policy in incomplete markets.[2] Several recent papers studied the role of health and medical expenditures in Aiyagari–Bewley type models. Livshits et al. (2007) and Chatterjee et al. (2007) argue that health expenditure shocks are an important source of consumer bankruptcies. Hubbard et al. (1995) add health expenditure risk and study the role of social safety net in discouraging savings by low income households. Palumbo (1999), De Nardi et al. (2005) and Scholz et al. (2006) incorporate heterogeneity in medical expenses to understand the pattern of retirement savings. Our model, differently from these papers, endogenizes the health insurance decision, rather than treating households' out-of-pocket health expenditures as an exogenous shock.[3] We take into account important general equilibrium effects of a reform, including the interaction between the health insurance demand and precautionary savings and the effect on the fiscal variables. We also quantify the welfare effect of reforms by computing the transition dynamics.

The paper proceeds as follows. Section 2 introduces a simple two-period model to highlight the intuition of our results. Section 3 introduces the full dynamic model and Section 4 details the parameterizations of the model. Section 5 presents the numerical results and the last section concludes.[4]

2. A simple two-period model

We present a two-period model with endogenous health insurance demand to provide the intuition of our results. We demonstrate that changing the tax treatment of the health insurance premium has ambiguous welfare effects. Since the subsidy is regressive, it impedes risk-sharing among agents that face income risks. A subsidy, however, can help overcome the adverse selection in the group insurance market and enhance risk-sharing. The simple model highlights this tradeoff faced by a benevolent government.

Suppose there are two firms and a continuum of individuals who live for two periods and consume only in the second period. Assume that ex ante identical agents face an idiosyncratic health risk. With some probability, agents will fall into a bad health state and must pay health expenditures equivalent to a unit of the consumption good in period 2. In period 1, agents observe a noisy signal of their health expenditure shock. Specifically, a measure $\frac{1}{2}$ has a probability p^H of suffering from the expenditure shock and the remaining agents have a probability p^L, where $p^H > p^L$. Assume that all agents have access to the market of IHI where a competitive and risk-neutral insurance company offers an insurance contracts at price p^i based on the observed signal $i \in \{L, H\}$. Notice that all risk-averse agents will choose to sign up for insurance.

Agents receive a life-time labor income y from their employers. In period 1, one half of the agents are matched with a firm of type 1 that offers a GHI contract at price p^{GHI} to all employees independent of their signals. Workers in firm 1, therefore, have a choice between GHI and IHI. The other half of the agents work in firm 2 that does not offer such a group insurance and thus have access only to IHI.

Consider a policy of providing a subsidy s for the purchase of a GHI contract. Let the subsidy be $s = (p^H - p^L)/2$. One can show that all agents in firm 1, even those with signal p^L, sign up for GHI.[5] The average expenditure per agent is $(p^H + p^L)/2$ and the premium is $p^{GHI} = (p^H + p^L)/2 - s = p^L$, just low enough to make even the healthy individuals with p^L indifferent between GHI and IHI. For any subsidy value smaller than s, healthy agents would leave the GHI contract and go to the individual market.

Assume that the government imposes a lump-sum tax on workers in firm 1 to finance the cost of subsidy, i.e. $\tau = s$. Such a policy has no effect on workers in firm 2 so that we can focus on the redistributional effect of the policy among those with the GHI offer in firm 1. The subsidy removes a mean-preserving spread in consumption, thus the welfare effect on risk-averse agents is unambiguously positive. To quantify the welfare effect of such a policy, assume that agents derive utility from the consumption in the second period according to the preference $u(c) = c^{1-\sigma}/(1-\sigma)$ with $\sigma = 3$, earn the life-time income $y = 2$. Suppose $p^L = 0.1$ and $p^H = 0.15$. The welfare effect measured in terms of consumption equivalent variation is 0.03%, but the gain rises to 0.11% with $p^H = 0.20$ and 0.46% with $p^H = 0.30$. The magnitude of the welfare gain depends on the variance of the health shocks that the policy helps alleviate: the greater the uncertainty of the health status, the larger are the potential welfare gains of the subsidy.

Income uncertainty and regressive policy: In addition to the uncertainty about health expenditures, assume that agents are heterogeneous in income as well. Firm 1 pays a wage y_1 and firm 2 pays y_2, where $y_1 > y_2$, i.e. people with a GHI offer

[1] The classic work of Bewley (1986), İmrohoroğlu (1989), Huggett (1993) and Aiyagari (1994) pioneered the literature. For more recent work, see, for example, Fernández-Villaverde and Krueger (2006) and Krueger and Perri (2005).

[2] See for example Domeij and Heathcote (2004), Castañeda et al. (2003), Conesa and Krueger (2006) and Conesa et al. (forthcoming).

[3] Papers that deal with health insurance policy outside of a heterogenous agent framework include Gruber (2004), who measures the effects of different subsidy policies for non-group insurance on the fraction of uninsured, using a micro-simulation model. Kotlikoff (1989) builds an OLG model where households face idiosyncratic health shocks and studies the effect of medical expenditures on precautionary savings. He considers different insurance schemes, which agents take as exogenously given.

[4] Jeske and Kitao (2008) that accompanies this paper contains supplementary materials that are not included in this paper due to space constraints. It provides more detailed description of the model's equilibrium, the calibration strategy and results, as well as a variety of sensitivity analysis and robustness studies of our model results and discussion of possible extensions of the current paper.

[5] For simplicity we assume that whenever agents are indifferent between the two contracts they pick GHI.