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Is smoking a fiscal good? ☆

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ABSTRACT

Even though smokers incur higher health expenditures than nonsmokers of the same age, smokers have significantly higher mortality rates, so the expected lifetime health expenditure for a smoker is actually lower than for a nonsmoker. Because of this fact, some politicians and policy-makers have argued that society might actually be better off promoting smoking rather than discouraging it. We consider this argument in a general-equilibrium model where health expenditures are paid for by a single-payer health-care system financed by taxes. Because the percentage increase in the tax base is larger than the percentage increase in health-care expenditures, the elimination of smoking actually decreases the budget-balancing health-care tax rate.

1. Introduction

Although physicians and the Surgeon General have convinced most of the American public that smoking is bad for us, the economic question of whether it is actually good policy to promote this message is not so clear-cut as the medical profession would have us believe. Because smokers have significantly higher mortality rates, even though a smoker incurs higher health expenditures than a nonsmoker of the same age, the expected lifetime health expenditure for a smoker is actually lower than for a nonsmoker (Barendregt et al., 1997). Because of this fact, some politicians and policy-makers have argued that society might actually be better off promoting smoking rather than discouraging it. Or at the very least the government should remain neutral on this issue rather than spending millions on anti-smoking efforts (Viscusi, 2009).

How governments deal with smoking is even more relevant internationally. At the same time that smoking rates have come down so sharply in the United States, they have increased substantially in the developing world.[1] Concerns about health-care costs may be used to justify a laissez-faire regime in the tobacco markets of these countries.

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[1] See, for example, http://www.wri.org/publication/content/8339 for smoking statistics in China, and Jha et al. (2008) for smoking statistics in India.

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However, the argument that smoking is good for society naïvely considers only the effect of smoking on expenditures while ignoring the effect of smoking on national income. Nonsmokers cost more, but, because they live longer, they also contribute more to the economy. Proper consideration of this issue requires a model that fully characterizes how national income depends on the prevalence of smoking.

In this paper, we construct a general-equilibrium overlapping-generations model where households fall exogenously into two types: smokers and nonsmokers. These types differ only in their lifecycle profiles of mortality risk and health expenditures, and are identical in all other respects.[2] To motivate the government's interest in altering the fraction of smokers, we assume the government runs a single-payer health-care system financed by distortionary taxes on labor and capital. Politicians are primarily concerned with keeping the rates on these taxes low. We close the model by introducing a competitive firm and a Social Security program financed by a payroll tax on labor income.[3]

Since arguments against smoking interventions have largely arisen in the United States, we calibrate our model to match the present U.S. economy and examine the consequences of an experiment in which all smokers in the economy are replaced by nonsmokers. Politicians will judge smoking to be a fiscal good (or bad) if this experiment results in an increase (or decrease) in the budget-balancing tax rate needed to finance the health-care system. We also discuss the change in welfare of nonsmoking households, but this is unobservable. The public debate on health care has focused on its fiscal cost so this will be our focus too.[4]

In the simplest case of a health-care system where everyone pays the same premium, analogous to a poll tax, whether smoking is a fiscal good or bad is straightforward to judge. The percentage increase in health expenditures that comes from eliminating smoking is smaller than the percentage increase in population, so the per-person health-care cost must fall after the experiment. Thus, smoking would be a fiscal bad in the scenario that most resembles an idealized world in which fully privatized insurance pays for all health care.

Most developed countries are actually closer to the opposite extreme in which the government pays for health care. The United States is in the middle of these two extremes, though its health-care system seems more likely to move in the direction of greater public financing. If labor and capital income are taxed at the same flat rate to finance health care, then the pertinent tax base is Net Domestic Product (NDP). In this case, smoking is a fiscal good only if the percentage increase in NDP is smaller than the percentage increase in health expenditures that comes from eliminating smoking. However, our model predicts that the opposite is actually true: the percentage increase in NDP from the elimination of smoking is, in fact, larger than the percentage increase in health-care expenditures. Consequently, we find that smoking is not a fiscal good when health care is financed through distortionary taxes.[5]

We also find that this result is quite robust. We calibrate the baseline model with an alternative set of parameter values, introduce productivity differentials between the nonsmokers and smokers, allow Social Security benefits to depend on work-life income, and finally allow the labor income tax to be progressive. In every single case, the budget-balancing health-care tax rate falls with the elimination of smoking.

The critical point of this paper is that smoking has a huge effect on national income. In our baseline analysis we consider the impact of changes in labor supply and the capital stock on factor prices. However, smoking is a fiscal bad even if we ignore the factor price changes. Indeed, for an open economy version of the model where factor prices are held fixed at their initial equilibrium values, elimination of smoking causes an even larger decrease in the tax rate needed to finance health care. In general equilibrium, eliminating smoking increases the capital stock, which by reducing the interest rate causes a negative feedback on the increase in the capital stock. This negative feedback is absent in an open economy, so the capital stock increases even more and the budget-balancing tax rate falls even further.

The one factor essential to our finding that smoking is a fiscal bad is that we consider the effect of smoking on both capital and labor. It is obvious that smoking must reduce the labor supply since it reduces the population, but that in itself does not have a large enough impact on NDP to make smoking a fiscal bad. What drives our result is that, in addition to working more, nonsmokers save more than smokers. Studying the effect of smoking on saving requires the full lifecycle model that we explore here.

When we examine the welfare effects of eliminating smoking, we find that this crucially depends on how the Social Security program changes in response to the resulting decrease in the worker-to-retiree ratio. If the payroll tax rate is held fixed and benefits from Social Security are cut after smoking is eliminated, the lifetime utility of nonsmokers typically moves, as one would expect, in the opposite direction from the budget-balancing health-care tax rate. If, on the other hand,

[2] In the baseline model we assume both types are equally productive, else it may appear that we are biasing the analysis in favor of eliminating smokers. In Section 6 we consider what happens if smokers are less productive than nonsmokers.

[3] Eliminating smoking has a significant impact on the Social Security program since Social Security is an imperfect annuity under which the benefits to nonsmokers will be more costly than the benefits to smokers (Sheshinski, 2008).

[4] There is no simple way to compare the welfare of smoking and nonsmoking households, and it is not meaningful to ask about the welfare of households that do not exist after the experiment.

[5] We are actually underestimating the fiscal benefits of eliminating smoking since we do not account for externalities such as second-hand smoke or the lower propensity for fires. On the other hand, since we do not model the process by which smokers become nonsmokers (or vice versa), we do not consider here the cost of smoking interventions. We also do not account for lost excise tax revenue. However, the total of excise tax revenue accounts for a tenth of a percentage point of GDP (http://www.taxpolicycenter.org/taxfacts). This is an order of magnitude smaller than the changes in tax revenue that we consider here.