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## THE COST OF A NEW SMOKER

We have used attributable risk calculations to estimate the number of new smokers recruited by motion pictures. Several people have asked what costs are associated with these new smokers. This issue is particularly relevant when considering the cost/benefit ratio associated with state film subsidy programs.

The most widely accepted estimate of the cost of the lifetime costs for a new smoker is from the book *The Price of Smoking*, by Frank Sloan, et al. (FA Sloan, J Ostermann, G Picone, C Conover, DH Taylor, Jr.; Cambridge, MA, MIT Press, 2004). The estimates in this book were recently used by the FDA in its cost-benefit analysis of its proposed warning labels.

Sloan and colleagues produced a comprehensive analysis (as of 2000) of the effects of smoking on a number of costs, including health costs, mortality and morbidity costs, effects on Social Security and private retirement systems, and other costs. They also accounted for the effect on cost of quitting smoking and the fact that people who die early because of smoking do not incur health or retirement costs after they die. These cash flows were discounted at 3% per year to estimate the present values of lifetime costs (and cost savings due to things like early death) for a 24-year-old smoker. (They selected age 24 as a starting point to avoid the complications of youthful experimentation that does not lead to established smoking and in recognition that few health and other costs of smoking are incurred by people under that age.)

The methodology left some important things out (like pharmaceutical costs, effects of changing medical technology, most costs of secondhand smoke) and does not account for more recent understanding on the short-term effects of smoking cessation and secondhand smoke exposure on cardiovascular disease, which were not known at the time that Sloan et al. did their analysis. Thus, their estimates are almost certainly underestimates of the actual lifetime costs of smoking.

Despite the limitations of their methods, their findings are still useful for estimating the impacts of creating a new smoker.

We use Sloan et al.'s estimates to develop three values for the cost to society of a new smoker:

- The total lifetime cost of a new smoker, including the net health costs, morbidity and mortality costs, net retirement costs, and externalities such as secondhand smoke and effects on tax payments;

- The total lifetime costs of direct medical services;
- Costs of medical services consumed through age 50, under the logic that shorter term costs are more important to policy makers than complete lifetime costs.

Sloan et al. provide costs in year 2000 dollars. We adjusted total nonmedical costs to 2011 dollars using the Bureau of Labor Statistics hourly compensation index for total lifetime costs except for medical costs and the medical consumer price index for health care costs.

The table below shows the results of these calculations, with references to the specific sources for the estimates in Sloan et al.'s book.

<b>Discounted Present Cost of Smoking for a 24-Year-Old Smoker (from Sloan et al, <i>The Price of Smoking</i>)</b>			
	Source	Dollars (2000)	Dollars (2011) <sup>a</sup>
<b>Total lifetime costs (medical and other)</b>	Table 11.4	\$170,789	\$243,728 <sup>b</sup>
<b>Lifetime medical costs</b>			
Borne by smoker	Table 5.6 <sup>c</sup>	\$3,187	
Due to secondhand smoke	Table 3.3	\$604	
Medical care cost not borne by smoker	Table 11.3	\$2,064	
Total lifetime medical costs		\$5,855	\$10,107
<b>Medical costs through age 50</b>			
Borne by smoker	Table 5.6 <sup>c</sup>	\$5,206	
Due to secondhand smoke	Table 3.3	\$604 <sup>d</sup>	
Medical care cost not borne by smoker	Table 11.3	\$3,372 <sup>e</sup>	
Total medical costs through age 50		\$9,182	\$15,849
<sup>a</sup> Medical costs adjusted using medical CPI in October 2000 = 233.7 and 403.4 in October 2011 (Sources: <a href="http://www.bls.gov/cpi/cpid1110.pdf">http://www.bls.gov/cpi/cpid1110.pdf</a> and <a href="http://www.bls.gov/cpi/cpid0010.pdf">http://www.bls.gov/cpi/cpid0010.pdf</a> ; nonmedical costs adjusted using third quarter business hourly compensation (Source: US Bureau of Labor Statistics, Series PRS84006103 available via www.bls.gov) for third quarter 2000 and 2011, 82.994 and 117.557, respectively. <sup>b</sup> Calculated as $(170,789 - 5855) \times 117.557 / 82.994$ for non-medical costs + $5855 \times (403.4 / 233.7)$ for medical costs <sup>c</sup> Average of male and female costs. <sup>d</sup> Same as lifetime costs; assumption is that most secondhand smoke costs are imposed by the time smoker reaches age 50. <sup>e</sup> Adjusted by lifetime costs borne by smoker, i.e., $\$2064 \times (\$5206 / \$3372) = \$3372$ .			

Note: Lifetime medical costs for the smoker are lower than the costs through age 50 mostly because shorter-lived smokers incur medical costs earlier than nonsmokers (and future costs are discounted).

Given the uncertainties in these estimates, we round off the numbers to the nearest \$1,000 to obtain:

- The discounted present value of the total lifetime cost of a new smoker, including the net health costs, morbidity and mortality costs, net retirement costs, and externalities such as secondhand smoke and effects on tax payments, is \$244,000.

- The discounted present value of total lifetime costs of medical services to the smoker and nonsmokers is \$10,000.
- The discounted present value of costs of medical services incurred by the smoker and imposed on others through the smoker reaching age 50 is \$16,000. (These short term costs may be more important to policy makers than complete lifetime costs.)

About two-thirds of medical costs are borne by government.