

Tobacco Tax Economic Impact Policy Analysis

by

The New Hampshire Medical Society

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Background

Cigarette smoking is the single leading cause of preventable disease and preventable death in the United States, leading to more than 400,000 deaths annually. In New Hampshire approximately 201,900 residents smoke tobacco resulting in 1,700 tobacco-related deaths annually. While the overall state smoking rate of 19.4% is better than the national median of 21.2%¹ the adult Medicaid smoking rate is an astonishing 57.7%.²

In addition to the human toll of tobacco, there are clear economic consequences from smoking in both direct medical costs and lost productivity. Decreased productivity for smokers in terms of premature death and workplace productivity costs the state \$827,578,679, or \$4,050.74 per smoker. Health expenditures total \$568,792,108, resulting in a per-smoker cost of \$2,784.06.³ Given such a high smoking rate among Medicaid beneficiaries, tobacco has a disproportionate impact on Medicaid spending and, in turn, the state budget. New Hampshire Medicaid expends an estimated \$85.2 million annually on tobacco-related illnesses, 50%, or \$42.6 million, of which is part of the state budget given the split financing of Medicaid -- the number of Medicaid smokers (30,602) X per-smoker expenditures (\$2,784.06). Additionally, because New Hampshire is self-insured, tobacco-related health expenditures for state employees are estimated to be \$13.3 million annually.

Cigarette tax increases have reliably resulted in decreases in smoking rates. For every 10% increase in tobacco prices, there is a 4% reduction in adult smoking rates and a 7% reduction in youth smoking.⁴ While tobacco tax increases have had profound positive public health effects, small grocers fear a negative impact on sales of tobacco. Currently New Hampshire has a competitive pricing advantage over its neighboring states and an estimated 44,706 people visit New Hampshire to purchase 26,804,699 packs of cigarettes each year.⁵ The average price per pack of cigarettes in New Hampshire is \$5.65, compared to \$6.51 in Maine and \$7.70 in Vermont and Massachusetts.⁶ Massachusetts is currently considering a tobacco tax increase of

¹ 2012 CDC Tobacco Control State Highlights:

http://www.cdc.gov/tobacco/data_statistics/state_data/state_highlights/2012/pdfs/by_state.pdf

² NH BRFSS Survey 2009-2010:

<http://nhmedicaidquality.org/measure/specific-health-topics/respiratory-health/percentage-adult-smokers-nh-brfss-survey>

³ Rumberger et al "Potential Costs and Benefits of Smoking Cessation for New Hampshire"

<http://www.lung.org/stop-smoking/tobacco-control-advocacy/reports-resources/cessation-economic-benefits/reports/NH.pdf>

⁴ Reducing Tobacco Use: A report of the Surgeon General 2000

http://www.cdc.gov/tobacco/data_statistics/sg/2000/index.htm

⁵ Rumberger et al "Potential Costs and Benefits of Smoking Cessation for New Hampshire"

<http://www.lung.org/stop-smoking/tobacco-control-advocacy/reports-resources/cessation-economic-benefits/reports/NH.pdf>

⁶ State Cigarette Tax Rates & Rank, Date of Last Increase, Annual Pack Sales & Revenues, And Related Data <http://www.tobaccofreekids.org/research/factsheets/pdf/0099.pdf>

\$1.00, which would then bring its per-pack cost to \$8.70. To mitigate the potential negative impact on local small grocers and employment, tax increases should not compromise New Hampshire's competitive pricing advantage over surrounding states.

HB 659 would raise the New Hampshire tobacco tax by \$0.20 and Governor Hassan's proposed budget would increase the tax by \$0.30, both of which would maintain a significant price difference between New Hampshire and surrounding states. To make New Hampshire's per-pack cost equal to that of Massachusetts and Vermont, the tax would have to be raised more than \$2.00.

This analysis will focus on the direct medical economic costs of smoking and the impact of a tobacco tax on both Medicaid savings and revenue for the state.

Methods

We performed a sensitivity analysis on the economic impact of increasing the state's tobacco tax on state employee health expenditures, Medicaid expenditures, tax revenue, tobacco sales and private-sector health spending. We assume a linear relationship between a 10% tax increase and a 4% reduction in smokers. This assumption may overestimate tobacco use decreases with tax increases less than 10% and underestimate reductions in tobacco use when taxes increased greater than 10%. Increases in taxes result in fewer cigarette sales, simultaneously causing savings for the Medicaid program. Revenue estimates included expected reductions in cigarette sales as a result of higher prices.

Results

The New Hampshire Medical Society sought to find the tax increase that maximized benefits to health and state revenues and minimized impact on small grocers. The sensitivity analysis is shown in the table below and includes the benefits accrued at increasing per-pack pricing. Our analysis shows that a 12% increase in per-pack cost is achieved with a \$0.68 tax increase, bringing the per-pack cost to \$6.33. The \$0.68 increase was chosen because it maintains a competitive advantage over neighboring states, resulting in: significant reductions in smoking across the state, \$320,322 in state employee health savings, \$2 million in Medicaid savings and \$61.6 million in new revenue. An estimated 9,807 New Hampshire residents, including 1,468 Medicaid beneficiaries, would quit smoking. Healthcare savings to both public and private sectors are an estimated \$27.3 million, including \$2 million in Medicaid savings.

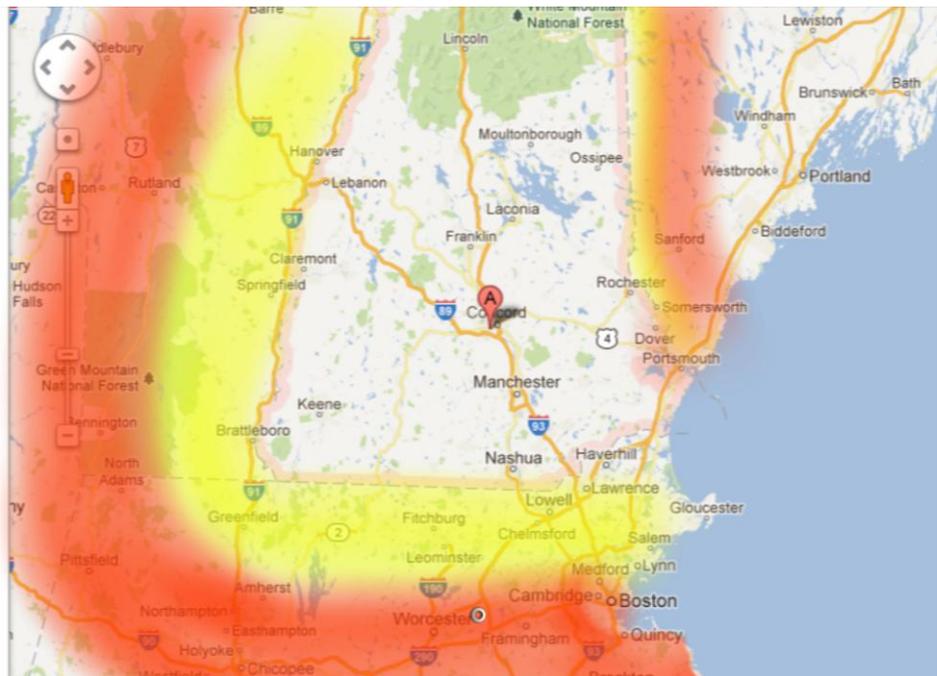
The sensitivity analysis below shows the Medicaid savings and tax revenues from cigarette price increases of 0-18%. Maine, Vermont and Massachusetts price points are included in the table. A 12% increase amounts to a \$0.68 per-pack additional tax and results in a total price per pack of \$6.33, \$0.18 less than the average pack in Maine and \$1.37 less than the average pack in Massachusetts and Vermont, thus maintaining New Hampshire's competitive price advantage for local grocers. Additionally, the \$0.68 increase quadruples the Medicaid savings over HB 659 and doubles the savings over Gov. Hassan's proposal.

Tobacco Tax Sensitivity Analysis

	Per Pack Percent Increase in Cost	Cost Per Pack	Per Pack Tax Increase	Net State Employee Health Expenditures	Net Medicaid Expenses	New Revenue	Net Benefit to the State	Net Private Sector Health Costs
	0.0%	\$5.65	\$0.00	\$ -	\$ -	\$ -	\$ -	
	2.0%	\$5.76	\$0.11	\$ (53,387.13)	\$ (340,791.22)	\$ 4,651,763.20	\$ 5,045,941.55	\$ (4,156,158.51)
HB 659	3.5%	\$5.85	\$0.20	\$ (93,427.49)	\$ (596,384.63)	\$ 13,819,696.00	\$ 14,509,508.11	\$ (7,273,277.40)
	4.0%	\$5.88	\$0.23	\$ (106,774.27)	\$ (681,582.43)	\$ 16,486,588.80	\$ 17,274,945.50	\$ (8,312,317.03)
Gov Hassan	5.3%	\$5.95	\$0.30	\$ (141,475.91)	\$ (903,096.72)	\$ 24,126,532.80	\$ 25,171,105.43	\$ (11,013,820.06)
	6.0%	\$5.99	\$0.34	\$ (160,161.40)	\$ (1,022,373.65)	\$ 28,100,476.80	\$ 29,283,011.85	\$ (12,468,475.54)
	8.0%	\$6.10	\$0.45	\$ (213,548.54)	\$ (1,363,164.87)	\$ 39,493,427.20	\$ 41,070,140.60	\$ (16,624,634.05)
	10.0%	\$6.22	\$0.57	\$ (266,935.67)	\$ (1,703,956.08)	\$ 50,665,440.00	\$ 52,636,331.76	\$ (20,780,792.56)
NHMS	12.0%	\$6.33	\$0.68	\$ (320,322.81)	\$ (2,044,747.30)	\$ 61,616,515.20	\$ 63,981,585.31	\$ (24,936,951.08)
	14.0%	\$6.44	\$0.79	\$ (373,709.94)	\$ (2,385,538.52)	\$ 72,346,652.80	\$ 75,105,901.26	\$ (29,093,109.59)
ME	15.2%	\$6.51	\$0.86	\$ (406,276.09)	\$ (2,593,421.16)	\$ 78,783,545.33	\$ 81,783,242.58	\$ (31,628,366.28)
	16.0%	\$6.55	\$0.90	\$ (427,097.08)	\$ (2,726,329.73)	\$ 82,855,852.80	\$ 86,009,279.61	\$ (33,249,268.10)
	18.0%	\$6.67	\$1.02	\$ (480,484.21)	\$ (3,067,120.95)	\$ 93,144,115.20	\$ 96,691,720.36	\$ (37,405,426.62)
MA, VT	36.0%	\$7.70	\$2.05	\$ (960,968.42)	\$ (6,134,241.90)	\$ 175,796,284.80	\$ 182,891,495.12	\$ (74,810,853.23)

To assess the travel distance sensitivity to out-of-state cigarette purchases, we estimated that the average traveler buys five cartons of cigarettes and calculated what the break-even distance would be for an out-of-state traveler using the federal mileage reimbursement rate. For residents of Maine, the current break-even point is 38 miles from the border, with the proposed \$0.68 increase the distance would be cut to eight miles. For residents of Massachusetts and Vermont, the current break-even point is 90 miles, which would be reduced to 60 miles under the proposed tax rate. Functionally, we believe that few smokers travel from points farther away than Boston under current conditions, and our analysis indicates that the cost differential will still be maintained for the vast majority of current out-of-state tobacco sales. Current break-even travel distance is noted in red; the new break-even distance is noted in yellow (see graphic below). **NOTE:** This analysis does not consider the other retail advantages New Hampshire enjoys, (lack of a bottle bill, lack of a sales tax, lower alcohol taxes, etc.), which will inherently mitigate some of the impact of an increased cigarette tax.

Price Sensitivity of Travel to Buy Cigarettes Across State Lines



Conclusions

A \$0.68 increase in our current tobacco tax will provide tremendous benefit to the state of New Hampshire. This increase will decrease smoking rates, reduce both public and private healthcare expenditures and maintain competitive price advantages for New Hampshire grocers. We believe the 12% price increase balances state priorities for health and commerce. Smaller increases favor commerce over health, and larger increases could jeopardize New Hampshire's market advantage. We believe this is a moderate, balanced approach and encourage the governor and Legislature to pursue this strategy to increase revenue, decrease expenditures and support economic growth.

Tobacco Data Sources and Explanations

Current projected annual revenue for FY 2013: \$212.7 million

Based on actual revenue for the first seven months of FY 2013 (\$124.1 million) projected over 12 months at current tax rate of \$1.68 per pack.

Source: January State of New Hampshire Monthly Revenue Focus, Department of Administrative Services.

<http://admin.state.nh.us/accounting/FY%2013/Monthly%20Rev%20January.pdf>

Current projected number of packs to be sold FY 2013: 126.6 million packs

Divide \$212.7 million in revenue by tax per pack (\$1.68) to yield packs sold in a year. An alternate number would be the lower number from the Campaign for Tobacco Free Kids of 122.2 million packs. (The lower more conservative number was used for the analysis because of revenue from non-cigarette tobacco products.) <http://www.tobaccofreekids.org/research/factsheets/pdf/0099.pdf>

Direct healthcare costs per smoker: \$2,784.06

Rumberger J, Hollenbeak C. "Potential Costs and Benefits of Smoking Cessation for New Hampshire" 2010.

The source uses 2008 cost numbers adjusted to 2009. Today's cost would be higher adjusting for inflation to 2012 dollars (\$2,929.46). This analysis used the 2009 numbers to be conservative.

<http://www.lung.org/stop-smoking/tobacco-control-advocacy/reports-resources/cessation-economic-benefits/reports/NH.pdf>

For every 10% increase in per-pack cost, adult smoking decreases by 4%, youth by 7%

Multiple studies demonstrate this.

U.S. Department of Health and Human Services. [Reducing Tobacco Use: A Report of the Surgeon General](#). Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2000 [accessed 2012 April 24]. http://www.cdc.gov/tobacco/data_statistics/sgr/2000/index.htm

Task Force on Community Preventive Services. [Tobacco](#). (PDF–363.20 KB) In: Zaza S, Briss PA, Harris KW, editors. The Guide to Community Preventive Services: What Works to Promote Health? New York: Oxford University Press, 2005:3–79 [accessed 2012 April 24]. <http://www.thecommunityguide.org/tobacco/Tobacco.pdf>

Young smokers and lower SES smokers more sensitive to price increases

Effects of Tobacco Taxation and Pricing on Smoking Behavior in High Risk Populations: A Knowledge Synthesis Int. J Environ Res Public Health. 2011 November; 8 (11): 4118–4139. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3228562/>

19.4 % of New Hampshire Residents smoke; nationally the median state smoking rate is 21.2%

2012 CDC Tobacco Control State Highlights 2012.

http://www.cdc.gov/tobacco/data_statistics/state_data/state_highlights/2012/pdfs/by_state.pdf

201,900 residents in New Hampshire smoke

U.S. Census count for N.H.: 1,320,728 subtracting persons under 18 (21.1% total) multiplied by 19.4% adult smoking rate.

57.2% Medicaid beneficiaries smoke

2010 data from the N.H. Behavior Risk Factor Surveillance System last updated 5/11/2012, collected on the N.H. Medicaid Quality Indicators website.

<http://nhmedicaidquality.org/measure/specific-health-topics/respiratory-health/percentage-adult-smokers-nh-brfss-survey>

1,700 people die each year in New Hampshire from smoking

CDC, "State-Specific Smoking-Attributable Mortality and Years of Potential Life Lost – United States, 2000-2004," (MMWR) 58(2), January 22, 2009.

http://www.tobaccofreekids.org/facts_issues/toll_us/new_hampshire

44,706 smokers visit N.H. annually, buying 26.8 million packs

Rumberger J, Hollenbeak C. "Potential Costs and Benefits of Smoking Cessation for New Hampshire" 2010.

The source uses data from the 2008 New Hampshire Travel Barometer Summary

<http://www.lung.org/stop-smoking/tobacco-control-advocacy/reports-resources/cessation-economic-benefits/reports/NH.pdf>

Workplace productivity losses attributable to smoking: \$344 million annually or \$1,685.17 per smoker per year

Rumberger J, Hollenbeak C. "Potential Costs and Benefits of Smoking Cessation for New Hampshire" 2010.

The source uses data from the following study:

Bunn WB, 3rd, Stave GM, Downs KE, Alvir JM, Dirani R. Effect of smoking status on productivity loss. J Occup Environ Med 2006 Oct;48(10):1099-108.

<http://www.lung.org/stop-smoking/tobacco-control-advocacy/reports-resources/cessation-economic-benefits/reports/NH.pdf>

Additional Information

Table 1: Baseline data on smokers and smoking in New Hampshire.

Variable	Total
Resident Smokers in NH ¹	204,303
Visiting Smokers in NH ²	44,706
Total Smokers	249,009
Total Packs Sold to Residents	122,495,331
Total Packs Sold to Visitors	26,804,669
Total Packs Sold ³	149,300,000
Average Packs Per Resident Smoker Per Year	600

¹ Data from the Behavioral Risk Factor Surveillance System, New Hampshire Calculated Variance Report, 2005. Retrieved on October 5, 2009 from:

http://apps.nccd.cdc.gov/s_broker/htmsql.exe/weat/freq_analysis.hsrl?survey_year=2005

² Data from http://oz.plymouth.edu/inhs/Barometers/NH_Travel_Barometer_FY2008_Annual. New Hampshire Travel Barometer Summary for Fiscal Year 2008.

³ Data from <http://www.tobaccofreekids.org/research/factsheets/pdf/0099.pdf>, Campaign for Tobacco Free Kids.

Table 3: Direct expenditures on medical care attributable to smoking and smoking-related events in New Hampshire. Total expenditures per pack for both medical care and productivity losses are \$11.40 per pack.

Cost Component ¹	Total	Per Pack	Per Smoker
Adult Expenditures			
Ambulatory Care	\$84,788,488	\$0.69	\$415.01
Hospital Care	\$294,337,178	\$2.40	\$1,440.69
Rx	\$85,999,752	\$0.70	\$420.94
Nursing Home	\$52,084,357	\$0.43	\$254.94
Other Care ²	\$52,084,357	\$0.43	\$254.94
Total	\$568,082,867	\$4.64	\$2,780.59
Neonatal Expenditures	\$709,241	\$0.01	\$3.47
Total Expenditures	\$568,792,108	\$4.64	\$2,784.06

Adjusted for inflation to 2009

¹ SAMMEC. Adult Smoking-Attributable Mortality, Morbidity, and Economic Costs Calculator. Atlanta, GA: CDC; 2008.

² Other Care includes home health, nonprescription drugs, and nondurable medical products.

Tables from: Rumberger et al "Potential Costs and Benefits of Smoking Cessation for New Hampshire"
<http://www.lung.org/stop-smoking/tobacco-control-advocacy/reports-resources/cessation-economic-benefits/reports/NH.pdf>