EXPLANATIONS AND SOURCES FOR PROJECTIONS OF NEW REVENUES & BENEFITS FROM STATE CIGARETTE TAX INCREASES

The projections of increased state revenues and other benefits from raising state cigarette tax rates developed by the Campaign for Tobacco-Free Kids (TFK) and American Cancer Society Cancer Action Network reflect the basic fact that cigarette tax increases both boost state cigarette tax revenues and reduce smoking because the increased tax per pack brings in more new revenue than is lost from the declines in pack sales caused by consumption declines or increased smoker tax avoidance prompted by the price increase.

These projections are based, in part, on research findings that a 10% cigarette price increase, if maintained against inflation, reduces youth smoking rates by 6.5% or more, adult rates by 2%, and total consumption by 4%. [See, e.g, Chaloupka, FJ, "Macro-Social Influences: The Effects of Prices and Tobacco Control Policies on the Demand for Tobacco Products," *Nicotine & Tobacco Research*, 1999, and other price studies at http://tigger.uic.edu/~fjc; Tauras, J, et al., "Effects of Price and Access Laws on Teenage Smoking Initiation: A National Longitudinal Analysis," Bridging the Gap Research, ImpacTeen, April 24, 2001, and other price studies at http://www.impacteen.org. See also, Chaloupka, FJ & Pacula, R, "The Impact of Price on Youth Tobacco Use," Chapter 12 in National Cancer Institute, Smoking and Tobacco Control Monograph 14, *Changing Adolescent Smoking Prevalence*, November 2001; International Agency for Research on Cancer (IARC), *Effectiveness of Tax and Price Policies for Tobacco Control*, IARC Handbooks of Cancer Prevention in Tobacco Control, Volume 14, 2011.]

These projections are fiscally conservative because they include generous adjustments for lost state pack sales (and reduced state revenue gains) caused by state-specific tax avoidance efforts by continuing in-state smokers and, where applicable, fewer in-state cigarette sales to supply smokers from other states, informal smugglers, criminal smuggling organizations, or multistate internet sellers. [See, e.g., Farrelly, M, et al., "Cigarette Smuggling Revisited," U.S. Centers for Disease Control & Prevention (CDC), in press, and Farrelly, M, et al., *State Cigarette Excise Taxes: Implications for Revenue and Tax Evasion*, RTI International, 2003, http://www.rti.org/pubs/8742_Excise_Taxes_FR_5-03.pdf.] Despite such tax evasion, cigarette tax increases reduce smoking rates, which, in turn, reduces smoking caused disease, death, and related economic costs. Econometric studies indicate that cigarettes and other tobacco products are substitutes for one another, implying that if cigarette taxes/prices are increased while other tobacco product taxes/prices remain unchanged, some of the reductions in cigarette smoking would be offset by increases in the use of other tobacco products (see, e.g., Chaloupka, FJ & Warner, KE, "The Economics of Smoking," in Culyer, AJ & Newhouse, JP, eds., *Handbook of Health Economics*, Amsterdam: North-Holland, 2000). Equalizing the tax rates on other tobacco product taxes would reduce this potential substitution (as well as reducing the use of other tobacco products), while at the same time generating additional revenues.

These projections incorporate the impact of an annual background smoking decline of 2% on state smoking levels, pack sales, and pack prices. Smoking and pack sale declines in any particular state, however, will vary depending on its existing smoking rates, pack prices, and other tobacco prevention and cessation activities. To be even more conservative, the projected amounts have also been rounded down.

Despite all of these adjustments to avoid over-estimates, the projections still show that non-trivial state cigarette tax increases will both significantly reduce smoking levels and substantially increase state revenues. The increased tax per pack will still bring in more new state revenue than is lost from the decrease in the number of packs sold caused by the tax increase from either consumption declines, tax avoidance, or smuggling.

In those states that apply their sales tax percentage to the total retail price of a pack of cigarettes (including the state cigarette tax amount), a cigarette tax increase will raise state sales tax revenues per pack, which will offset sales tax revenue losses from fewer packs being sold. In addition, smokers who quit or cut back will likely spend

the money they previously spent on cigarettes largely on other goods on which sales tax is collected, which further increases state sales tax revenues.

These projections assume that the tax increase is fully passed on in higher prices, and keeps up with inflation over time, which is consistent with economic research on the impact of cigarette taxes on cigarette prices (see the 2000 Surgeon General's report and Chaloupka, et al., 2000 for a discussion of this research). If a tax increase is not fully passed on in the form of higher prices, but is instead partially absorbed by the industry, then the reductions in smoking and its consequences in response to the tax increase will be smaller, while the revenues generated from the tax increase will be larger. Alternatively, if cigarette companies use the tax increase as an opportunity to raise net-of-tax prices and the tax increase is more than passed on, then the reductions in smoking and its consequences will be larger, while the increase in revenues will be smaller.

The starting price per pack (before the proposed cigarette tax increase) used in these projections includes all federal and state excise and sales taxes and where applicable, local taxes (i.e., NY City's $1.50 per pack tax is factored into the overall NY State price per pack). The prices are based on data from *The Tax Burden on Tobacco*, 2010, reports of state cigarette tax increases, media reports on tobacco company price changes, USDA Economic Research Service's Tobacco Briefing Room, the U.S. Bureau of Labor Statistics (for inflation adjustments), and the U.S. Federal Trade Commission's *Cigarette Report for 2007 and 2008* (to adjust prices for retailer-based discounts, promotions, and coupons).

These projections assume that the state or district will follow standard practice and apply the cigarette tax increase to all previously tax-stamped or otherwise tax-paid cigarettes held in inventory by wholesalers or retailers on the effective date of the increase. Failing to tax such cigarettes held in inventory would open the door to massive pre-increase stockpiling by retailers and wholesalers to evade the increase, delaying and reducing the amount of new state revenues.

The projected adult and youth smoking and smoking-harmed birth declines, and related mortality reductions are calculated by applying the above findings regarding the effects of tax and price increases to the number of current adult smokers in each state and to estimates of the number of kids (under 18 years old) alive today in each state who will become adult smokers and the number projected to die from smoking. [CDC, *Behavioral Risk Factor Surveillance System* (BRFSS). CDC, "Smoking During Pregnancy—United States, 1990-2002," *Morbidity and Mortality Weekly Report (MMWR*) 53(39):911-915, October 8, 2004, http://www.cdc.gov/mmwr/PDF/wk/mm5339.pdf. CDC, "Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Economic Costs—United States 1995-1999," *MMWR* 51(14):300-03, April 11, 2002, www.cdc.gov/mmwr/preview/mmwrhtml/mm5114a2.htm. CDC, "Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Economic Costs—United States 2000-2004," *MMWR* 57(45):1226-1228, November 14, 2008, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5745a3.htm. See CDC, "Projected Smoking-Related Deaths Among Youth—United States," *MMWR* 45(44):971-974, November 11, 1996, http://www.cdc.gov/mmwr/preview/mmwrhtml/00044348.htm for data on relative death risks of smokers, nonsmokers, former smokers, etc.]

The five-year savings from fewer smoking-caused heart attacks and strokes, fewer smoking-affected pregnancies and related birth complications, and fewer lung cancer cases show just some of the many substantial savings from the smoking reductions prompted by a tax increase that begin to accrue immediately. The five-year heart attack and stroke savings projections show the estimated reductions in smoking-caused health care expenditures from reduced smoking-caused heart attacks within the first five years after the tax increase, based on Lightwood & Glantz, "Short-Term Economic and Health Benefits of Smoking Cessation – Myocardial Infarction and Stroke," *Circulation* 96(4), August 19, 1997. [See, also, Kabir, et al., "Coronary Heart Disease Deaths and Decreased Smoking Prevalence in Massachusetts, 1993-2003," *American Journal of Public Health* 98(8):1468-69, August 2008.] The projected five-year lung cancer cost savings as a result of adult smokers quitting due to the tax takes into account the relative risk of developing lung cancer among quitters and the number of lung cancer deaths attributable to smoking. [Chang, S, et al., "Estimating the cost of cancer: results on the basis of claims data analyses for cancer patients diagnosed with seven types of cancer during 1999 to 2000," *Journal of Clinical Oncology* 22(17):3524-30, September 2004. Khuder, SA & Mutgi, AB, "Effect of smoking cessation on major histologic types of lung cancer," *Chest* 120(5):1577-83, November 2001.] These savings will increase steadily in subsequent years. The projected five-year smoking-affected pregnancy and birth savings accrue from declines in smoking among pregnant women and corresponding reductions in smoking-caused birth complications and

related first-year health costs. [Miller, D, et al., "Birth and First-Year Costs for Mothers and Infants Attributable to Maternal Smoking," *Nicotine & Tobacco Research* 3:25-35, 2001; and state pregnancy-smoking and births data.]

Because of research and data limitations, it is not yet possible to estimate total health care cost savings in each year following a cigarette tax increase, or even provide reasonable estimates of the total health care savings over the first five or ten years. Although smoking-caused health care cost savings from a cigarette tax increase will be relatively small in the first year after an increase, they grow quickly. The projected long-term total health care cost savings from reducing the number of future youth and current adult smokers accrue over the lifetimes of kids (under 18 years old) alive in the state today who quit or don't start because of the tax increase and over the lifetimes of current adult smokers who quit because of the tax increase. Smokers' lifetime health care costs average at least $17,500 higher than nonsmokers (in 2004 dollars), despite shorter life spans; but the savings per adult quitter are less than that amount because adult smokers have already been significantly harmed by their smoking and have already incurred or locked-in extra smoking-caused health costs. [Hodgson, TA, "Cigarette Smoking and Lifetime Medical Expenditures," *The Milbank Quarterly* 70(1), 1992. See also, Nusselder, W, et al., "Smoking and the Compression of Morbidity," E*pidemiology & Community Health*, 2000; Warner, K, et al., "Medical Costs of Smoking in the United States: Estimates, Their Validity, and Their Implications," *Tobacco Control* 8(3):290-300, Autumn 1999, http://tc.bmjjournals.com/content/vol8/issue3/index.shtml. CDC, "Projected Smoking-Related Deaths Among Youth—United States," *MMWR* 45(44):971-974, November 8, 1996, http://www.cdc.gov/mmwr/preview/mmwrhtml/00044348.htm. CDC, "Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Economic Costs—United States 2000-2004," *MMWR* 57(45):1226-1228, November 14, 2008, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5745a3.htm.]

The five- and ten-year savings to the state Medicaid program were estimated based on the number of adult Medicaid recipients expected to quit due to the tax increase and the costs averted per quitting Medicaid recipient. [Miller, LS, et al., "State estimates of Medicaid expenditures attributable to cigarette smoking, fiscal year 1993," *Public Health Reports* 113(2):140-51, 1998.] These savings will increase in subsequent years.

All projected savings have been adjusted to 2012 dollars, using the Consumer Price Index for Medical Care (MCPI). Forecasted costs are estimated by using the average annual medical inflation above average annual regular inflation that occurred between the years 2005-2010. These projections do not include a range of additional short and long-term savings from other declines in smoking-caused health problems and other smoking-caused costs. [See, e.g., U.S. Department of the Treasury, *The Economic Costs of Smoking in the U.S. and the Benefits of Comprehensive Tobacco Legislation*, 1998.]

January 11, 2012

Projections change when new data or research findings become available and the underlying data and formulas are updated or revised.

Please direct questions to:
Campaign for Tobacco-Free Kids: Ann Boonn, aboonn@tobaccofreekids.org
American Cancer Society Cancer Action Network: Melissa Maitin-Shepard, Melissa.Maitin-Shepard@cancer.org

Campaign for Tobacco-Free Kids' resources on state tobacco tax increases:
http://www.tobaccofreekids.org/what_we_do/state_local/taxes/
http://www.tobaccofreekids.org/facts_issues/fact_sheets/policies/tax/us_state_local/

American Cancer Society Cancer Action Network's resources on state tobacco tax increases:
http://www.acscan.org/tobaccopolicy