# Look at smoking preferences reveals 'left-digit' price effects

July 31 2012, By April Reese Sorrow

(Medical Xpress) -- Georgia sold 544 million packs of cigarettes in 2010, earning $201 million in state tax revenue. New research from the University of Georgia suggests a $1 tax increase would decrease consumption by 20 percent and almost triple revenues. The same tax is estimated to have similar effects in nine other states.

A recent study by UGA associate professor of psychology James MacKillop, published in the journal *Addiction*, estimates a $1 per pack tax increase would generate a 197 percent increase in tax revenue, yielding almost $600 million in state tax revenues.

The study assessed 1,056 smokers in Georgia, Rhode Island and South Carolina to evaluate how estimated purchasing decisions were affected by price increases, with prices varying from free to $20 per pack.

"As price goes up, consumption goes down, which reflects how much the product is valued," said MacKillop, who directs the behavioral economics and neuroeconomics workgroup in the UGA Institute for Behavioral Research. "We looked at small intervals of price changes to better understand the relationship between cost and consumption and so we could make specific predictions about changes in prices to inform policymakers."

MacKillop's research highlights the effects of price on cigarette consumption and how price changes impact tax revenues. Georgia's current tobacco tax is $0.37 per pack, nearly the lowest in the country, and a pack of cigarettes costs on average $4.37, which ranks 48 nationally. Meanwhile, the Centers for Disease Control and Prevention estimate the state tobacco burden-numbers resulting from healthcare costs and lost productivity-to be $9.02 for every pack sold in Georgia.

The study also looked at the effects a $1 tax increase would have on tobacco burden, estimating a savings of $976 million in Georgia. Together with additional revenue, the net effect of the tax increase was estimated to be $1.37 billion.

"These findings suggest a $1 tax increase is a win-win situation," MacKillop said. "The price increase generates more in tax revenue and saves money in healthcare costs and lost productivity. Plus, a tax increase may ultimately create an environment where fewer people start smoking and more people try to quit smoking."

The study looked at how tax increases would impact Alabama, Georgia, Idaho, Kentucky, Louisiana, North Carolina, North Dakota, South Carolina, Virginia and West Virginia. A $1 tax increase in North Carolina was predicted to increase revenues by $410.7 million and save $824.9 million in tobacco burden, a net effect of $1.23 billion. Virginia, which sells 543 million packs per year, was predicted to generate $402.7 million in additional revenue and save $677.9 million in tobacco burden with a $1 tax increase, a net effect of $1.08 billion.

The study also suggests that the tax impact is partially because of "left-digit" effects, in which consumers are disproportionately affected by the first digit in a product's price.

"The areas where we saw the biggest changes were those with left-digit transitions, or prices where the whole dollar price went up," MacKillop said. Compared to the effect of a pack price increase from $5.60 to $5.80, the decrease in cigarette consumption from $5.80 to $6 was four times larger.

"People are disproportionately affected by those prices because we tend to think of numbers in whole terms," he said. "This has important implications for policymakers because it suggests certain price changes will have a particularly large impact."

The study was funded by the Robert Wood Johnson Foundation. The journal article is available online at onlinelibrary.wiley.com/doi/10 … 43.2012.03991.x/full.

Provided by University of Georgia