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House Taxation Committee

Cigarette Tax Model Methodology Briefing

by Steven Brunkan, Financial Economist

The cigarette and tobacco tax increase model was developed in 2002 when the tax rate was increased to $.79 a pack. Prior to 2002, the cigarette tax had not been changed since 1985. With the significant increase in the tax (from $0.24 per pack), it was felt the estimate needed to take into account consumer buying habits and how those habits are affected by a rate change. The model is based off of a methodology used by Tobacco Free Kids, a nonprofit children's health organization, tailored to fit Kansas.

The model uses as the revenue base the Consensus Estimating Group (CES) estimate for the next fiscal year (fiscal year 2016) and considers the historical trend in cigarettes consumed, which has been decreasing around 2% a year as part of the future year's estimates.

The model is centered around the impact that rising cigarette prices have on consumers. It builds in a consumption reduction elasticity, sales avoidance and purchasing lag factor. The greater the price (or tax) hike, the greater the negative effect the factors have on the estimate.

- Consumption reduction elasticity factor: as prices increase there is a reduction in consumption.
- Sales avoidance factor: accounts for the impact of consumers going out of state (Missouri at $0.17 a pack), buying over the Internet, purchasing smuggled cigarettes, switching to e-cigarettes or going to an Indian reservation to purchase cigarettes.
- Purchasing lag factor is a short term impact - affecting only the 1st fiscal year's revenues. It accounts for short term changes in purchasing habits, such as buying up a supply prior to the price hike, cutting down on the number smoked, trying other products, or trying to quit altogether. These changes in habits are short lived, impacting the first few weeks or months of a tax increase.

In addition to estimating the tax impacts, the model also computes the amount of inventory tax that would be generated from the tax increase. The model assumes there is 1.25 months of inventory of stamped cigarettes subject to the inventory tax. The inventory tax is computed based on the number of stamped cigarettes multiplied times the tax rate change.