

## **Data and Assumptions (Tax Calculator Revision, January 2014)**

Taxes on soda and other sugar-sweetened beverages (SSBs) can generate considerable revenue for states, cities, and the nation. The revised Revenue Calculator for SSB Taxes estimates potential federal, state or city revenues from a penny-per-ounce tax on sugar-sweetened beverages (SSBs; beverages with added caloric sweeteners). The calculator is built on several assumptions and multiple data sources.

### Consumption Data:

Total U.S. consumption of carbonated soft drinks (CSDs), fruit drinks, sports drinks, ready-to-drink (RTD) tea, enhanced/flavored water, energy drinks, and RTD coffee is based on annual gallonage (volume sold) industry data for 2011. Licensed from the Beverage Marketing Corporation (BMC), the data represent all retail channels through which packaged and fountain refreshment beverages are sold in the U.S. Beverage sales is assumed to represent beverage consumption.

Regional 2011 gallonage data is used for all beverages except enhanced/flavored water, where only national data is available. There are 7 regions for CSDs and fruit drinks (Northeast, East Central, West Central, Pacific, South, Southwest, and West). Regional gallonage data for sports drinks, RTD tea, RTD coffee, and energy drinks is based on 4 regions (Northeast, Midwest, South, and West).

This estimation considers only a tax on SSBs; zero-calorie/reduced calorie beverages are assumed not to be taxable and excluded. The share of regular vs. diet varieties in CSDs is based on the regional 2011 data, while data on zero/reduced calorie beverages in other beverages (e.g., energy drinks, RTD tea, sports drinks) are for the entire U.S. Data on percentage of zero/reduced calorie beverages is licensed from the BMC and subject to the BMC definition of zero/reduced calorie beverages.

Beverage consumption across states is determined by their share in the U.S. population adjusting for variability in per capita beverage consumption across the respective

regions. Further adjustment is based on the socio-demographic variation in beverage consumption in NHANES 2009-2010; state beverage consumption by type is adjusted from regional consumption according to the socio-demographic composition.

There is no adjustment for tourism consumption.

Changes in beverage volume and share of zero/reduced calorie beverages over 2013-2017 are based on the BMC projected gallonage sales for 2012 and 2016. Based on these BMC estimates, a compound annual growth rate is calculated and used for 2013-2017 projections (the rate is constant throughout this period).

#### Population Data

We projected state population for 2013-2017 based on the 2010 U.S. Census data, U.S. Census Bureau, Population Division population estimates for 2011-2012, and annual rate of change between 2011 and 2012 (assumed to be the same for 2013-2017 predictions). City population was based on the 2010 US Census data, population estimates for 2012, and annual rate of population growth in 2010-2012 (assumed to be the same for predictions in 2013-2017).

All customers are subject to the same tax rate (i.e., no exclusions for purchases made using SNAP benefits, reduced rates for some customers).

#### Socio-demographic adjustment

We used the day 1 24-hour dietary recall data from the nationally representative National Health and Nutrition Examination Survey (NHANES), 2009-2010, to calculate the weighted mean intake of SSB kilocalories by beverage type consumed by gender, age, and race/ethnicity groups. To derive the state- and city-level consumption estimates, the BMC regional consumption estimates were adjusted using the NHANES demographic estimates based on the gender, age, and racial/ethnic demographic composition of each state and city according the U.S. Census data.

## Beverage Prices

Retail prices in real 2012 dollars for CSDs, fruit drinks, sports drinks, energy drinks and enhanced/flavored water are based on the data from the Bridging the Gap Community Obesity Measures Project (BTG-COMP). The BTG-COMP SSB price estimates are computed based on data drawn from food store and fast food direct observation audit instruments that were used to collect data in 2010, 2011, and 2012 in a national sample of communities. The price estimates are adjusted based on the source of consumption and package size. RTD tea and coffee prices are based on the conversion of BMC 2011 wholesale dollar sales and gallonage, assuming a 100% mark-up for retail prices. Annual inflation rate was assumed 0.623% based on the juice and nonalcoholic beverage CPI over 2008-2013. Inflation-adjusted beverage prices remain unchanged over time.

Average beverage prices are constant across states and cities. Producers and retailers are assumed to pass the tax fully on consumers. The price elasticity of demand for SSBs is -1.21 based on the most recent literature review (Powell et al. 2013).

## **References**

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