



California City Soda Tax Calculator

Data and Assumptions (January 2014)¹

Taxes on soda and other sugar-sweetened beverages (SSBs) can generate considerable revenue for states, cities, and the nation. The California City Soda Tax Calculator estimates potential city revenues from a ½ cent-, one cent-, or two cent-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). California is part of the Pacific region in the data on CSD and fruit drinks. It is part of the West for sports drinks, RTD tea, RTD coffee, and energy drinks.

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

¹ Methodology for the California City Soda Tax calculator was developed by the Yale Rudd Center for Food Policy & Obesity (Tatiana Andreyeva, PhD, Director of Economic Initiatives), and University of Illinois at Chicago (Frank J. Chaloupka, PhD, Professor of Economics; and Lisa Powell, PhD, Professor of Health Policy and Administration).

zero/reduced calorie beverages is licensed from the BMC and subject to the BMC definition of zero/reduced calorie beverages.

Beverage consumption across CA towns/cities is determined by the socio-demographic composition of their population adjusting for its discrepancy from the average composition in CA. Per capita beverage consumption in CA is assessed based on per capita consumption in the respective regions (Pacific and West) and further adjustment based on the socio-demographic variation in beverage consumption in NHANES 2009-2010 (CA 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 city/town population for 2013-2017 based on the 2010 U.S. Census data, U.S. Census Bureau, for each city and town, and the average rate of population growth in the state of California between 2010 and 2012 (0.94245%). With the exception of California's four largest cities, Los Angeles, San Diego, San Jose and San Francisco, this rate was assumed to be constant across all cities/towns and throughout 2013-2017 and will underestimate population growth in certain cities that grow faster than average and vice versa. For the four largest California cities, population growth is estimated based on actual growth between 2010 and 2012, according to U.S. Census Bureau estimates for those years.

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 CA state- and later 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 national 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.

It is important to account for differences in local beverage prices and national prices, using (at a minimum) price adjustment for the cost of living in a particular CA city/town and average US 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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Bureau of Labor Statistics; CPI - All urban consumers US city average, seasonally-adjusted estimates.

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