

The Impact of the Cook County, Illinois, Sweetened Beverage Tax on Prices, 2017

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Sugar-sweetened beverages (SSBs), including soda, sports drinks, energy drinks, juice drinks, and coffee and teas, contribute 46% of added sugars in the U.S. diet for individuals aged 2 years and older, which makes SSBs the leading source of added sugars.¹ While SSB consumption has declined recently, half of adults and nearly two-thirds of children still consume at least one SSB on a given day.² Consumption of SSBs is associated with increased body weight, metabolic syndrome, and type 2 diabetes.^{3,4} The *2015-2020 Dietary Guidelines for Americans* recommend reducing consumption of added sugars to less than 10 percent of calories per day.¹ The World Health Organization and the Institute of Medicine of the National Academies have also identified the reduction of SSB consumption as a strategy to improve weight and diet-related outcomes, and have recommended SSB taxes as a policy tool for reducing consumption.

Berkeley, California, was the first U.S. city to implement an SSB tax in 2015. Since then, Philadelphia, PA, Boulder, CO, Seattle, WA, and several additional cities in California have followed suit. In 2016, the Cook County, Illinois, Board of Commissioners passed the Cook County Sweetened Beverage Tax.⁵ This tax differed from other U.S. sweetened beverage taxes in two important respects. First, the tax was applied to artificially-sweetened beverages (ASBs) as well as SSBs. Philadelphia's Beverage Tax is the only other tax that has been applied to both ASBs and SSBs. Second, the tax was levied on consumers rather than distributors. As a result, the tax was applied at the register rather than the shelf price. While retailers would eventually have been required to include the tax in the advertised shelf price, the tax was repealed before this requirement took effect.⁶ The tax was originally scheduled to take effect July 1, 2017, but was delayed by litigation until August 2, 2017. Following extensive controversy, the Board of Commissioners voted on October 11, 2017 to repeal the tax effective December 1, 2017.

For SSB taxes to achieve their intended public health effect of reducing SSB consumption, taxes must be passed on to consumers in the form of higher prices. Studies of tax pass-through have shown mixed results. Studies of Berkeley's Sugar-Sweetened Beverage Product Tax have found less than full pass-through (43-67%) for SSBs overall, with variation by beverage and store type.⁷⁻⁹ However, a study of Philadelphia's Beverage Tax found almost full tax pass-through (93%).¹⁰ This research brief presents estimates of tax pass-through from Cook County's tax by comparing changes in taxed beverage prices in Cook County to changes in prices in neighboring St. Louis City and County (hereafter referred to as St. Louis), Missouri.

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Study Findings

- The 1 cent per ounce Cook County, IL, Sweetened Beverage Tax was fully passed through to consumers.
- Prices of taxed beverages increased by 1.14 cents per ounce, on average, due to the tax.
- SSB and ASB prices increased by similar amounts: 1.11 cents per ounce for SSBs and 1.21 cents per ounce for ASBs.

TABLE 1 Price per Ounce of Taxed Beverages in Cook County, IL and St. Louis, MO Before and After Implementation of the Cook County Sweetened Beverage Tax, 2017

	Cook County, IL		St. Louis, MO		Observed Difference in Differences
	Pre-Tax	Post-Tax	Pre-Tax	Post-Tax	
All taxed beverages	4.38	5.55	4.42	4.48	1.11
SSBs	4.56	5.78	4.62	4.75	1.09
ASBs	3.94	5.02	4.04	3.95	1.17

Descriptive weighted mean prices per ounce are shown together with observed differences in differences comparing changes in Cook County, IL to those in St. Louis, MO.

FIGURE 1 Estimated Pass-Through of the Cook County, IL Sweetened Beverage Tax, 2017



Estimated tax pass-through from difference-in-difference regressions is shown together with upper and lower 95% confidence interval limits. All estimates are significant at $p < 0.001$.

Definitions

Artificially-sweetened beverages (ASBs):

ASBs include the following categories of *non-calorically* sweetened beverages: soda, sports drinks, energy drinks, and ready-to-drink tea/coffee.

Sugar-sweetened beverages (SSBs):

SSBs include the following categories of *calorically* sweetened beverages: soda, sports drinks, energy drinks, ready-to-drink tea/coffee, and juice drinks.

Data and Methods

This study was based on data from food store audits conducted in late May and June 2017, before the Cook County, IL, Sweetened Beverage Tax went into effect, and November 2017, 3 months after the tax went into effect. Data were collected from stores in Cook County, IL, and our comparison site, St. Louis, MO. In order to ensure a geographically representative sample, data were collected based on random spatially balanced seed points. A total of 61 stores in Cook County, IL, and 59 stores in St. Louis, MO, were audited at both time points and included in these analyses.

Stores were audited using our Beverage Tax Food Store Observation Form, modified from previously validated food store audit tools.^{11,12} Store types included general merchandise stores, supermarkets, grocery stores, chain and non-chain convenience stores, small discount stores, and drug stores/pharmacies.

The price measure used in these analyses was computed to reflect each product's shelf price: it equaled the product's sale price if it was on sale and its regular price if it was not on sale. Only reduced price sales and reduced price per quantity sales (i.e. sale based on a given quantity) were considered, as other sale types do not have a constant price per unit. Post-tax, the price measure used in our analyses included the applicable 1 cent per ounce Sweetened Beverage Tax based on the size of the product. Data on 5,277 SSB and 3,008 ASB prices were linked to store characteristics and tract-level characteristics from the American Community Survey.¹³ Difference-in-difference analyses were conducted using linear regression models controlling for beverage category (soda, sports drink, energy drink, ready-to-drink tea/coffee, or juice drink), size (individual sized vs. family sized, defined as >1L or multi-pack), store type (limited service [chain and non-chain convenience stores, small discount stores, and drug stores/pharmacies] or not), majority race/ethnicity ($\geq 50\%$ non-Hispanic white or not), median household income, and the percent of the population below 125% of the poverty level. Regressions were clustered on store identifiers with robust standard errors. Descriptive statistics and regressions were weighted to reflect the distribution of volume sold by beverage category and size in Cook County, St. Louis, and the 2-mile buffer areas surrounding them from June 2016 – May 2017, based on authors' calculations using Nielsen scanner data.

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