

Item #11

Summary of Cawley and Frisvold (2015, NBER)

Summary of Cawley and Frisvold (2015) study of sugar taxes, prepared for internal use only,
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Cawley, J., and Frisvold, D. (2015). The Incidence of Taxes on Sugar-Sweetened Beverages: The Case of Berkeley California. NBER Working Paper 21465, National Bureau of Economic Research, August 2015.

Summary

The paper attempts to estimate the extent to which taxes on sugar-sweetened beverages (SSBs) are passed through to consumers in the form of higher prices. The authors analyse data from two cities, Berkeley California and San Francisco California, after Berkeley implemented a SSB tax (in November 2014) pursuant to a public referendum. The tax was:

- One cent per ounce (equivalent to 11% on 20oz bottles, 30.8% on 2 litre bottles, 25% on a 12-pack of 12oz cans);
- Applied to sweetened beverages, including soda, energy drinks, and pre-sweetened tea;
- Not applied to infant formula, alcoholic beverages, and milk products;
- Levied on distributors.

The two areas are considered appropriate for comparison because:

- They have similar public support for SSB taxes;
- They are geographically proximate;
- They are in the same media market (so campaigns related to sugar-tax would have reached both areas);
- They are culturally and politically similar.

Two outcomes were examined and reported on: the price of the SSBs and the price per ounce of the SSBs. In order to determine the cause of changes in prices (or changes in the *relative* price of sugar-sweetened versus diet versions) in Berkeley, comparisons were made with:

- The change in the price of the same product in San Francisco;
- The change in the price of the diet version in Berkeley; and,
- The change in the relative price of regular versus diet versions of the same brand in San Francisco.

Data were collected from grocery stores (supermarkets), pharmacies, and convenience stores (including those in petrol stations) in both locations prior to the implementation of the tax and approximately 3 months after the tax was implemented.

The models were estimated separately for supermarkets and convenience stores to identify whether there were differences in the pass-through of the tax. Price changes were investigated separately for major brands of SSB (Coke and Pepsi) in each of the three difference sizes, as well as by pooling observations of all SSBs and pooling by brand and by size.

Before the tax was implemented, almost all retailers in both Berkeley and San Francisco charged the same price for the regular and diet versions of the same product. After implementation of the tax, the majority of retailers still charged the same price for both the regular and diet versions of the same product. Only a small number of retailers began charging a higher price for the sugar-sweetened versions.

Across the different models, the results showed consistently that, on average, less than half the tax was passed on to consumers (average tax pass-through for all three sizes of Coke and Pepsi was 21.7%). The increase in price was observed around the time the tax was implemented. The price of diet versions was also found to have increased in Berkeley, which could be consistent with substitution. Results for only convenience stores were very similar to those obtained for the sample of

all retailers combined. Supermarkets could not be modelled separately due to the small number of them in the sample.

The authors noted that as the tax was localised within a small geographical area, it would have been quite easy to evade and this may limit retailers' willingness to pass on the tax. However, the authors suggest that this would be expected to be a more significant issue for larger sizes of SSBs, yet even smaller sizes showed limited pass-through of the tax.

The authors note that the data revealed significant variation in prices across different retailers within each city even before the tax.

The study does not identify changes in sales volumes, changes in consumption of SSBs, changes in consumption of other goods, or effects on health.

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