

# Simulation of Alternative Tax Policies for Sugar-Sweetened Beverages: Consumer and Producer Outcomes in Mexico

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## Abstract

In 2014, the Mexican government initiated a specific tax of one Mexican peso (MP) per liter of sugar-sweetened beverage (SSB) to address the high prevalence of overweight and obesity. No study has estimated the net benefit of the tax by comparing its costs (consumer surplus and profit losses) with its benefits (tax revenue and economic benefits attached to health gains). These outcomes can provide a benchmark against which to compare alternative SSB taxes. This dissertation aims at estimating the effect of the one-MP SSB tax and alternative SSB tax policies on consumer and producer outcomes, tax revenue, health gains, and the resulting net benefit in urban Mexico.

For the first aim, we used purchase data (2012-2015) and a demand-supply model and estimated the effect on consumer and producer outcomes and tax revenue under the one-MP SSB tax and the recommended two-MP SSB tax. We found that either tax is fully passed to prices while the tax effect on purchase reductions is less than proportional compared to the SSB tax increase. Moreover, the ratio between consumer surplus and profit losses and the tax revenue got larger with increases in the SSB tax.

For the second and third aims, we conducted a cost-benefit analysis of the SSB tax from the perspectives of the government, consumers, and producers based on the estimates from the first aim and an epidemiological model for a closed cohort exposed to the SSB tax in 2014, followed for up to 75 years. In addition to the two initial SSB tax policies, we explored the effect of a tax cut (\$0.50 MP) and a larger tax increase (three MP). We found that any SSB tax policy will generate benefits that surpass or equal its costs. However, the benefit-cost relationship depends on the time horizon, the economic valuation of the health gains by consumers, and our assumptions regarding the extent to which people internalize the harmful consequences on health when purchasing SSB. Our findings are relevant for policymakers when weighing the benefits, costs, and health improvements attributable to the current one-MP SSB tax or alternative SSB tax policies in Mexico.

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