

A sugar tax in Germany could save as much as 16 billion euros and improve population health

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Researchers model the taxation of sugar-sweetened beverages with population health and overall health care costs in Germany. Credit: Leiada Krozjhen, Unsplash (CC0, creativecommons.org/publicdomain/zero/1.0/deed.en)

A simulation study conducted by a team from the Technical University of Munich (TUM) demonstrates that a soft drink tax in Germany would have significant positive effects. In all of the simulated variants evaluated, less sugar was consumed and the rate of illness dropped. This would be a way to reduce costs to the national economy and alleviate the burden on the health care system. There is, however, a difference between taxes aimed at reducing soft drink consumption and taxes aimed at bringing about changes in product formulation.

Sugary beverages increase the risk of obesity and illnesses such as diabetes. Several countries have therefore introduced taxes on [soft drinks](#). In Germany there has been a voluntary commitment on the part of the beverage industry to reduce the [sugar content](#) of soft drinks since 2018. In early 2023, a study with the participation of Michael Laxy, Professor of Public Health and Prevention at TUM, showed that the [impacts fall significantly short of the expected effects](#).

A team led by Michael Laxy and the University of Liverpool's Chris Kypridemos has now reported its calculations on the effects of introducing a tax in Germany. The study is published in *PLOS Medicine*.

"We were interested in both the short-term and long-term consequences. Therefore, we simulated the effects of the most common international taxation strategies for the time period from 2023 to 2043," says Michael Laxy.

Existing soft drink taxes can be roughly classified in one of two groups. In the United Kingdom, for example, companies have to pay levies tiered according to the volume of [sugar](#) in their soft drink formulas. In Mexico, however, the tax is added to all soft drinks independent of their sugar content.

The results from international studies show that the latter variant primarily leads to a reduction in the demand for soft drinks, while the first variant is also associated with a change in formulas, meaning less sugar in soft drinks.

Per capita consumption of sugar reduced

According to the simulation, a flat-rate 20% surcharge on soft drink prices would reduce daily sugar consumption by one gram per person. Looking at men between 30 and 49 years of age only, the amount would even be almost three grams. The impact of a 30% reduction of sugar in beverage formulas, as was observed in the United Kingdom after the introduction of a tiered levy, would have even more pronounced effects. Less sugar in beverages would reduce daily per capita consumption in Germany by 2.3 grams, or by 6.1 grams for men between 30 and 49.

The team's model simulates the situation in Germany for the period examined, using data on individual nutrition, illnesses like diabetes, health-related risk factors and official population statistics. People under 30 were not included in the simulations, since most of the modeled diseases occur predominantly in the second half of life.

"However, we know from national and international studies that soft drink consumption is highest among teenagers," says lead author Karl Emmert-Fees. "Accordingly, the average reduction of sugar consumption would be more pronounced and the positive health effects even higher if we were to include [younger people](#)."

Less illness

"A reduction in the consumption of sugar by only a few grams a day may not seem like much, given that the statistical daily sugar consumption in Germany is about 95 grams per capita. The World Health Organization and the German Nutrition Society (DGE) recommend that a maximum of ten percent of energy requirements should be covered by sugar, corresponding to approximately 50 grams per person and day," says Michael Laxy.

"However, we have to keep in mind that consumption of soft drinks varies widely across the general population. Some people drink them in large quantities, while others never drink them. The reduction in sugar consumption would be correspondingly higher for those people who consume large volumes of soft drinks."

When it comes to health effects, the models make quite a clear statement: In both taxation models there were significantly fewer cases of obesity, type 2 diabetes and cardiovascular disease. "The figures for type 2 diabetes are particularly impressive," says Karl Emmert-Fees. "According to our models, over the next 20 years, taxation would result in as many as 244,100 fewer people becoming ill with type 2 diabetes later or not at all."

Savings of approximately 16 billion euros

According to the researchers, the positive impacts would also manifest themselves as financial savings: A tax on sugary drinks would mean less treatment of patients. Costs resulting from sick leave, inability to work and similar factors would also be reduced. The team determined national economic savings of approximately 16 billion euros for the simulated period with a tiered tax, of which about 4 billion euros is accounted for

by health-care costs. A 20% flat-rate tax would still result in a total of about 9.5 billion euros.

Contribution to policy debate

According to the results of the simulation, which the team was able to replicate using a second model, a tiered manufacturer's levy would have a stronger positive impact than a flat-rate tax. "Politicians will have to decide whether or not taxation of soft drinks would be practical for Germany," says Michael Laxy.

"We want to present objective arguments for this debate. Our study shows that a tax on [sugary beverages](#) is a relevant measure for the prevention of overweight, diabetes and heart disease. Approaches such as information campaigns are justified, but are not sufficient and can only be one component of an effective overall strategy."

More information: Emmert-Fees KMF, Amies-Cull B, Wawro N, Linseisen J, Staudigel M, Peters A, et al. (2023) Projected health and economic impacts of sugar-sweetened beverage taxation in Germany: A cross-validation modelling study, *PLoS Medicine* (2023). [DOI: 10.1371/journal.pmed.1004311](#)

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