**Title**

Taxing confectionery, biscuits, and cakes to control obesity

*May be more effective than a tax on sugary drinks*

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Since 1975 the worldwide prevalence of obesity has tripled.[1] In many countries such as the UK, more adults are now living with overweight or obesity than with normal body weight. Major health, social, and economic burdens are attributable to obesity and other diet related non-communicable diseases such as fatty liver, diabetes, cardiovascular diseases, and cancer.

Consequently, in the past decade the World Health Organization has proposed, and a growing number of countries have implemented, different economic policies—most commonly taxes on sugar sweetened beverages (SSBs)—to halt the increase in obesity, diabetes, and related diseases.[2 3]

In the linked paper, Scheelbeek and colleagues use economic modelling to assess the impact of a 20% price increase on high sugar snack foods in the UK. [4] Modelling was based on a nationally representative dataset of food purchases and was stratified by household income and body mass index. Notably, the results suggest that increasing the price of biscuits (cookies), cakes, chocolates, and confectionery would have substantially more impact on the average weight change of adults than would a similar price increase on SSBs (−1301 g, compared with −203 g for SSBs).

Obesity is a complex phenotype that arises from a multitude of intersecting factors, however, diet is a critical environmental variable determining energy balance.[5] It is now well established that excess consumption of free sugars increases the risk of obesity, and that, in particular, intakes of SSBs are causally related to type 2 diabetes.[6] Therefore, most economic policies implemented to reduce obesity rates have concerned taxes on SSBs.

Although a recent meta-analysis concluded that taxes on SSBs are associated with decreased sales, purchasing, and dietary intakes of taxed beverages,[7] long term data on obesity and disease outcomes are still lacking. The novelty in Scheelbeek and colleagues' data is the suggestion that increasing the price of sugary snacks might be more effective at reducing body mass index than increasing the price of SSBs. Although the authors' research modelled a UK context where high sugar foods contribute more to intakes of free sugar and total energy than SSBs, the results are likely also relevant to other countries where consumption of SSBs has decreased in response to research, policy, and advocacy activities.[8]

Historically, unhealthy products such as tobacco, alcohol, and sugar have been taxed to generate revenue rather than to promote healthy behaviours, and the use of fiscal policies (taxes or subsidies) with this latter aim is relatively new.[9] There is a strong rationale for using fiscal policy to improve diet and health: to change consumer purchasing and encourage manufacturers and producers to reformulate or increase availability of healthier options.

In addition, taxation generates revenue that can theoretically be spent on healthcare and health promotion. Directing such revenues to at risk populations might offset valid concerns about equity.[10] Taxes on food and beverages are regressive because families on lower incomes who spend a higher percentage of their income on food will be disproportionately

affected. This could be justified if decreased consumption reduced health inequalities and if revenues were to be used to amplify health benefits through subsidies for healthy foods or community intervention programmes.[11] Indeed, the new study predicts that the greatest change in obesity prevalence in response to an increase in the price of snacks would be in low income households who have the highest rates of obesity.

Caution is warranted however. Although Scheelbeek and colleagues modelled a 20% price increase, taxes implemented to date have typically been less than 10%.[3] This could have overestimated possible effects. Conversely the authors' models did not include whole cakes, or snacks purchased outside the home, which may have underestimated effects. In addition, food products were aggregated into categories—for example, biscuits included cereal bars. Although the foods aggregated are mostly high in sugar, saturated fat, and energy,[12] they are nonetheless nutritionally heterogeneous.

The predicted decrease in purchases from the biscuit's category seemed to drive much of the change in energy intake among obese low income and middle income households. Substitution and displacement effects in response to food tax and subsidy policies are, however, complicated and difficult to predict.[13] The reformulation of products in response to consumer demand can also have unintended consequences, such as substituting one unhealthy ingredient for another.

Lastly, fiscal policies aimed at reducing consumption of sugar, salt, and saturated fat might be useful, but they fail to incentivise the consumption of healthy foods.[14] Ultimately, tackling obesity and diet related disease requires close scrutiny of the social determinants of food environments and a systemic, sustained group of initiatives aimed at reducing health inequalities.

**Competing interests:**
The BMJ has judged that there are no disqualifying financial ties to commercial companies.
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