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Invited Commentary

Why soft drink taxes will not work

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In this issue, Ng *et al.*[1] conclude their heroic analysis of UK food purchase and consumption data by proposing a 10 % tax on 'sugar-sweetened beverages' (SSB), to reduce sugar and energy intakes, and hence obesity. This is the latest, and by far the most substantial, of recent proposals in Britain to tax less healthy ingredients/foods – fat, sugar, snacks, junk food, chocolate and soft drinks. Elsewhere, especially in the USA, SSB have become the leading candidate for taxation, energetically driven by Brownell and colleagues at Yale. This is a positive development. For years, health professionals made little reference to the price mechanism as an instrument of nutrition policy. Everyone else in the food chain (farmers, manufacturers, retailers, consumers) was intensely concerned about the price of food, but not public health advocates. Engagement now represents progress. But taxing soft drinks is difficult. It is worth understanding why, because the proposal raises strategic issues in dietary change.

The heart of the matter is, how much a tax increase reduces purchases – technically, the 'price elasticity of demand' (PED). The authors suggest that a 10 % tax will cut consumption by 7·5 ml/person per d, claiming soft drink purchases are 'fairly price responsive'. The definition of PED is that demand is 'elastic' if the sales decline is proportionate to or greater than the price increase. The UK analysis shows that a 10 % tax would reduce purchases by only 4·6 %. So, demand for soft drinks is very inelastic, very unresponsive. That is economists' jargon. In plain English, 7·5 ml is 0·4 % of the most popular 2-litre bottle – less than a sip. It would not even cut sugar intake by a gram, only 12·6 kJ (3 kcal). That should come as no surprise if we attend to history. In 1974, Value Added Tax (VAT) at 17·5 % was first applied to soft drinks. It coincided with a surge in sales. In 1992, following devaluation of the pound, the wholesale price of sugar effectively rose 19 %. So, in many drinks, makers replaced sugar with cheaper sweeteners.

This comes as no surprise either, if we understand consumer behaviour in the real world. They have other options for saving besides reducing purchases – buying larger bottles, in cheaper shops, or during recurrent 'special offers'. Then there is brand loyalty. In carbonates, which account for more consumption than all other types of soft drinks and fruit juices combined, Coca-Cola and Pepsi dominate. They command a 'brand premium', a price differential over own-label competitors. Currently, the cheapest cola (Asda Value) sells for 18 p for a 2-litre bottle. The highest current price for Coke is £1·89 for 2 litres. If consumers are willing to pay 950 % extra for a brand they prefer, they are unlikely to be changed by a 10 % tax.

The minimal effect of taxes on popular foods is also illustrated by the saturated fat tax recently introduced in Denmark. Even advocates recognise that it would only increase average life expectancy by 5·5 d (personal communication, Prevention Commission, Denmark).

Proposals to tax less healthy products incorporate two assumptions: the tax will be translated directly into price increases, and consumers will recognise the rise. With soft drinks, both are unlikely. The pricing of soft drinks is extremely complex. Both nominal shelf prices and continuous price promotions vary between outlets, regions and seasons, even between supermarkets. Discounts of 50 % or 'better than half price' are common, and so a 10 % tax is easily absorbed or concealed. It is difficult for consumers to determine the 'normal' price. Any increase would be invisible behind the marketing fireworks.

Those who propose policies must consider their political context. In 2007, after a trade dispute with Brazil, the European Union began reducing the price of sugar by 36 %[2]. The proposed tax would not even restore the price level to what it was 5 years ago.

Proponents of food taxes often cite tobacco as a precedent. A sense of proportion is in order. In the UK, taxes on cigarettes currently add 348%[3]. They more than quadruple the retail price. Equivalent taxation on foods is politically inconceivable. Indeed, in the Anglo-Saxon economies, for decades, politicians have sought to cut taxes, not raise them. In a recession, new taxes on food, even modest ones, are improbable. The UK government's recent Call to Action on obesity emphasised individual responsibility. It did not even mention fiscal measures.

Taxes on popular foods provoke popular resistance. Not just from manufacturers, but also consumers. Many resent any hint of being told what to eat, by scientists as much as politicians. In the USA last year, proposed SSB taxes were repeatedly rejected or withdrawn, most dramatically in New York, Philadelphia and Washington[4]. Even the American Medical Association rejected the idea[5]. Prospects in Britain are even less promising. No proposals for taxes on less healthy foods have ever been discussed, much less adopted, by any

political party. It seems unlikely that any politician in Britain would court controversy with an unpopular tax for such negligible public health gain.

Those who would target sugar in soft drinks must also clarify their positions on two related issues – fruit juices and sweeteners. Proposals for SSB taxes focus on 'added sugar'. They would not apply to 'unsweetened' fruit juices. But juices are high in sugar. The two leading colas both contain 10·6 g of sugar per 100 ml. The most popular juice in the UK, orange, averages 10·3 g sugar/100 ml, and the second favourite, apple, 10·9 g (note: the sugar content of soft drinks and fruit juices varies considerably between brands. For simplicity, the figures here are averages of the two leading brands in each category). These are all 'free'/non-milk extrinsic sugars, with the same health consequences as added sugars.

After soft drinks, fruit juices are the second largest source of sugars in the UK diet, ahead of chocolate, biscuits and cakes[6]. Given the many unavailing efforts to raise Britain's meagre fruit intakes, it is perhaps understandable that the tax was designed for 'sugar sweetened' rather than 'sugar containing' beverages. But anyone serious about reducing sugar cannot evade the issue.

The word 'sweetener' never appears in the article by Ng *et al.* The authors prefer the pejorative 'low nutrient (diet) sweetened beverages'. They are keen on another 'low nutrient' drink (water), but take no position on sugarfree drinks that incorporate sweeteners. Nutritionists are not alone in ambivalence. The Food Standards Agency and School Foods Trust have all also not taken an explicit stance on sweeteners. British consumers have no such reservations. For most, sweeteners are just a convenient means of cutting energy intake. In 1981, before aspartame arrived in the UK, sugarfree drinks accounted for 4 % of the market. Today, they are 37 % of total carbonate sales (personal communication, Zenith International), 43 % of still/juice drinks, 45 % of colas[7] and 70 % of dilutables/squashes. The proportion is still ascending, with specialist sugarfree products (Max/Zero) targeted on those who would never touch a 'diet' drink, mainly men. This year alone, the sugarfree share of Pepsi sales rose from 60 to 66 %[8]. Max is their biggest seller.

This trend has implications for nutrition policy. Shifting consumers from sugared to sugarfree drinks cuts more sugar, more quickly, than trying to depress SSB sales. Any tax on added sugar would reinforce the trend, encouraging manufacturers to use more sweeteners, as in the 1990s. It also has a potential not explored by Ng *et al.* If the tax was not applied to sweeteners, it could be a first, small step towards opening a price differential between sugared and sugarfree drinks. At present, all companies maintain 'parity pricing' between the two types. But production costs of sugarfree drinks are much lower. Companies add extra margin onto sugarfree variants. They effectively charge a 'health premium' for products consumers think will help control their weight. The challenge is to invert that premium into a 'health incentive' to reduce sugar. A tax exemption on sweeteners is one instrument.

To summarise, a tax on SSB is unlikely to be adopted in the UK and would be ineffective if it were. But the proposal's problems carry lessons for nutrition policy. First, what are we seeking to do, change people or change foods? Taxes act on consumer demand. Reformulating soft drinks exemplifies producers changing supply. The two can be complementary. Second, the issue contrasts principled and pragmatic strategies. Should we, as a matter of principle, seek to switch people to healthy diets directly and quickly? The pragmatic alternative starts from popular foods people eat now, and then gradually improves their nutrient profiles. Sugarfree drinks illustrate this approach. Finally, price instruments can punish the bad, reward the good, or both. Changing their relative prices creates an economic incentive for consumers to choose healthier options. Make the healthy choice the cheaper choice.

The author was former chairman of Action and Information on Sugars, a health advocacy group, during 1988–2001. He has no conflicts of interest in producing this commentary.

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