



Food and Beverage Price Promotions: an Untapped Policy Target for Improving Population Diets and Health

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Abstract

Purpose of Review The price of foods and beverages is a critical driver of food choice, particularly among families and households with limited food budgets. Policies targeting unhealthy food and beverage price promotions represent an untapped policy target for improving population diets and health. Here we review policy options for reducing the frequency and influence of price promotions on unhealthy foods and beverages (high in one or more of salt, sugar and saturated fat), and demonstrate their potential to complement other food policies and improve population diets.

Recent Findings Price promotions on unhealthy foods and beverages are ubiquitous in many settings globally and appear to be more common than price promotions for healthy food. Shoppers appear to be more responsive to price promotions on unhealthy foods and beverages compared to price promotions for healthier items, with evidence that discounts lead to impulse purchases, stockpiling and overconsumption. A range of policy options exist to reduce the influence of price promotions on unhealthy foods and beverages, but none have been tested in the real world, meaning the industry and consumer responses to such policies are unclear.

Summary Policies that reduce the prevalence and influence of unhealthy food and beverage price promotions should be considered as part of a comprehensive approach to improving population diets.

Keywords Food policy · Price promotion

Introduction

What we eat and how much we eat has substantial health, social and economic implications for individuals, families and societies [1]. Sub-optimal diet is the leading contributor to poor health [2], increasing the risk of a range of chronic conditions including obesity, type 2 diabetes, numerous cancers, cardiovascular diseases (CVD) and poor dental health [3, 4]. The costs of overweight and obesity alone, a key consequence of poor dietary intake, are estimated at > \$8 billion per year in Australia [5] and > \$147 billion per year in the USA [6, 7], including major workforce productivity losses.

Governments around the world are adopting and implementing a range of policies and programs to support healthier population diets. The use of price modification to encourage healthy eating is increasingly identified as an important policy target to improve population diets, and is supported by the Organisation for Economic Cooperation and Development (OECD) [8] and the World Health Organization (WHO) [9].

Price as a Policy Lever for Healthier Population Diets

The price of foods and beverages is a critical driver of food choice, particularly among families and households with limited food budgets [10]. The most common policies that use price as a lever to encourage healthy food purchases include (i) lowering prices for healthy foods, through either subsidies, vouchers or discounts and (ii) increasing prices of unhealthy foods, through new or higher taxes [9]. Although lowering the price of healthy foods has generally been shown to be

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effective at increasing purchases of targeted healthy foods [9], the economic feasibility of subsidising healthy food at the population level is a potential barrier to wide-spread implementation. In relation to discounts to healthy foods, recent studies have demonstrated that they can lead to serious unintended consequences, with savings from price discounts being used to purchase less healthy products [11, 12]. Increasing the price of less healthy food, on the other hand, has shown considerable promise internationally. In 2014, Mexico introduced a tax on sugar sweetened beverages (SSBs) of 1-peso-per-litre (approximately 10% of purchase price) alongside an 8% tax on non-essential energy-dense foods. Two years post policy implementation, the purchase of SSBs and targeted snack foods had declined by an average of 9.7% [4] and 7.4% [13] respectively. Whilst adoption of broad-based food taxes has been limited internationally, a large number of governments (national, state and local) have now implemented a SSB tax, with a growing body of evidence now supporting their effectiveness from a public health perspective [14].

The current global focus on taxing SSBs and other unhealthy foods, although an important part of a comprehensive approach to improving population diets, is likely to be undermined in contexts where price promotions (price discounts) on unhealthy foods are widespread. In this article, we review the potential of policy options to reduce the prevalence and influence of price promotions on unhealthy foods and beverages (defined as products high in one or more of salt, sugar and saturated fat) and demonstrate their potential to complement other food policies and improve population diets.

Food and Beverage Price Promotions

Price promotions include temporary price reductions and bundle deals (e.g. multi-buy discounts such as ‘buy-one-get-one-free’ or ‘buy 2 and save \$1’). They are used by retailers and manufacturers to drive purchases of particular products, brands and/or product categories; to clear excess stock; and, particularly in the case of loss leaders (discounts that result in product prices below cost), to attract shoppers to a store [15, 16]. Approximately, four out of ten items are purchased with a price promotion in Australia [17], and three out of ten items are purchased with a price promotion in the UK [17]. The influence of price promotions on food and beverage choice is a function of (i) the prevalence (and visibility) of price promotions, (ii) the magnitude of price discount, and (iii) consumer responses to price promotions. All of these factors may differ depending on the context.

There is limited research describing the prevalence and magnitude of price discounts on food products. Of the evidence that is available, across a range of countries (including the USA, UK, Australia and New Zealand), price promotions on unhealthy foods and beverages are ubiquitous in the

grocery retail setting, with some indication that price promotions are more commonly applied to unhealthy compared to healthier foods and beverages. For example, during 1 year (2017/18) of weekly monitoring of the price of all products sold online for selected food categories in a large Australian supermarket, it was revealed that less healthy (“discretionary”) food was price promoted twice as often as healthier (“core”) food (29% vs. 15%, $p < 0.001$), with the magnitude of discounts being twice as large (-26% vs. -15% , $p < 0.001$) [18•]. Similarly, in another study monitoring the weekly price of the 960 pre-packaged beverages available for sale at the two major Australian supermarkets over a year (2017/18), it was found that the proportion of discounted products and the magnitude of discounts were greater for sugar-sweetened and artificially sweetened beverages in comparison with flavoured milk, pure juice, milk and water. Overall, the vast majority (> 70%) of discounted beverages were for sugary drinks [19•]. These results are comparable to a 2015/16 UK study where higher sugar food and drink items were both more likely to be promoted and more deeply promoted compared to lower sugar items [20•].

With regard to the influence of price promotions on consumer purchasing behaviour, evidence suggests that food and beverage price promotions may persuade shoppers to switch brands, trial a product that has not been tried previously or to stockpile products rather than paying full price when the products are actually needed [20•]. Whilst the purpose of stockpiling food is to buy now at a cheaper price but to consume later, experimental research demonstrates that overall it increases both the amount purchased and consumed immediately [20•, 21]. Recent analyses of purchasing data in the UK has shown that, on average, approximately one fifth of foods and beverages bought on price promotion are purchased in addition to what would be expected for a given category if the price promotion was not in place [20•].

Whilst there is limited empirical evidence, the influence of price promotions is likely to be greater for unhealthy compared to healthier foods. According to standard economic theory of rational demand, for most consumer goods, there is an inverse relationship between product price change and consumer demand response—as the price of a product goes up, demand goes down, and vice versa [22]. Given adequate supply, price promotions are therefore likely to have a positive effect on demand (i.e., increase sales). However, theories of impulsive demand imply that natural consumption tendencies occur in opposite directions for healthy and unhealthy foods—an over-consumption impulse for unhealthy foods and an under-consumption impulse for healthy foods [23]. These theories lead to a hypothesis where the effect of price promotions on unhealthy foods and beverages may be greater than for healthy products [24].

This hypothesis is supported by findings from a recent study using Kantar world panel purchasing data for more than

10,000 British households. In this study, a greater proportion of purchases on price promotion were for unhealthy, compared to healthy foods and beverages [25••]. Other relevant findings from this study include (i) households classified as high promotional shoppers (upper quartile of the cohort) purchased a greater quantity of unhealthy foods and beverages (11 additional unhealthy items per month) and less fruit and vegetables compared to households classified as low promotion shoppers (lower quartile of the cohort); (ii) purchases made by high promotion shoppers were higher in sugar and lower in fibre and (iii) the prevalence of obesity for the main household shopper was greater among high promotional shoppers (36%) compared to low promotional shoppers (28%), a trend that remained after taking age, income, region and household structure into account [25••]. Similar findings demonstrating a greater proportion of price promoted purchases for unhealthy foods and beverages compared to healthier items have been found in New Zealand (Zorbas et al., unpublished data) and the USA (albeit a small absolute difference) [26•].

Whether the influence of food and beverage price promotions differs according to level of socioeconomic position (SEP) is unclear. Recent evidence in New Zealand (Zorbas et al., unpublished data) demonstrated greater purchases of food and beverages that were price promoted by lower compared to higher income households. Data from the UK revealed similar levels of purchases of price promoted products across income groups [25••], whilst analyses of panel purchasing data in the USA [26•] and earlier studies in the UK [27•] showed a greater prevalence of price promoted food and beverage purchases for higher-income compared to lower-income households.

Policies to Reduce the Influence of Unhealthy Food and Beverage Price Promotions

In an attempt to improve population diets and weight, governments in the UK [28] and Scotland [29] have recently proposed legislation to reduce the influence of price promotions on unhealthy food and beverage purchases. This is the first time that price promotions have appeared on national policy agendas as a means of improving population diets. The policy options cited by the UK and Scottish governments to limit the impact of price promotions on purchasing include (i) a restriction on the use multi-buy price promotions, (ii) restricting the advertising of price promotions in-store (i.e. retailers could not use marketing techniques to promote a price promotion), (iii) restricting the placement of unhealthy foods and beverages at checkout, end-of-aisle, front of store and island/bin displays and (iv) restricting the sale of unlimited refills of unhealthy foods and beverages. With public consultations on these policy proposals pending, it is unclear whether the proposed

policies will be implemented. Other potential policy options to reduce the prevalence and influence of unhealthy food and beverage price promotions are listed in Table 1, along with a description of their relative advantages and disadvantages. Importantly, all policy options in this area are likely to require the use of food classification systems that definitively identify foods targeted by the policy. The use of models such as the Australian Health Star Rating system [31], the French Nutri-score model [32] or national dietary guidelines are likely to be useful in this regard.

Whilst government policy proposals to restrict the impact of price promotions are laudable, the eventual impact on purchasing behaviour and population health is likely to be strongly influenced by the response of customers, manufacturers and retailers, which remains unknown until such policies are implemented in practice. The importance of the stakeholder response to proposed policies is clear based on related examples including policies to tax SSBs and tobacco [33–35]. The battle between the potential benefits to population health on the one hand and private industry concerns related to revenue loss on the other is likely to be strongly fought, with many examples of food policy design being compromised to accommodate industry concerns [36, 37]. Resistance by industry has already been observed in Scotland with respect to the initial 2017 proposal and public consultation by the Scottish government outlining options to restrict the price promotion of food and drink high in fat, sugar and salt. Specifically, it was stated ‘The Scottish Government is minded to act to restrict price promotion on food and drink products which are high in fat, salt and sugar. This could include: multi-buy, X for Y, or temporary price promotions’. Industry opposed these recommendations, citing a lack of evidence that they would have any impact on food choices, with specific opposition to the targeting of temporary price reductions (the most common form of food and beverage price promotions in the UK) [20••]. A later publication from July 2018 titled ‘A healthier future: Scotland’s diet and healthy weight delivery plan’ and the accompanying consultation paper ‘Reducing Health Harms of Foods High in Fat, Sugar or Salt’ retained the focus on restricting multi-buys and the sale of unlimited refills of unhealthy foods and beverages in places where they are sold to the public, but crucially, an explicit exemption was noted for temporary price reductions.

A further example of the potential for the food industry to limit the impact of policies that target price promotions can be seen in the 2011 banning of multi-buy promotions for alcohol in Scotland. Following the implementation of this policy, multi-buys were removed, but retailers were reported to simultaneously increase the use of price discounts on products for single purchase [38]. Overall, the volume of alcohol purchased did not change, either for the whole population or individual socioeconomic groups, and the use of price discounts on single purchases had the unintended consequence of making alcohol even more affordable than before [38].

Table 1 Possible actions to reduce the prevalence and influence of unhealthy food and beverage price promotions

Potential policy options	Relative advantages	Relative disadvantages	International example
<ul style="list-style-type: none"> • Legislation to restrict price promotions on unhealthy food and beverages 	<ul style="list-style-type: none"> • Most comprehensive action if all types (e.g. temporary price discounts, multi-buys) of price promotions are targeted • Creates a ‘level playing field’ for general retailers (such as supermarkets) 	<ul style="list-style-type: none"> • If only one type of price promotion (e.g. multi-buys) is targeted, industry may increase use of other pricing strategies (e.g. temporary price discounts or permanent reductions in price) to reduce influence of the policy • Likely to be most strongly opposed by industry 	Under consideration in Scotland and across the UK (limited to multi-buys)
<ul style="list-style-type: none"> • Legislation to restrict the advertising of price promotions on unhealthy food and beverages (in media, circulars, brochures, catalogues, in-store) 	<ul style="list-style-type: none"> • Likely to reduce impulsive demand in response to price promotion • Potentially less push-back by industry in comparison to an outright ban on price promotions on unhealthy food and beverages • Creates a ‘level playing field’ for general retailers (such as supermarkets) 	<ul style="list-style-type: none"> • Does not restrict price promotions themselves and therefore likely to be less effective than a legislated ban on all types of price promotions for unhealthy foods and beverages 	Under consideration in Scotland
<ul style="list-style-type: none"> • Legislation to restrict placement of price promoted unhealthy food and beverages in prominent locations in retail outlets (e.g. at end of aisle displays and at checkouts) 	<ul style="list-style-type: none"> • Targets most prominent price promotions in-store • Creates a ‘level playing field’ for general retailers (such as supermarkets) 	<ul style="list-style-type: none"> • Does not restrict price promotions themselves and therefore likely to have significantly lower level of effectiveness • Difficulties defining most prominent locations in some cases 	Under consideration in Scotland
<ul style="list-style-type: none"> • Legislation to limit the magnitude of price discounts on unhealthy food and beverages 	<ul style="list-style-type: none"> • May limit the most influential existing price promotion strategies (e.g. half price specials) • Creates a ‘level playing field’ for general retailers (such as supermarkets) 	<ul style="list-style-type: none"> • Industry may increase use of other pricing strategies (e.g. permanent reductions in price) to reduce influence of the policy 	Nil
<ul style="list-style-type: none"> • Legislated floor price (minimum pricing) per unit of food/beverage 	<ul style="list-style-type: none"> • Provides a disincentive for consumers to purchase items that are higher in targeted nutrients • Creates a ‘level playing field’ for general retailers (such as supermarkets) 	<ul style="list-style-type: none"> • Would require consensus regarding which nutrients could be targeted (e.g. minimum price per unit of sugar) • May boost industry revenue by increasing average prices • Does not provide any additional revenue to governments 	Implemented for alcohol policy in Canada and Australia (Northern Territory)
<ul style="list-style-type: none"> • Voluntary industry action to reduce the prevalence of unhealthy food and beverages price promotions 	<ul style="list-style-type: none"> • Few public resources required • Likely to be politically more appealing • 	<ul style="list-style-type: none"> • Likely to be low uptake of policy • Retailers and manufacturers who voluntarily take action are potentially at a competitive disadvantage with regard to price compared to retailers who take no action • Self-regulation for other food policies (such as restrictions to advertising of unhealthy food and beverages to children) have been shown to be largely ineffective [30] 	Nil

Even with comprehensive bans on unhealthy food and beverage price promotions, the food industry may find other ways to respond that could undermine the public health intent of the policy, for instance by reducing their ‘regular’ (non-discounted) prices or by increasing the use of other marketing techniques (such as product positioning or loyalty rewards). Accordingly, a comprehensive policy response is likely to be required alongside restrictions on price promotions, potentially including broad-based food taxes, minimum floor prices for unhealthy products (as has been enacted for alcohol in

Scotland and the Northern Territory in Australia) and regulation of a wide range of marketing techniques.

The way in which consumers respond to policies targeting unhealthy food and beverage price promotions is also unclear. Whilst some evidence exists in relation to the shopper response to price promotions (see above), the way in which different consumer groups respond to the removal of price promotions or to other policies targeting price promotions, including the impact on food budgets and on overall diets, is largely unknown.

Lastly, the feasibility of policy implementation for many of the policy options outlined in Table 1 is unclear. The way in which potential policy options would interact with existing competition laws and trade agreements needs to be explored. Evidence from retailer responses to the UK and Scottish consultations suggests that retailers may prefer a mandatory, rather than voluntary, approach in order to create a ‘level playing field’. Economic modelling of the costs and benefits of different policy options is also likely to be important in making the case for change. As has been the case with taxes on sugar-sweetened beverages, the best evidence for policy change is likely to come from evaluation of real-world policy implementation by progressive jurisdictions that are willing to test novel approaches to obesity prevention.

Conclusion

Price is a critical influence on food purchase decisions, and, therefore, price promotions are likely to be an important factor influencing dietary patterns. Price promotions for unhealthy foods and beverages are ubiquitous in many settings globally, and appear to be more common than price promotions for healthy food. A large proportion of all food purchases in many countries are products that are price promoted, and evidence suggests that the impact on sales is greater for price promotions on unhealthy food (typically impulse purchases) compared to healthier food. Moreover, price discounts have the potential to undermine other public health policies, such as SSB taxes, which have now been introduced in more than 30 jurisdictions [14]. Accordingly, policies to reduce the prevalence and influence of unhealthy food and beverage price promotions hold great promise to improve diets across the population. Whilst the UK and Scottish Governments have very recently proposed policies to restrict, or reduce, the influence of price promotions on unhealthy foods and beverages [9, 39] as part of a broader plan to improve population diets, whether these proposals translate into implemented policy, and their likely impact on population health is currently unclear.

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Compliance with Ethical Standards

Conflict of Interest Kathryn Backholer, Gary Sacks and Adrian J. Cameron declare they have no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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