



# Following in the footsteps of tobacco and alcohol? Stakeholder discourse in UK newspaper coverage of the Soft Drinks Industry Levy

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Submitted 8 May 2018: Final revision received 12 December 2018: Accepted 6 February 2019: First published online 21 May 2019

## Abstract

**Objective:** In politically contested health debates, stakeholders on both sides present arguments and evidence to influence public opinion and the political agenda. The present study aimed to examine whether stakeholders in the Soft Drinks Industry Levy (SDIL) debate sought to establish or undermine the acceptability of this policy through the news media and how this compared with similar policy debates in relation to tobacco and alcohol industries.

**Design:** Quantitative and qualitative content analysis of newspaper articles discussing sugar-sweetened beverage (SSB) taxation published in eleven UK newspapers between 1 April 2015 and 30 November 2016, identified through the Nexis database. Direct stakeholder citations were entered in NVivo to allow inductive thematic analysis and comparison with an established typology of industry stakeholder arguments used by the alcohol and tobacco industries.

**Setting:** UK newspapers.

**Participants:** Proponents and opponents of SSB tax/SDIL cited in UK newspapers.

**Results:** Four hundred and ninety-one newspaper articles cited stakeholders' (*n* 287) arguments in relation to SSB taxation (*n* 1761: 65 % supportive and 35 % opposing). Stakeholders' positions broadly reflected their vested interests. Inconsistencies arose from: changes in ideological position; insufficient clarity on the nature of the problem to be solved; policy priorities; and consistency with academic rigour. Both opposing and supportive themes were comparable with the alcohol and tobacco industry typology.

**Conclusions:** Public health advocates were particularly prominent in the UK newspaper debate surrounding the SDIL. Advocates in future policy debates might benefit from seeking a similar level of prominence and avoiding inconsistencies by being clearer about the policy objective and mechanisms.

## Keywords

Sugar-sweetened beverage taxation  
Soft Drinks Industry Levy  
Public health policy  
Media content analysis  
Unhealthy commodity industries

Consumption of free sugars by UK adults accounts for 16–17 % of their total energy intake<sup>(1)</sup>, more than triple the 5 % maximum recommended by the WHO<sup>(2)</sup>. An econometric analysis of repeated cross-sectional data on diabetes and nutritional components of food from 175 countries found that sugar availability is a statistically significant determinant of diabetes prevalence rates worldwide<sup>(3)</sup>. Briggs *et al.* estimated that a 20 % tax on sugar-sweetened beverages (SSB) might result in a 15 % reduction in sugar

consumption, potentially preventing approximately 180 000 people in the UK from becoming obese each year<sup>(4)</sup>. Evidence from countries such as Mexico<sup>(5,6)</sup>, Denmark<sup>(7)</sup> and parts of the USA<sup>(8)</sup> likewise suggests that SSB taxation might be an effective policy in tackling obesity, particularly as part of a multipronged approach<sup>(9,10)</sup>.

In March 2016, the UK Government announced a Soft Drinks Industry Levy (SDIL), which came into force in April 2018<sup>(11,12)</sup>. As anticipated, the SDIL led the soft drinks

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industry to reformulate products to contain less sugar in order to reduce its liability to pay the levy<sup>(13,14)</sup>. The SDIL represents an important part of the Government's plan to reduce obesity<sup>(15)</sup> and dental decay in children<sup>(16,17)</sup>, and also prevent non-communicable diseases associated with excess sugar consumption<sup>(18–23)</sup>. As such, the SDIL has been deemed particularly beneficial to young people and low-income populations who suffer the highest burden of diseases associated with excess sugar consumption<sup>(16,17)</sup>. The SDIL might thus also reduce health inequalities<sup>(24,25)</sup>.

Regulatory attempts to reduce consumption of harmful commodities are often met with opposition from producers and marketers of those commodities, and those stakeholders have been shown to use common strategies in resisting the introduction of such upstream regulation. For example, Mialon *et al.*'s recent systematic review of tactics used by the processed food industry in Australia identified similarities to anti-regulation strategies used by the tobacco and alcohol industries<sup>(26)</sup>. Like other so-called 'unhealthy commodity industries' (UCI), they used front groups, lobbying and industry-funded research to: (i) emphasise industry responsibility and the effectiveness of self-regulation; (ii) question the effectiveness of statutory regulation; and (iii) frame excessive consumption as the responsibility of individuals, rather than the state<sup>(27–30)</sup>. More recently Petticrew *et al.* suggested that the arguments and language used by the alcohol, food, soda and gambling industries may reflect the existence of a cross-industry 'playbook', whose use results in the undermining of effective public health policies<sup>(31)</sup>. In contrast, there is less evidence of public health advocates using similar tactics to gain support for potentially effective regulation of harmful industry activities. Indeed, such advocates face considerable barriers to effectively influencing policy change, including limited resources, time and appropriate skills<sup>(32)</sup>. In the case of minimum unit pricing for alcohol, Katikireddi *et al.* found that public health advocates worked hard to redefine the policy issue by deliberately presenting a consistent alternative framing of alcohol policy as a broad, multisectoral, public health issue necessitating a whole-population approach<sup>(33)</sup>. The authors considered reframing as vital in enabling policy makers to seriously consider the policy<sup>(33)</sup>. The effectiveness with which stakeholders in a policy debate communicate their arguments is crucial in gaining support for their preferred policy option.

Walton suggests that arguments presented in the media are often used as rhetorically effective techniques to persuade a mass audience<sup>(34)</sup>. The news media is thus a potentially important channel for stakeholders on both sides of any policy debate to promulgate their message. The way that health problems are defined in the news media (i.e. the nature of the problem, its drivers, causal agendas, effects and potential solutions), known as 'framing', thus

plays a potentially very important role in influencing public and decision makers' interpretations of health issues<sup>(35–37)</sup>. Public acceptance of a specific policy solution is often a prerequisite for decision makers to implement an evidence-based health policy<sup>(38,39)</sup> and media framing of problems and solutions can therefore play a key role in determining that acceptability<sup>(40–42)</sup>, as well as shaping social norms<sup>(43–45)</sup>.

Systematic reviews of the tactics employed by the alcohol and tobacco industries in attempting to influence marketing regulation have identified a common typology of frames used to argue against such regulation, namely that increased regulation: (i) is unnecessary, (ii) is not backed up by sufficient evidence, (iii) will lead to unintended negative consequences, and (iv) faces legal barriers to implementation; all underpinned by the message that (v) the industry consists of socially responsible companies working toward reducing harmful consumption<sup>(27–29)</sup>. While there are subtle differences in different industries' argumentation, possibly due to their relative positions in the regulatory hierarchy<sup>(29)</sup>, the literature broadly supports the idea that UCI use a cross-industry 'playbook' to undermine effective public health policies<sup>(31)</sup>.

The aims of the present study were therefore to: (i) identify stakeholder arguments used on each side of the SDIL debate in UK newspaper coverage of SSB taxation and compare them with the frames used to resist increased regulation by the alcohol and tobacco industries<sup>(29)</sup>; and (ii) generate insights into how anti-SDIL arguments may be countered to inform future public health advocacy on this and other fiscal policies, both in the UK and worldwide, where there is still considerable resistance to such measures, for example in the USA<sup>(46,47)</sup> and Australia<sup>(48)</sup>.

## Methods

We used quantitative and qualitative content analysis methods. First, we identified citations of relevant stakeholders in newspapers, their overall presented position as proponents or opponents in the SDIL debate, and the specific arguments in support of or opposing SSB tax attributed to them. Second, we conducted inductive thematic analysis of cited arguments to identify key themes that emerged from the data and compared these with the established typology of industry frames<sup>(29)</sup>.

### **Newspaper search and article selection**

We employed newsprint content analysis based on methods developed by Hilton and colleagues at the University of Glasgow's Social and Public Health Sciences Unit<sup>(49–52)</sup>. Eleven UK national newspapers with high circulation figures<sup>(53)</sup> were selected, along with their Sunday counterparts, to represent three genres: 'broadsheet', 'middle



market' and 'tabloid'. This typology represents a range of readership profiles diverse in terms of age, social class and political alignment<sup>(53,54)</sup>. The time period of 1 April 2015 to 30 November 2016 was chosen to include coverage triggered by: (i) the publication of reports from the WHO<sup>(2)</sup>, Scientific Advisory Committee on Nutrition<sup>(16)</sup> and Public Health England<sup>(10)</sup>; and (ii) the announcement of the UK SDIL (March 2016) and the UK Government's consultation on the proposed SDIL<sup>(55,56)</sup>.

The Nexis database<sup>(57)</sup> was searched for all articles published within the selected publications during the relevant date range that discussed the issue of SSB consumption and taxation. To identify relevant articles, a search string was developed for 'sugar\*' and one or more of the following terms: 'beverage\*', 'soft drink\*', 'fizz\*', 'soda', 'tax\*' and 'levy' occurring anywhere in the text three or more times. The search returned 3127 articles. While the specific policy debate of interest was the SDIL, many stakeholders used the more generic term of 'SSB tax' or 'sugar tax' when discussing fiscal measures aimed at reducing excess sugar consumption, therefore articles in which stakeholders used any of these terms were included. Hereafter we use the term 'SSB tax' unless stakeholders specifically refer to the SDIL.

Articles were excluded if they: (i) did not directly cite stakeholders' arguments for or against SSB tax or the SDIL; (ii) were short lead-ins to a main story elsewhere in the same edition; (iii) appeared exclusively in an Eire edition; and (iv) appeared in non-news sections of newspapers, including letters, advice, television guide, sport, weather, obituaries or review sections. Letters are routinely excluded from media analysis as they represent the views of individual members of the public rather than stakeholders in the debate. Where a stakeholder provided an opinion piece for a newspaper, this was included in the analysis as a direct citation. After applying the exclusion criteria 2636 articles were removed, leaving 491 for in-depth analysis.

#### **Article coding and stakeholder position analysis**

All articles were read in detail by one researcher (R1) to identify and capture the text of direct citations of stakeholder individuals and organisations. Each piece of text was coded for newspaper title, date, individual and/or organisation cited, and whether the argument was in support of, or opposition to, SSB taxation. Where stakeholders used evidence to back up their argument, the type of evidence used was coded. The quantitative coding frame is provided in the online supplementary material (Supplemental File S1: Coding frame used to analyse final sample of newspaper articles). A random sub-sample of 25 % of the articles were double-coded by R2 to ensure coding consistency. Data were imported into the statistical software package IBM SPSS Statistics version 24 to calculate inter-rater agreement using Cohen's  $\kappa$  coefficient<sup>(58)</sup>. Sixty-five per cent of codes returned a  $\kappa > 0.4$ , which is typically interpreted as moderate agreement or better<sup>(59)</sup>. Where less than

substantial agreement was identified ( $\kappa < 0.61$ ), code definitions were discussed within the research team and the coding frame and descriptor document were revised as required.

An overview of the slant of opinion by stakeholder was calculated based on an index developed by Patterson *et al.*<sup>(52)</sup>. The index expresses the proportion of all supportive and oppositional statements associated with a stakeholder as a value on a scale from +100 % (all supportive) to -100 % (all opposed). Cited stakeholders were grouped into six categories according to their organisational affiliations: (i) politicians and political organisations; (ii) public health organisations and professional bodies; (iii) industry representatives, manufacturers and retailers; (iv) non-governmental organisations, health charities and campaigners; (v) academics and evidence producers; and (vi) think-tanks and other analysts. These categories were constructed based on the need to structure the analysis by grouping stakeholders with likely shared values, and were chosen in line with the research team's prior experience of researching public health policy debates. Individuals and organisations allocated to each group are listed in the online supplementary material (Supplemental File S2: Full list of stakeholder organisations, named individuals, allocation to stakeholder groups). For each stakeholder, the degree of support was then plotted against the total number of times that stakeholder was cited to provide a graphical representation of the most vocal supportive and oppositional groups.

#### **Analysis of arguments in support of and in opposition to sugar-sweetened beverage tax/Soft Drinks Industry Levy**

Direct citations were imported into NVivo 11 for inductive thematic analysis. Each piece of text was coded to two separate nodes: stakeholder and theme raised. Individual stakeholder nodes were nested under stakeholder categories, as described above, and thematic nodes were nested under supportive and oppositional categories of argument.

The themes identified were compared with the established typology of industry arguments identified through systematic reviews of research on the alcohol and tobacco industries<sup>(27–29)</sup>. In order to compare arguments used by both sides of the SSB tax debate with arguments relating to the regulation of other UCI, we developed a policy-neutral form of this typology (neither opposition nor support for SSB tax): relevance of proposed regulation; evidence; unintended consequences and other benefits; legal; and corporate social responsibility.

## **Results**

### **Overview**

Between 1 April 2015 and 30 November 2016, 491 newspaper articles were identified in which stakeholders were cited as presenting arguments and evidence in the SSB

**Table 1** Number of articles, by region, genre and newspaper title, in the sample of newspaper articles published in eleven UK newspapers between 1 April 2015 and 30 November 2016

Region, genre and title	Total articles	
	<i>n</i>	%
UK		
Broadsheet		
<i>The Guardian/The Observer</i>	88	18
<i>The Independent/i-Independent</i>	84	17
<i>The Times/The Sunday Times</i>	90	18
<i>The Daily Telegraph/The Sunday Telegraph</i>	58	12
Middle market		
<i>Daily Mail/The Mail on Sunday</i>	33	7
<i>Daily Express/Sunday Express</i>	19	4
Tabloid		
<i>The Sun/The Sun on Sunday</i>	50	10
<i>Daily Mirror/Sunday Mirror</i>	13	3
Scotland		
Broadsheet		
<i>The Scotsman/Scotland on Sunday</i>	18	4
<i>The Herald/Sunday Herald</i>	27	5
Tabloid		
<i>Daily Record/Sunday Mail</i>	11	2
<b>Total</b>	<b>491</b>	<b>100</b>

tax debate (Table 1). Most articles were published in UK-wide newspapers (89 %) and 74 % appeared in 'broadsheet' newspapers.

A wide range of stakeholders (*n* 287; 34 % organisations and 66 % individuals) were cited in newspaper articles presenting views on SSB tax (*n* 1761). A full list of all stakeholder organisations and named individuals is supplied in the online supplementary material (Supplemental File S2). Sixty-five per cent of arguments were in support of some form of SSB tax and 35 % in opposition. Stakeholders infrequently cited evidence in support of their arguments (12 % of the time) and the type of evidence used fell into five categories: (i) academic (citation of a specific academic study); (ii) lay opinion; (iii) expert opinion; (iv) anecdotal; and (v) financial (Table 2). The most frequently used type of evidence was anecdotal (44 %), which was employed by both supporters and opponents of SSB tax. Supporters were more likely to cite a specific academic study or an expert opinion than opponents.

### **Overall stance on sugar-sweetened beverage taxation**

Plotting the aggregate stance of each stakeholder group against frequency of citations revealed that public health organisations and professional medical associations (the most frequently cited stakeholder group with 25 % of arguments) were most often cited as proponents of SSB tax, as were non-governmental organisations, charities, campaigners and academics (Fig. 1). Groups more frequently cited as opposing the measure included industry representatives and manufacturers (18 % of arguments), think-tanks and economic research organisations. Most stakeholders were cited with consistent arguments, but a minority were

**Table 2** Frequency of use of evidence cited in support of and opposition to sugar-sweetened beverage (SSB) tax in the sample of newspaper articles published in eleven UK newspapers between 1 April 2015 and 30 November 2016

	Citations in support of SSB tax ( <i>n</i> 155)	Citations in opposition to SSB tax ( <i>n</i> 66)
	<i>n</i>	<i>n</i>
Anecdotal ( <i>n</i> 98)	58	40
Academic ( <i>n</i> 43)	36	7
Financial ( <i>n</i> 39)	31	8
Expert ( <i>n</i> 30)	23	7
Opinion ( <i>n</i> 11)	7	4

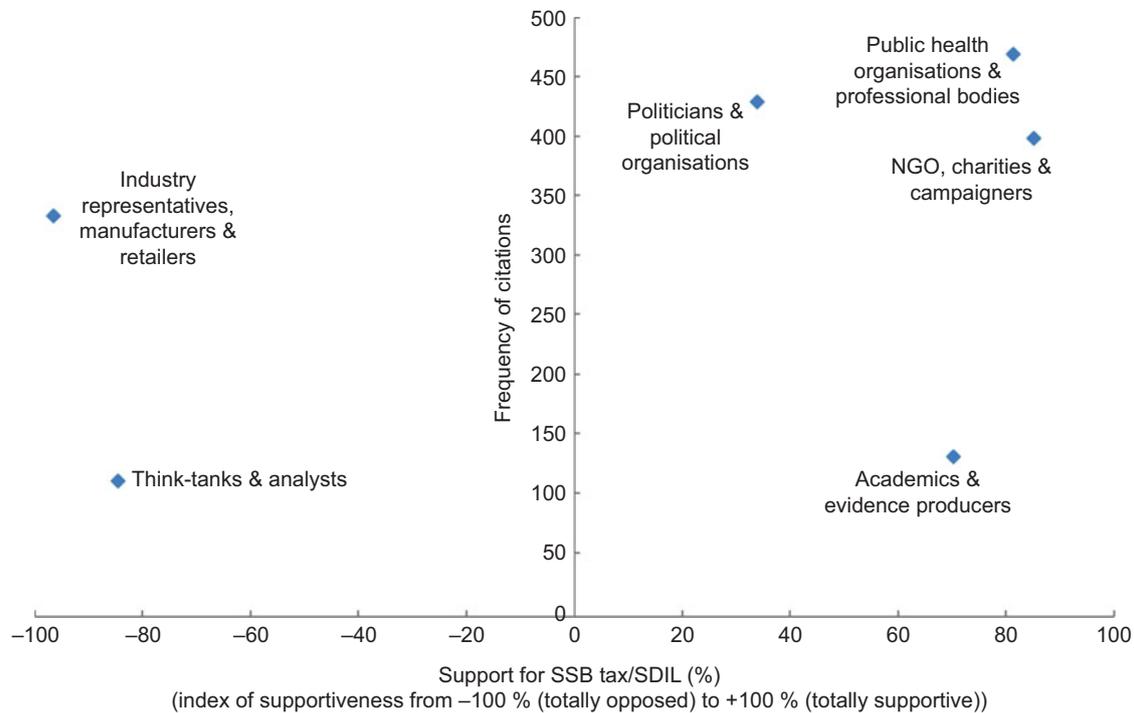
cited as making both supportive and oppositional arguments, leaving their degree of support for SSB tax ambiguous and open to interpretation (Supplemental File S2). Inconsistencies arose from: (i) changes in ideological position (politicians and government representatives); (ii) insufficient clarity on the nature of the problem to be solved, excess sugar consumption *v.* obesity, and policy priorities (public health agencies); and (iii) consistency with academic rigour (academics). The group comprising politicians and political organisations was most diverse in their opinions, in line with the ideological positions held by its constituent stakeholders, with 68 % of arguments in support of taxation and 32 % opposing (Fig. 1). Key individuals in this group (David Cameron, then Prime Minister, and Jeremy Hunt, then Health Secretary) were associated with initial oppositional positions and subsequent supporting positions as the debate developed.

### **Thematic analysis and comparison with alcohol and tobacco frames**

The themes that arose from the qualitative analysis of stakeholder arguments could be readily classified into the frame/sub-frame structure developed by researchers studying the alcohol and tobacco industries (Table 3). Table 3 presents summaries of typical arguments attributed to stakeholders within articles, organised by stance and frame/sub-frame. Most arguments fell into the evidence (40 %) and regulation frames (31 %), followed by the unintended consequences and other benefits frame (24 %), the corporate social responsibility frame (4 %) and the legal frame (1 %).

#### *Appropriateness of regulation*

The arguments falling into the regulation frame focused on whether or not taxation was an appropriate solution to the problem of obesity. Opponents from the food and drink industry argued that the government should not intervene in the market and that taxation would not prompt behaviour change. For example, the Food and Drink Federation was quoted as stating that: 'Demonising one nutrient is not a healthy way to proceed. Consumer choice is the best way to go because government intervention



**Fig. 1** (colour online) Frequency of citations by stakeholder group and their aggregate stance in the sugar-sweetened beverage (SSB) tax/Soft Drinks Industry Levy (SDIL) debate in the sample of newspaper articles published in eleven UK newspapers between 1 April 2015 and 30 November 2016 (NGO, non-governmental organisation)

simply doesn't work' (*Independent*, 28 August 2015). Some public health agencies opposed the measure because they felt other regulatory mechanisms were of greater priority such as: enforced reformulation and product labelling; control of marketing and promotions; and positive price instruments on healthy products. For example, the President of the Academy of Medical Royal Colleges was quoted as stating that: 'a sugar tax is probably not top of the list of steps that need to be taken . . . Higher up would be reformulation of food, and we should curtail marketing of overly sweetened drinks and food like breakfast cereals to children' (*Guardian*, 25 October 2015).

Supporters of SSB taxation emphasised the scale of the problem and the urgent need for government action as part of a package of measures, with an emphasis on protecting young people. For example, the National Obesity Forum and Faculty of Public Health made mutually supportive statements: 'Sugar is indeed the new tobacco. We know it is very harmful to health and we know we can use the same effective strategies that we used in tobacco control' and 'A little gentle pressure from sugar taxes and other Government policies will help bring home the message' (*Daily Mirror*, 2 November 2016).

Very few supporters highlighted the argument that the SDIL could be seen as a 'win-win solution'. This position contends that the measure will reduce sugar consumption (by discouraging consumer purchasing and/or encouraging manufacturer reformulation) and raise public revenue that can be reinvested in public health initiatives. The win-win

concept was alluded to in the 2016 Chancellor's budget statement: 'he wanted to save the nation from an obesity crisis with a tax on fizzy drinks. He said he was convinced that his levy of up to 24p on a litre of fizzy pop would reduce consumption and reap a tax dividend for the exchequer' (*The Observer*, 19 March 2016). Supportive stakeholders' limited invocation of the win-win concept was potentially a missed opportunity to counter opponents' arguments that sought to position reformulation as a failure of the policy. For example, Investec was associated with that argument: 'Analysts at Investec said soft drinks makers would reformulate their products to avoid the tax, thereby reducing revenue for the chancellor' (*Sunday Times*, 20 March 2016).

*Evidence of effectiveness (or lack thereof)*

The debate over the evidence bases for supporting or opposing SSB tax centred on the definition of the policy target; that is, reducing sugar consumption *v.* tackling obesity. Opposing arguments hinged on the likely ineffectiveness of SSB tax in solving the long-term 'obesity epidemic', positioning the problem as too complex to solved by a fiscal measure. The Food and Drink Federation was cited as arguing that: 'Additional burdensome taxes on foods or drinks are rejected by the public. This complex challenge needs a complex solution, one which involves and empowers people, not taxes them' (*Guardian*, 4 September 2015). Other opposing arguments included observing that SSB consumption was already in decline, but obesity continues to rise, and arguing that SSB are a sufficiently small source

**Table 3** Summary of frames, sub-frames and key arguments made by opponents and proponents of sugar-sweetened beverage (SSB) tax/Soft Drinks Industry Levy (SDIL) in the sample of newspaper articles published in eleven UK newspapers between 1 April 2015 and 30 November 2016. (Frames adapted from Savell *et al.*<sup>(27,28)</sup> and Martino *et al.*<sup>(29)</sup>)

Frame	Sub-frame(s)	Arguments opposing SSB tax	Arguments in support of SSB tax
Regulation		<ul style="list-style-type: none"> <li>Other regulation would to be more effective in tackling obesity</li> <li>Positive price instruments are needed</li> <li>Taxation is an inappropriate mechanism for behaviour change</li> <li>Sugar cannot be regulated like alcohol and tobacco</li> <li>Obesity too complex a problem to solve with fiscal measures</li> <li>Additional taxation is un-conservative and unpopular – nanny statist</li> <li>Focus should be on solving inequalities</li> </ul>	<ul style="list-style-type: none"> <li>No silver bullet/a useful start as part of a package of measures</li> <li>Will prompt reformulation to avoid the levy/health by stealth</li> <li>Reluctant to impose new taxes but have to start dealing with obesity somewhere/nothing else is working</li> <li>Sugar is the new tobacco and should be regulated as such</li> <li>Relatively quick and easy to implement – a quick win</li> <li>Public is in favour of decisive government action/even taxation</li> <li>SSB consumption is a particular issue for young people, therefore an appropriate target for government intervention</li> </ul>
Evidence		<ul style="list-style-type: none"> <li>No evidence of effectiveness anywhere in world</li> <li>Those who buy SSB are not price sensitive</li> <li>Won't reduce energy intake therefore no effect on obesity</li> <li>SSB consumption is declining anyway – no effect on obesity</li> </ul>	<ul style="list-style-type: none"> <li>Evidence shows that SSB tax reduces purchases</li> <li>Will reduce tooth decay, obesity and related NCD</li> </ul>
Unintended consequences/ other benefits	Economic	Manufacturers	<ul style="list-style-type: none"> <li>Will lead to industry failure, job losses and reduced innovation</li> <li>The SDIL is complex, confusing and difficult/costly to implement</li> </ul>
		Associated industries	<ul style="list-style-type: none"> <li>The SDIL will cost jobs across the UK in associated industries</li> </ul>
		Public revenue	<ul style="list-style-type: none"> <li>The levy will not raise the anticipated revenue</li> <li>Increased taxation will cause inflation/decline in output</li> </ul>
		Consumers	<ul style="list-style-type: none"> <li>Tax is regressive/will impact lower-income groups disproportionately</li> </ul>
	Public health	<ul style="list-style-type: none"> <li>People will switch to other sugar sources/unhealthy drinks</li> <li>ASB are no more healthy</li> </ul>	<ul style="list-style-type: none"> <li>Revenue raised can be used to fund health improvement programmes and/or subsidise 'healthy' foods</li> <li>Reduced loss of productivity from NCD will benefit economy</li> <li>Revenue for NHS to offset costs of obesity/reduced long-term costs</li> <li>There are many alternatives to SSB/no one needs to drink SSB and pay the levy</li> <li>Sends a clear message that sugar is bad for health</li> <li>Will nudge people to choose low-/no-sugar options</li> <li>Low-income groups will see the greatest health benefits</li> </ul>
Legal		<ul style="list-style-type: none"> <li>SDIL is illegal/anti-competitive</li> </ul>	
Corporate social responsibility		<ul style="list-style-type: none"> <li>Industry is reformulating anyway in response to consumer demand</li> <li>Soft drinks industry plays an active role in promoting healthy lifestyles</li> </ul>	<ul style="list-style-type: none"> <li>The Public Responsibility Deal has failed</li> </ul>

ASB, artificially sweetened beverage; NCD, non-communicable disease; NHS, National Health Service.



of dietary energy that, even if consumption was reduced, it would have little or no impact on obesity and related non-communicable diseases. For example, the Institute of Economic Affairs was cited as saying: 'Since soft drink taxes have only a modest effect on the consumption of this relatively minor source of calories, it should not be surprising that there is virtually no evidence sugary drink taxes have reduced obesity or improved health anywhere in the world' (*Times*, 13 January 2016).

Conversely, supporting arguments focused on the importance of reducing SSB purchases and thus sugar consumption in the short term, emphasising the impact on specific health concerns such as type 2 diabetes and dental decay in children. Supporters made extensive use of modelling studies and evidence emerging from Mexico to back up their claims. For example, Public Health England was quoted as stating that: 'The review highlights evidence from Mexico, where a soft drinks tax has led to a six per cent reduction in purchases. The point of the tax is to nudge people away from purchasing these things towards purchasing things that are more consistent with a healthy balanced diet' (*Independent*, 20 October 2015).

Three key pieces of evidence were used by stakeholders to support both supportive and oppositional arguments: (i) the McKinsey report entitled *Overcoming Obesity: An Initial Economic Analysis*<sup>(9)</sup>; (ii) the Public Health England report *Sugar Reduction: The Evidence for Action*<sup>(10)</sup>; and (iii) a study published in the *British Medical Journal* evaluating the impact of the SSB tax in Mexico<sup>(5)</sup> (Table 4).

#### *Unintended consequences and other benefits (both economic and public health)*

Arguments highlighting unintended consequences and other benefits tended to focus specifically on the SDIL rather than SSB taxation more generally. Opponents argued that the SDIL would create negative economic impacts for soft drinks manufacturers, associated industries, the wider economy and consumers, particularly those in lower income groups. Opposing arguments characterised the measure as: regressive; costly to implement; inflationary and likely to cause job losses. For example, the British Soft Drinks Association was quoted as explaining that: 'Given the economic uncertainty our country now faces, we're disappointed the Government wishes to proceed with a measure that analysis suggests will cause thousands of job losses' (*Independent*, 18 August 2016). Opponents also asserted that the levy would fail to raise the anticipated public revenue as manufacturers would reformulate their products to avoid paying it, positioning this as a negative outcome rather than the positive one suggested in the win-win solution.

Opposing arguments also emphasised the potential negative health consequences of consumers replacing SSB with other sources of sugar or artificially sweetened beverages, suggesting that sugar is addictive and artificially sweetened beverages are no better for health than SSB.

The Institute for Fiscal Studies was quoted as reasoning that: 'If people have a strong taste for sugar, although they may respond to the increase in prices by switching away from sugary soft drinks, it's entirely possible and quite likely they might switch towards other high sugar products' (*Daily Mail*, 18 March 2016).

In contrast, supporters of the tax argued that there would be no adverse economic impact for industry or consumers, as the design of the SDIL allowed industry two years to reformulate its products with less sugar and that consumers could choose from many alternatives to SSB and thus avoid the levy entirely. Additional benefits of the SDIL were highlighted in terms of: (i) the potential for reinvestment of revenue raised into health improvement programmes and subsidies for 'healthy' foods; (ii) the positive long-term impact of reduced non-communicable diseases on increased productivity and a reduced burden on the National Health Service; and (iii) sending a strong message to industry and consumers about the health impacts of excess sugar consumption. For example, the WHO was quoted as suggesting that: 'Fiscal policies may encourage this group of consumers to make healthier choices (provided healthier alternatives are made available) as well as providing an indirect educational and public health signal to the whole population' (*The Herald*, 26 January 2016).

#### *Legality issues*

Insurprisingly, only opponents of SSB tax were cited as making arguments highlighting the legality and potentially anti-competitive nature of the measure. For example, the British Soft Drinks Association stated: 'It's fair to say we are more than just considering legal action. This has been rushed through without warning' (*Sunday Times*, 20 March 2016). However, this line of argument was transient, surfacing only briefly at the time of the SDIL announcement in early March 2016, and disappearing by the end of that month. The *Telegraph* (30 March 2016) quoted AG Barr as saying: '[we are] fully committed to working with the Treasury on a full consultation that will have an outcome that benefits consumers, shareholders and other stakeholders', and added that 'Mr White said that a legal challenge to the sugar tax was not being considered'. This was in contrast to the response of the alcohol industry to the announcement of minimum unit pricing for alcohol in Scotland, where a legal challenge significantly delayed implementation.

#### *Role of corporate social responsibility*

The final frame represents a line of argument again primarily espoused by opponents of SSB tax: that the soft drinks industry has a positive role to play in promoting public health and that it is voluntarily reformulating its products to be healthier in response to consumer demand, without the need for taxation or other regulation. For example, one soft drinks manufacturer was quoted as stating that: 'Our job is to understand and have relationships with our customers, which we have had for over 100 years, making sure we offer them choices.

**Table 4** Use of evidence to support stakeholder arguments made in support of or opposition to sugar-sweetened beverage (SSB) tax/Soft Drinks Industry Levy (SDIL) in the sample of newspaper articles published in eleven UK newspapers between 1 April 2015 and 30 November 2016

Report/study	Use in opposing arguments	Use in supportive arguments
<i>Overcoming Obesity: An initial Economic Analysis</i> (2014), Dobbs <i>et al.</i> <sup>(9)</sup>	'But we want to see action based on evidence of what works. Taxes did not make the top 10 most effective interventions to reduce obesity in the McKinsey Global Institute's obesity report.' Soft drink manufacturer ( <i>Telegraph</i> , 26 May 2016)	[Calling for SSB tax and citing the McKinsey report] 'The total economic loss from obesity to the UK was calculated at £49bn in 2012.' Cancer Research UK/UK Health Forum ( <i>Guardian</i> , 19 February 2016)
<i>Sugar Reduction: The Evidence for Action</i> (2015), Public Health England <sup>(10)</sup>	'It may also be possible, by negotiation, to improve the definition of "high sugar foods" as the [PHE] report suggests. However, we do not agree that the international evidence supports the introduction of a sugar tax.' Food & Drink Federation ( <i>Guardian</i> , 29 October 2015)	'We welcome this [PHE] report, and the contribution this will make to reduce obesity levels, particularly among children. Hard-hitting action is necessary on pricing, reformulation and promotion of high-sugar products.' Professional Association ( <i>Guardian</i> , 22 October 2015)
'Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study' (2016), Colchero <i>et al.</i> <sup>(5)</sup>	'The Mexican reductions were equivalent to one less sugar cube a day per person, which was a drop in the calorific ocean.' Academic ( <i>Guardian</i> , 7 January 2016)	'Unequivocal evidence from other countries (Mexico) has shown that a sugar tax duty on soft drinks will reduce sales of sugar-sweetened soft drinks, particularly among the more socially deprived.' Health organisation's statement ( <i>Guardian</i> , 24 June 2016)

PHE, Public Health England.

In stark contrast to other food and drink categories, we have been reducing sugar content and have a strong [commitment] to do so' (*Guardian*, 29 March 2016). Conversely, supporters of the measure questioned whether or not working in partnership with industry and relying on voluntary action had worked, pointing out the failure of the Public Health Responsibility Deal<sup>(60)</sup>. For example, a Liberal Democrat MP was quoted as stating that: 'The whole approach has been based on voluntary action. The question is whether that has succeeded. I don't think anything fundamentally has changed. We need to rethink our approach and ask if it has led to too cosy a relationship with the food industry' (*Daily Mail*, 24 October 2015).

## Discussion

Our media content analysis revealed 1761 arguments made by 287 stakeholders in the debate about SSB tax across 491 UK national newspaper articles, which is comparable with similar public debates on other policy measures such as e-cigarette regulation<sup>(52)</sup> and minimum unit pricing for alcohol<sup>(61,62)</sup>. Supportive statements outnumbered opposing ones by almost 2:1. The most frequently cited supporters of SSB tax were public health organisations and professional medical associations, while the most frequently cited opponents were soft drinks industry representatives. Both supportive and opposing arguments aligned with a typology framework developed for studying the alcohol and tobacco industries<sup>(27–29)</sup>.

Stakeholders on each side of the debate sought to use evidence to support their arguments; however, opponents were less likely to refer to specific academic studies and

more likely to use anecdotal evidence. Interestingly, the same reports were sometimes invoked by both proponents and opponents to support their differing arguments but using subtly different framings. The effective use of evidence is a potentially important factor in influencing public support for proposed policy interventions<sup>(38,63)</sup>. However, a systematic review by Orton *et al.* found that policy makers' sceptical view of research evidence can create a key barrier to its use<sup>(64)</sup>. Our findings on how evidence was used by stakeholders in the SDIL debate reinforce the importance of trustworthiness and reliability in the way research is represented, and then used or dismissed.

The use of taxation as an intervention to influence consumer behaviour and reduce consumption of unhealthy commodities is a well-established public health policy that has been used effectively in relation to both tobacco and alcohol<sup>(65,66)</sup>. However, a recent systematic review by Wright *et al.* highlighted the importance for policy actors to be clear about the primary objective of any health tax, be it for fiscal or health purposes, and to frame the tax accordingly<sup>(67)</sup>. Failure to do so leaves a proposed tax vulnerable to hostile lobbying<sup>(67)</sup>. Our study identified inconsistencies in argumentation from three possible sources: (i) changes in ideological position (politicians and government representatives); (ii) insufficient clarity on the nature of the problem to be solved and policy priorities (public health agencies); and (iii) consistency with academic rigour (academics). Whether a policy is anticipated to produce single or multiple outcomes, proponents need to identify the outcome or outcomes clearly and consistently. More clearly positioning the SDIL as a win-win solution, both lowering sugar consumption and raising revenues that can be reinvested in health service funding, could have been a



useful, pragmatic approach to pre-empt opposing arguments. The limited invocation of that perspective may perhaps represent a missed opportunity for proponents of the policy.

A key strategy employed by other UCI to oppose upstream regulation is the complexity argument, which Petticrew *et al.* characterise as ‘nothing can be done until everything is done’<sup>(31)</sup>. Opponents of SSB tax employed this tactic by emphasising the complexity of the obesity problem and therefore the inappropriateness of discrete legislative measures. Proponents apparently countered this by strategic simplification; that is, by focusing on the specific health-harming effects of excess sugar consumption, particularly from SSB for young people. They further emphasised that the SDIL was not intended to be a ‘silver bullet’ to tackle obesity, but a small and important first step focusing on a commodity with negligible nutritional value. Similar, apparently deliberate, attempts to reframe policy debates were previously used by public health advocates in the case of minimum unit pricing for alcohol<sup>(33)</sup> and by supporters of legislation to prohibit smoking in private vehicles carrying children<sup>(68)</sup>.

Advocates clearly need to continue to use effective arguments and embrace the persuasive power of framing. However, public health advocates and academics should also be aware of the potential for their over-critical analyses of nuanced aspects of policy measures to result in ‘mixed messages’ when filtered through media gatekeepers. Nuance is a strength of academia, and many academics are understandably wary of media commentators championing public health policies. However, complex messages have the potential to create public confusion and actually undermine the intended public health objectives. Academics readily acknowledge uncertainty, but uncertainty rarely has a place in clear public communication<sup>(69)</sup>. Researchers lacking media skills can thus find themselves uncomfortably positioned in complicated moral and affective landscapes, toiling to represent the nuance of their research<sup>(70)</sup>. The challenge is to communicate the core truth simply, but without dumbing down the message into simplistic dichotomy. The mass media lens may depict rigorous academic circumspection as fragility of position, while industry representatives opposing regulation are unlikely to concede any uncertainty<sup>(69)</sup>.

We suggest that, in a bid to downplay the contribution of SSB to non-communicable diseases, the soft drinks industry employed tactics previously used by other UCI by ‘directly lobbying’ the public and policy makers, shifting blame for obesity to complexity and optimistically trying to characterise the soft drinks industry as promoting healthy lifestyles<sup>(71)</sup>. Our study also supports the findings of the systematic review by Mialon *et al.* that information and messaging is one of the most prominent corporate political activities employed by food industry actors<sup>(26)</sup>.

Our study has relevance beyond debates about SSB tax. These data add to a growing body of research

demonstrating the similarities in frames promoted by different harmful commodity industries across public health policy debates<sup>(27,28,30,31)</sup>. Our research may therefore help to inform future media strategies by advocates of upstream legislative public health measures targeting a range of harmful products, including sugar, tobacco<sup>(72)</sup> and alcohol<sup>(73)</sup>. In particular, it may be helpful for public health proponents to support arguments with high-quality evidence, to communicate the subtleties of health policy development without undermining key objectives, and to be aware of the apparent shared UCI ‘playbook’<sup>(31)</sup>.

Our research strengths include a rigorous approach which offers a robust examination of the newspaper debate around SSB tax. By coding and analysing direct quotations of stakeholders, we sought to minimise the impact of editorial gatekeepers and achieve greater fidelity than the more commonplace approach of analysing entire news articles. Our study is subject to the limitations which are intrinsic to media content analysis. First, these data do not necessarily represent stakeholders’ intended positions, rather a collaboration between stakeholders and media gatekeepers, whereby those positions have been mediated, interpreted, filtered and contextualised by journalists and editors. However, our exclusive use of quotes from individuals and directly attributable citations partly mitigates against this. Second, newspapers represent only one forum in which policy debates play out. Our analysis therefore omits the parliamentary arena, the judicial arena, social media and any non-public discussions that take place ‘behind closed doors’. However, understanding public debate in the media arena still offers a useful ‘door opener to the backstage of politics’, as Wodak and Meyer argue<sup>(74)</sup>. A more comprehensive understanding of stakeholders’ strategies might be triangulated from studying other forms of media, policy documents or consultation responses, and conducting interviews with stakeholders. Third, this form of representational content analysis cannot (and does not seek to) assess the effectiveness of stakeholder media communication strategies, only their implied intention. Further research on public perceptions of media messaging and stakeholder intention might usefully help to complete the picture.

## Conclusion

Public health advocates were particularly prominent in the debate surrounding the SDIL in UK newspapers. Mass media engagement can be used to influence how the public and policy makers understand health problems and their solutions and thus the acceptability of specific policies<sup>(35,75)</sup>. Research into how public health policy debates unfold in the media may help to inform improved media advocacy strategies<sup>(76)</sup>. Opponents’ arguments resembled those used by the alcohol and tobacco industries in prior

policy debates. Advocates in future policy debates could benefit from seeking a similar level of prominence and avoid inconsistencies by being clearer about the policy objective and mechanisms.

### Acknowledgements

*Acknowledgements:* The authors would like to thank colleagues at the MRC/CSO Social and Public Health Sciences Unit at the University of Glasgow, particularly Dr Amy Nimegeer for her contribution to the initiation of the study, and Dr Alison Parkes and Ms Mhairi Campbell for their review and comments. *Financial support:* This work was supported by the UK Medical Research Council as part of the Informing Healthy Public Policy programme (MC\_UU\_12017/15) and by the Chief Scientist Office of the Scottish Government Health Directorates (SPHSU15) at the MRC/CSO Social and Public Health Sciences Unit, University of Glasgow. S.V.K. is funded by an NHS Research Scotland Senior Clinical Fellowship (SCAF/15/02). The UK Medical Research Council, the Chief Scientist Office of the Scottish Government Health Directorates and NHS Research Scotland had no role in the design, analysis or writing of this article. *Conflict of interest:* S.V.K. is a member of the steering group of Obesity Action Scotland, to whom he provides unpaid advice on the evidence base for public health actions to tackle obesity. S.C. is a Trustee for Heart of Mersey, UK Faculty of Public Health and UK Health Forum and provides unpaid advice to Action on Sugar. All other authors have declared no potential conflicts of interest. *Authorship:* S.H.: conceptualisation, study design, funding acquisition, supervision, data interpretation, manuscript writing, review and editing. C.H.B.: study design, project administration, investigation, data collection, data analysis, data interpretation, manuscript writing, review and editing. C.P.: study design, investigation, data analysis, data interpretation, manuscript writing, review and editing. S.V.K.: study design, data interpretation, manuscript review and editing. F.L.-W.: study design, data interpretation, manuscript review and editing. L.H.: study design, data analysis, data interpretation, manuscript review and editing. A.E.-G.: study design, manuscript review. S.C.: conceptualisation, study design, supervision, data interpretation, manuscript review and editing. *Ethics of human subject participation:* No approval was required.

### Supplementary material

To view supplementary material for this article, please visit <https://doi.org/10.1017/S1368980019000739>

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### References

1. Bates B, Cox L, Nicholson S *et al.* (2016) National Diet and Nutrition Survey: Results from Years 5 and 6 (combined) of the Rolling Programme (2012/2013–2013/2014). <https://www.gov.uk/government/collections/national-diet-and-nutrition-survey> (accessed September 2017).
2. World Health Organization (2015) Guideline: Sugars intake for adults and children. [http://www.who.int/nutrition/publications/guidelines/sugars\\_intake/en/](http://www.who.int/nutrition/publications/guidelines/sugars_intake/en/) (accessed July 2018).
3. Basu S, Yoffe P, Hills N *et al.* (2013) The relationship of sugar to population-level diabetes prevalence: an econometric analysis of repeated cross-sectional data. *PLoS One* **8**, e57873.
4. Briggs ADM, Mytton OT, Kehlbacher A *et al.* (2013) Overall and income specific effect on prevalence of overweight and obesity of 20% sugar sweetened drink tax in UK: econometric and comparative risk assessment modelling study. *BMJ* **347**, f6189.
5. Colchero MA, Popkin BM, Rivera JA *et al.* (2016) Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study. *BMJ* **352**, h6704.
6. Colchero MA, Rivera-Dommarco J, Popkin BM *et al.* (2017) In Mexico, evidence of sustained consumer response two years after implementing a sugar-sweetened beverage tax. *Health Aff (Millwood)* **36**, 564–571.
7. Smed S, Scarborough P, Rayner M *et al.* (2016) The effects of the Danish saturated fat tax on food and nutrient intake and modelled health outcomes: an econometric and comparative risk assessment evaluation. *Eur J Clin Nutr* **70**, 681–686.
8. Silver LD, Ng SW, Ryan-Ibarra S *et al.* (2017) Changes in prices, sales, consumer spending, and beverage consumption one year after a tax on sugar-sweetened beverages in Berkeley, California, US: a before-and-after study. *PLoS Med* **14**, e1002283.
9. Dobbs R, Sawers C, Thompson F *et al.* (2014) Overcoming obesity: an initial economic analysis. <http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/how-the-world-could-better-fight-obesity> (accessed June 2017).
10. Public Health England (2015) Sugar reduction: the evidence for action. <https://www.gov.uk/government/publications/sugar-reduction-from-evidence-into-action> (accessed May 2017).
11. Her Majesty's Treasury (2016) Budget 2016. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/508193/HMT\\_Budget\\_2016\\_Web\\_Accessible.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/508193/HMT_Budget_2016_Web_Accessible.pdf) (accessed May 2017).
12. Her Majesty's Treasury (2017) Spring Budget 2017. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/597467/spring\\_budget\\_2017\\_web.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/597467/spring_budget_2017_web.pdf) (accessed July 2018).
13. Office for Budget Responsibility (2016) Economic and fiscal outlook– March 2016. <https://cdn.obr.uk/March2016EFO.pdf> (accessed February 2019).
14. Hashem K & Rosborough J (2017) Why tax sugar sweetened beverages? *J Pediatr Gastroenterol Nutr* **65**, 358–359.
15. HM Government (2016) Childhood obesity: a plan for action. <https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action> (accessed July 2018).
16. Scientific Advisory Committee on Nutrition (2015) Carbohydrates and health. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/445503/SACN\\_Carbohydrates\\_and\\_Health.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/445503/SACN_Carbohydrates_and_Health.pdf) (accessed July 2018).
17. Dew C (2016) NHS Outcomes Framework, England: February 2016: quarterly publication. <http://content.digital.nhs.uk/catalogue/PUB20090/nhs-out-fram-ind-feb-16-comm.pdf> (accessed October 2017).



18. Lustig RH, Schmidt LA & Brindis CD (2012) Public health: the toxic truth about sugar. *Nature* **482**, 27–29.
19. Brownell KD, Farley T, Willett WC *et al.* (2009) The public health and economic benefits of taxing sugar-sweetened beverages. *N Engl J Med* **361**, 1599–1605.
20. DiNicolantonio JJ & Lucan SC (2014) The wrong white crystals: not salt but sugar as aetiological in hypertension and cardiometabolic disease. *Open Heart* **1**, e000167.
21. World Health Organization (2009) Global health risks: mortality and burden of disease attributable to selected major risks. [http://www.who.int/healthinfo/global\\_burden\\_disease/GlobalHealthRisks\\_report\\_full.pdf](http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf) (accessed July 2018).
22. Malik VS, Schulze MB & Hu F (2006) Intake of sugar-sweetened beverages and weight gain: a systematic review. *Am J Clin Nutr* **84**, 274–288.
23. Malik VS, Popkin BM, Bray GA *et al.* (2010) Sugar-sweetened beverages and risk of metabolic syndrome and type 2 diabetes: a meta-analysis. *Diabetes Care* **33**, 2477–2483.
24. Mytton O (2015) Time for a sugary drinks tax in the UK? *J Public Health (Oxf)* **37**, 24–25.
25. Powell LM & Chaloupka FJ (2009) Food prices and obesity: evidence and policy implications for taxes and subsidies. *Milbank Q* **87**, 229–257.
26. Mialon M, Swinburn B, Allender S *et al.* (2016) Systematic examination of publicly-available information reveals the diverse and extensive corporate political activity of the food industry in Australia. *BMC Public Health* **16**, 283.
27. Savell E, Gilmore AB & Fooks G (2014) How does the tobacco industry attempt to influence marketing regulations? A systematic review. *PLoS One* **9**, e87389.
28. Savell E, Fooks G & Gilmore AB (2016) How does the alcohol industry attempt to influence marketing regulations? A systematic review. *Addiction* **111**, 18–32.
29. Martino FP, Miller PG, Coomber K *et al.* (2017) Analysis of alcohol industry submissions against marketing regulation. *PLoS One* **12**, e0170366.
30. Ulucanlar S, Fooks GJ & Gilmore AB (2016) The policy dystopia model: an interpretive analysis of tobacco industry political activity. *PLoS Med* **13**, e1002125.
31. Petticrew M, Katikireddi SV, Knai C *et al.* (2017) ‘Nothing can be done until everything is done’: the use of complexity arguments by food, beverage, alcohol and gambling industries. *J Epidemiol Community Health* **71**, 1078–1083.
32. Cullerton K, Donnet T, Lee A *et al.* (2018) Effective advocacy strategies for influencing government nutrition policy: a conceptual model. *Int J Behav Nutr Phys Act* **15**, 83.
33. Katikireddi SV, Bond L & Hilton S (2014) Changing policy framing as a deliberate strategy for public health advocacy: a qualitative policy case study of minimum unit pricing of alcohol. *Milbank Q* **92**, 250–283.
34. Walton D (2007) *Media Argumentation: Dialectic, Persuasion and Rhetoric*. Cambridge: Cambridge University Press.
35. Entman RM (1993) Framing: toward clarification of a fractured paradigm. *J Commun* **43**, 51–58.
36. Scheufele DA & Tewksbury D (2007) Framing, agenda setting, and priming: the evolution of three media effects models. *J Commun* **57**, 9–20.
37. McCombs ME & Shaw DL (1972) The agenda-setting function of mass media. *Public Opin Q* **36**, 176–187.
38. Diepeveen S, Ling T, Suhrcke M *et al.* (2013) Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis. *BMC Public Health* **13**, 756.
39. Burstein P (2003) The impact of public opinion on public policy: a review and an agenda. *Polit Res Q* **56**, 29–40.
40. Innvaer S, Vist G, Trommald M *et al.* (2002) Health policy-makers’ perceptions of their use of evidence: a systematic review. *J Health Serv Res Policy* **7**, 239–244.
41. Oliver K, Innvar S, Lorenc T *et al.* (2014) A systematic review of barriers to and facilitators of the use of evidence by policy-makers. *BMC Health Serv Res* **14**, 2.
42. Weiss C (1991) Policy research: data, ideas or arguments? In *Social Sciences and Modern States: National Experiments and Theoretical Crossroads*, pp. 307–332 [P Wagner, C Weiss, B Wittrock *et al.*, editors]. Cambridge: Cambridge University Press.
43. Joshi D & O’Dell RK (2017) The critical role of mass media in international norm diffusion: the case of UNDP human development reports. *Int Stud Perspect* **18**, 343–364.
44. Wakefield MA, Loken B & Hornik RC (2010) Use of mass media campaigns to change health behaviour. *Lancet* **376**, 1261–1271.
45. Hornik R & Yanovitzky I (2003) Using theory to design evaluations of communication campaigns: the case of the national youth anti-drug media campaign. *Commun Theory* **13**, 204–224.
46. Hill ME & Davis C (2016) The short and sweet on taxing soda. <https://itep.org/the-short-and-sweet-on-taxing-soda/> (accessed November 2018).
47. Cruickshank H (2018) Could UK’s new ‘sugar tax’ work in the US? <https://www.healthline.com/health-news/could-uk-sugar-tax-work-in-the-us#1> (accessed November 2018).
48. Davey M (2018) Sugar tax: why health experts want it but politicians are resisting. <https://www.theguardian.com/australia-news/2018/jan/10/sugar-tax-why-health-experts-want-it-but-politicians-and-industry-are-resisting> (accessed November 2018).
49. Hilton S, Hunt K, Langan M *et al.* (2010) Newsprint media representations of the introduction of the HPV vaccination programme for cervical cancer prevention in the UK (2005–2008). *Soc Sci Med* **70**, 942–950.
50. Hilton S, Wood K, Bain J *et al.* (2014) Newsprint coverage of smoking in cars carrying children: a case study of public and scientific opinion driving the policy debate. *BMC Public Health* **14**, 1116.
51. Hilton S, Wood K, Patterson C *et al.* (2014) Implications for alcohol minimum unit pricing advocacy: what can we learn for public health from UK newsprint coverage of key claim-makers in the policy debate? *Soc Sci Med* **102**, 157–164.
52. Patterson C, Hilton S & Weishaar H (2016) Who thinks what about e-cigarette regulation? A content analysis of UK newspapers. *Addiction* **111**, 1267–1274.
53. National Readership Survey (2016) NRS readership estimates – newspapers and supplements Jan–Dec 2016. <http://www.nrs.co.uk/latest-results/nrs-print-results/newspapers-nrsprintresults/> (accessed July 2018).
54. Hilton S, Patterson C & Teyhan A (2012) Escalating coverage of obesity in UK newspapers: the evolution and framing of the ‘obesity epidemic’ from 1996 to 2010. *Obesity (Silver Spring)* **20**, 1688–1695.
55. Her Majesty’s Treasury (2016) Soft Drinks Industry Levy: consultation document. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/546286/Soft\\_Drinks\\_Industry\\_Levy-consultation.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/546286/Soft_Drinks_Industry_Levy-consultation.pdf) (accessed May 2017).
56. Her Majesty’s Treasury (2016) Soft Drinks Industry Levy: summary of responses. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/575828/Soft\\_Drinks\\_Industry\\_Levy\\_-\\_summary\\_of\\_responses.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/575828/Soft_Drinks_Industry_Levy_-_summary_of_responses.pdf) (accessed May 2017).
57. Nexis (2018) Online database. LexisNexis. <https://www.nexis.com> (accessed July 2018).
58. Cohen J (1960) A coefficient of agreement for nominal scales. *Educ Psychol Meas* **20**, 37–46.
59. Landis JR & Koch GG (1977) The measurement of observer agreement for categorical data. *Biometrics* **33**, 159–174.
60. Department of Health (2011) The Public Health Responsibility Deal. <https://responsibilitydeal.dh.gov.uk/wp-content/uploads/2012/03/The-Public-Health-Responsibility-Deal-March-20111.pdf> (accessed November 2018).

61. Katikireddi SV & Hilton S (2015) How did policy actors use mass media to influence the Scottish alcohol minimum unit pricing debate? Comparative analysis of newspapers, evidence submissions and interviews. *Drugs (Abingdon, Engl)* **22**, 125–134.
62. Patterson C, Katikireddi SV, Wood K *et al.* (2015) Representations of minimum unit pricing for alcohol in UK newspapers: a case study of a public health policy debate. *J Public Health (Oxf)* **37**, 40–49.
63. Oxman AD, Lewin S, Lavis JN *et al.* (2009) SUPPORT Tools for evidence-informed health Policymaking (STP) 15: engaging the public in evidence-informed policymaking. *Health Res Policy Syst* **7**, Suppl. 1, S15.
64. Orton L, Lloyd-Williams F, Taylor-Robinson D *et al.* (2011) The use of research evidence in public health decision making processes: systematic review. *PLoS One* **6**, e21704.
65. Blecher E (2015) Taxes on tobacco, alcohol and sugar sweetened beverages: linkages and lessons learned. *Soc Sci Med* **136–137**, 175–179.
66. Burton R, Henn C, Lavoie D *et al.* (2017) A rapid evidence review of the effectiveness and cost-effectiveness of alcohol control policies: an English perspective. *Lancet* **389**, 1558–1580.
67. Wright A, Smith KE & Hellowell M (2017) Policy lessons from health taxes: a systematic review of empirical studies. *BMC Public Health* **17**, 583.
68. Patterson C, Semple S, Wood K *et al.* (2015) A quantitative content analysis of UK newsprint coverage of proposed legislation to prohibit smoking in private vehicles carrying children. *BMC Public Health* **15**, 760.
69. Capewell S (2015) President's Letter: My thanks to internet trolls, libertarian bloggers and hobbits. *Soc Soc Med Neustl* **6**, issue 3, 1.
70. Lucherini M (2018) Caught in the middle: early career researchers, public health and the emotional production of research. *Crit Public Health*. Published online: 26 November 2018. doi: 10.1080/09581596.2018.1550252.
71. Kearns CE, Schmidt LA & Glantz SA (2016) Sugar industry and coronary heart disease research: a historical analysis of internal industry documents. *JAMA Intern Med* **176**, 1680–1685.
72. Royal College of Physicians (2012) Fifty years since Smoking and health: progress, lessons and priorities for a smoke-free UK. [http://www.prevenzionbasadaenlaevidencia.net/uploads/PDF/RP\\_Fifty\\_years\\_since\\_smoking\\_RCP.pdf](http://www.prevenzionbasadaenlaevidencia.net/uploads/PDF/RP_Fifty_years_since_smoking_RCP.pdf) (accessed October 2017).
73. World Health Organization (2010) Global strategy to reduce the harmful use of alcohol. [http://www.who.int/substance\\_abuse/publications/global\\_strategy\\_reduce\\_harmful\\_use\\_alcohol/en/](http://www.who.int/substance_abuse/publications/global_strategy_reduce_harmful_use_alcohol/en/) (accessed October 2017).
74. Wodak R & Meyer M (2009) Critical discourse analysis: history, agenda, theory and methodology. In *Methods for Critical Discourse Analysis*, 2nd ed., pp. 1–33 [R Wodak and M Meyer, editors]. London: SAGE Publications Ltd.
75. Otten AL (1992) The influence of the mass media on health policy. *Health Aff (Millwood)* **11**, 111–118.
76. Weishaar H, Dorfman L, Freudenberg N *et al.* (2016) Why media representations of corporations matter for public health policy: a scoping review. *BMC Public Health* **16**, 899.