

Evidence-related framing in the German debate on sugar taxation: A qualitative framing analysis and international comparison

Katharina S. Moerschel

Charité – Universitätsmedizin Berlin, corporate member of Freie Universität Berlin, Humboldt-Universität zu Berlin, and Berlin Institute of Health, Germany

Peter von Philipsborn

LMU Munich, and Pettenkofer School of Public Health, Germany

Benjamin Hawkins

University of Cambridge, United Kingdom

Elizabeth McGill

London School of Hygiene & Tropical Medicine, United Kingdom

Abstract:

Background: Taxation of sugar and sugar-sweetened beverages is considered a key policy for improving population-level nutrition. Implementation is influenced by the way evidence is used and framed in public debates. At this time, no sugar tax has been implemented in Germany.

Aims and objectives: This study aims to deepen the understanding of the political dynamics that influence the adoption of sugar taxes by analysing the use of evidence in the German media debate on sugar taxation and comparing its findings with analyses from other countries.

Methods: In 114 German newspaper articles, published between 01/2018 to 03/2019, we analysed the use and framing of evidence with an abductive thematic analysis approach. We compared our findings with analyses on the framing around sugar taxation from Mexico, the US and the UK.

Findings: Evidence was a salient component of the German debate. As in the comparison countries, evidence was used by both tax proponents and opponents but framed differently, e.g. regarding problem definitions. However, the German debate relied more strongly on examples from other countries and less on economic arguments.

Discussion and conclusions: Our findings suggest that German tax proponents should proactively consider economic arguments and counter spurious arguments made by tax opponents. Researchers should be aware of their work's potential international spill-over effects, and public health advocates should correct expectations regarding the evidence on, and health effects of, isolated measures against obesity. To deepen the understanding of the German policy process, further research should involve social media, public documents and stakeholder networks.

Key words:

sugar taxation, framing, evidence use, media analysis

Word count:

6673 (inkl. references and tables)

Evidence-related framing in the German debate on sugar taxation: A qualitative framing analysis and international comparison

Key messages:

1. Evidence was used differently by tax proponents and opponents in the German, Mexican, US and UK sugar tax debates.
2. Economic arguments were less salient in the German debate but should be considered proactively by public health actors.
3. Tax examples from other countries were important in the German debate.
4. Tax advocates should correct expectations on the impact and evidence of isolated measures against obesity.

Introduction

The prevalence of overweight and obesity is increasing globally (FAO et al. 2019), with significant implications for global health (The GBD 2015 Obesity Collaborators 2017). Since high intakes of free sugars and especially the consumption of sugar-sweetened beverages (SSBs) have been associated with overweight, obesity and other non-communicable diseases (World Health Organization 2015), the World Health Organisation (WHO) recommends the implementation of taxes on SSBs (World Health Organization 2016). More than 30 countries have implemented taxes on sugar or SSBs (hereinafter collectively referred to as sugar taxes) (World Cancer Research Fund 2020).

There is good evidence from natural experiments showing that sugar taxes lead to price increases and reduced purchases of taxed beverages (Fernandez & Raine 2019). Modelling studies examining consumers' sensitivity to changes in price show that price increases can potentially limit weight gain at a population level (Bes-Rastrollo et al. 2016). Furthermore, evidence from the UK indicates that sugar taxes can also lead to product reformulation and thus to a reduction in the total volume of sugars sold (Bandy et al. 2020). Although some concerns have been expressed about the potentially regressive nature of indirect taxations, studies of real-world tax regimes have shown that they put an only slightly higher economic burden on low-income groups while potentially benefiting these groups more than other socio-economic groups in terms of weight reduction (Backholer et al. 2016).

The implementation of sugar taxes results from policy processes in which evidence will be identified and promoted by various policy actors to support or oppose their introduction (Greenhalgh & Russell 2006). In recent years there has been an increasing shift in conceptual focus amongst scholars of evidence use in policymaking from theories of evidence-based policymaking (EBPM) to evidence-informed policymaking (EIPM) (Greenhalgh & Russell 2009; Hawkins & Parkhurst 2015). The latter acknowledges that evidence is only one component in the complex, inherently political process of policymaking (Hawkins & Ettelt 2019). From this perspective, there is no ‘single body of evidence’ capable of deciding the course of action policymakers should take. Instead, there are multiple bodies of potentially relevant evidence which may be brought to bear in any given policy debate. The evidence-base emphasised or prioritised will depend on the way in which the policy problem is defined and understood, the normative perspective from which it is viewed, or the policy objectives which are prioritised (Hawkins & Parkhurst 2015). Thus, from an EIPM perspective, evidence use depends on the specific way in which a policy problem is framed.

The concept of framing describes a strategic process of ‘meaning-making’ which shapes the understanding of an issue and possible solutions through highlighting specific aspects of the issue and obscuring or omitting others (Entman 1993; Rein & Schön 1996; Koon et al. 2016). In policy-making processes, “policymakers are not simply responding to ‘problems’ [...], they are actively framing problems and thereby shaping what can be thought about and acted upon” (Greenhalgh & Russell 2009p. 311). In other words, policy problems do not exist independently in the world, waiting to be discovered and addressed. Instead, they are brought into existence by our attempts to define, explain and ultimately resolve them. The definition and characterisation of the *policy problem* influence the *policy objective* and with this the use of evidence in the policy process. Usually, several frames, sponsored by different stakeholders, compete with each other in the policy arena to set the terms of the debate (Rein & Schön 1996).

Framing processes can occur through a variety of channels and forums. For example, companies and policy advocates will communicate directly with customers, stakeholders and policymakers through their websites and social media accounts, or may publish reports and other documents. However, the traditional media (i.e. newspapers, radio and television) remain a vital arena of public discourse in which processes of policy framing occur and which can shape public opinion and influence the political agenda (Scheufele 1999; Nixon, Mejia,

Cheyne, Wilking, et al. 2015). Consequently, industry actors are known to target the media as one way of challenging sugar taxes (Schaller & Mons 2018).

Previous studies have shown that framing has played an important role in policy processes (Baumgartner & Jones 1993; Kingdon 1995), including those around sugar taxation (Wright et al. 2017). In several countries in which sugar taxation has been implemented (e.g. Mexico, the US and the UK), researchers have analysed the role of framing in the policy debate (Niederdeppe et al. 2013; Nixon, Mejia, Cheyne, & Dorfman 2015; Thomas-Meyer et al. 2017; Buckton et al. 2018; Carriedo Lutzenkirchen 2018; Purtle et al. 2018; Hilton et al. 2019). In Germany, no sugar tax had been implemented and the Minister for Agriculture and Nutrition was critical of such a tax at the time of this study. Nevertheless, the implementation of the Soft Drink Industry Levy (SDIL) in the UK and the development of a “National Strategy for the Reduction of Sugar, Fat and Salt in Packaged Foods” in 2018 by the German federal government led to a public debate in which sugar taxation was demanded by public health professionals and some politicians. This debate was covered extensively in the German media.

This article aims to deepen the knowledge of policy processes and evidence use around sugar taxation by analysing the use and framing of evidence in the German media debate on sugar taxation, and comparing it with evidence on the use and framing of evidence around sugar taxation in other countries. This article adds to the previous literature on the framing of sugar taxes in three important ways. First, this is to date the only study of these debates in Germany or continental Europe and thus offers an important analysis of sugar tax debates in both a German-speaking context and within a politically and economically powerful EU member-state that has the capacity to influence policy agendas elsewhere. Second, it offers a case study of a policy debate in which sugar taxes were extensively discussed by a variety of actors but not yet pursued as a policy option by the government. Third, it seeks to highlight the close relationship which exists between policy framing and evidence use in the production and resolution of policy problems. As such, it will be of interest to scholars of EIPM as well as those of policy framing and public health actors working on tax-based interventions.

Methods

A detailed description of our methodological approach is provided in the Supplementary material. In the following, we provide a brief outline of key aspects.

Research design and questions

This paper is based on a primary analysis of framing around sugar taxation in German newspaper articles and the international comparison of its findings (Moerschel 2020). In line with framing theory, the study applied a qualitative design and a constructivist perspective. It followed an inductive approach but, based on the existing literature on framing around sugar taxation, paid specific attention to evidence use, i.e. what type of evidence was cited, which outcomes were referred to and how the reliability of evidence was depicted. A second focus of the study was on the attribution of responsibility for health outcomes in relation to sugar taxes. This aspect of the debates is examined elsewhere (Moerschel et al. In Press) and is therefore not included in the argument presented here. Evidence use was identified as a salient aspect of the German debate. In the present paper, we therefore focus on how evidence is used by tax proponents and opponents. Specifically, we address the following research questions that emerged during the primary analysis:

- 1) How did actors define their policy problem and policy objective, and how was the availability and reliability of the related evidence discussed?
- 2) Which outcomes (e.g. sugar consumption, body weight, etc.) did actors refer to when using evidence and how was the effectiveness of sugar taxation depicted?
- 3) What types of evidence were cited (e.g. observational vs. modelling studies)?
- 4) How do our findings from Germany compare with findings from other countries?

As indicated in the introduction, we understand policy objectives as the favoured approach put forward by policy actors to tackle a policy problem.

Data sources and management

We included newspaper articles on sugar taxation published between 01/01/2018 and 01/03/2019 (covering the time from the official announcement to the publication of the National Strategy for the Reduction of Sugar, Fat and Salt in Packaged Foods, plus three months after this period) in one of 12 national newspapers comprised in GENIOS, a private press database. Using the search term ‘Zuckersteuer’ (‘sugar tax’) – the ubiquitous term used to describe this policy debate in Germany –, KSM searched the websites of these newspapers and manually screened the results, excluding duplicates and articles not discussing sugar taxation, resulting in 114 articles included for analysis.

Analysis

The primary analysis consisted of three levels: first-order frames, narrative frames, and aspects of responsibility (Moerschel et al. In Press; Moerschel 2020). This paper will describe and analyse the first-order frames.

First-order frames referred to the identification of important, recurring concepts in the debate on sugar taxation. Their analysis was based on Rein and Schön's 'naming and framing' approach (Rein & Schön 1996). Following the thematic analysis method described by Braun and Clarke (Braun & Clarke 2006), we identified important concepts (naming), e.g. sugar, and competing ways how these concepts were framed by different stakeholders (framing), e.g. sugar as a health risk. One author (KSM) familiarised themselves with the data and created a coding scheme by coding two to three articles per newspaper, using process and descriptive line-by-line coding (Charmaz 2014; Saldaña 2016), and categorising these small-scale codes into first-order frame codes. KSM then applied the coding scheme to all articles in an iterative manner, updating the scheme and recording relevant paragraphs whenever additional frames were recognised. We included journalists' own narratives and quoted stakeholder statements into our analysis.

One author (KSM) selected important first-order frames according to their perceived salience and strength and wrote short explanations including translated illustrative primary quotes. The Supplementary material gives an overview of all first-order frames. Quotes are presented with the author, the name of the newspaper in which they appeared and the publication date. We then extracted first-order frames related to our research questions, conceptualised their relations and compared our findings with those of previous studies of the framing of sugar tax debates in Mexico, the US and the UK (Niederdeppe et al. 2013; Nixon, Mejia, Cheyne, & Dorfman 2015; Thomas-Meyer et al. 2017; Buckton et al. 2018; Carriedo Lutzenkirchen 2018; Hilton et al. 2019)

KSM conducted all steps through coding and memo writing, using qualitative analysis software (NVivo12Plus). All codes and memos were written in English. A second author (PvP) familiarised himself with the primary data, reviewed the coding and memos, and critically discussed findings with the first author. The presentation of our analysis follows the Standards for Reporting Qualitative Research (SRQR) checklist (O'Brien et al. 2014). The SQRQ checklist is provided in the Supplementary material.

Findings

Findings from Germany

Stakeholders quoted in the articles included academics, representatives of the sugar and food industries, non-governmental organisations (NGOs) including medical and public health associations, and politicians. Academics, NGOs and some politicians argued in favour of sugar taxation, whereas the sugar and food industry and the Minister for Nutrition and Agriculture argued against it. A more detailed overview of the policy positions adopted by different actors has been undertaken elsewhere (Moerschel et al. In Press).

Policy problems, objectives and the availability of relevant evidence

As explained above, the process of problem definition refers to what the policy problem was identified as, how this problem was characterised and what the policy objective consequently was identified to be. Regarding problems, we identified three main issues: 1) obesity, diabetes and other NCDs, 2) overconsumption of sugar, and 3) highly sweetened foods. Obesity, diabetes, and NCDs more generally, were introduced as pressing and severe health problems, for adults and children alike. As a *Die Welt* journalist illustrated:

In Germany, two-thirds of men and half of all women are overweight, while a quarter of adults are obese, with the trend increasing. Moreover, obesity has become the most prevalent chronic disease among children and adolescents. Severe overweight is considered the biggest risk factor for type 2 diabetes” [Journalist, *Die Welt*, 13/06/2018].

Obesity and NCDs were established as the key policy problem in this context across all stakeholders and regularly formed the basis for the ensuing lines of argument. Regarding their causes, however, accounts differed markedly between tax opponents and proponents.

Tax opponents strived to frame overweight as “a complex phenomenon” [Board member of Coca-Cola Germany in *Focus*, 04/04/2018], showing that overweight and diabetes have “many causes like genetic predisposition, poor diets, overweight, physical inactivity [or] a lack of sleep” [Christian Democratic Union (CDU) politician in *Handelsblatt*, 04/04/2018]. Regarding sugar, some industry representatives declared there is not “any scientific proof” for negative health consequences of sugar, thereby framing sugar as innocent [Director of a sugar beet farmers’ association in *FAZ*, 20/04/2018a]. A few industry representatives also stated that “people do not consume more sugar nowadays than before” [Lead representative of the German

Sugar Industry Association in *Die Welt*, 13/06/2018]. Some authors even rejected the idea of sugar reduction by framing nutritional science and recommendations as unreliable and sugar reduction merely as “the latest fashion” [Journalist, *Die Welt*, 05/05/2018]. Thus, the evidence base on the effects of sugar was framed as being inconclusive and unreliable. Furthermore, the industry especially trivialised the dangers associated with sugar *per se*, arguing that the issue lay instead with the volumes consumed by *individuals*, explaining that “it is the dose that makes the poison” [Managing director of the German Food Association in *Tagesspiegel*, 28/06/2018]. Hence, obesity and NCDs were seen to constitute the policy problem and, with no alternative options being offered, the mere reduction of obesity and NCDs formed the key policy objectives.

Tax proponents, in contrast, attributed NCDs to “an overconsumption of sugar” [Journalist, *SZ*, 04/04/2018]. This was mostly complemented with framing sugar as a health risk and “the tobacco of the 21st century” [Journalist, *Die Zeit*, 24/01/2018]. Such claims were regularly corroborated by referring to scientific evidence and consensus, for example by reporting that “[doctors] and scientists provide more and more studies which prove the risks of sugar (...)” [Journalist, *Spiegel*, 07/04/2018]. The evidence on sugar was presented as clear and unambiguous. The overconsumption of sugar by German adults and children itself was problematised and illustrated by comparing the recommended and actual average sugar intake in Germany. This overconsumption was regularly related to SSBs as they “hardly make people feel filled up” [Journalist, *Handelsblatt*, 06/04/2018b]. Furthermore, tax proponents problematised the ‘omnipresence’ and high levels of sugar in foods and beverages. Thus, they complemented obesity and NCDs as the policy problem with addressing the overconsumption of sugar and reducing the availability of sugar as the policy objective.

Outcomes and effectiveness of sugar taxation

In combination with the reduction of obesity and NCDs as the policy objective, tax opponents referred to body weight and total calories as relevant outcomes when discussing the effectiveness of sugar taxation. They framed sugar taxation as ineffective, arguing for example, that even after the implementation of an SSB tax in France, “overweight in France has simply kept increasing” [Journalist, *Die Welt*, 12/01/2018]. In particular, tax opponents emphasized that sugar taxation is too simplistic since people would ‘compensate’ for a reduced sugar intake by consuming other unhealthy products and calories. This framing was often combined with the obesity as a complex problem framing. Thus, even when acknowledging the effects of sugar taxation on sugar consumption, they denied any health impact, often referring to other countries

such as France, Mexico and the UK. The UK SDIL in particular was regularly blamed for “[leading] to the proliferation of artificial sweeteners” [Minister of Nutrition and Agriculture (CDU) in *Die Welt*, 22/01/2019], leading to the framing of sugar taxation as counterproductive and even dangerous.

In line with a reduction of sugar consumption and the availability of sugar as the policy objective, tax supporters referred to sugar levels in products, purchases and sugar consumption as relevant outcomes. They framed sugar taxation as effective, e.g., by showing how, shortly after the implementation of the SDIL in the UK, “many producers [had] already considerably reduced the sugar content in their soft drinks” [Journalist, *Spiegel*, 07/04/2018]. They further referred to effective “behaviour control through increased prices” [President of the German Society for Internal Medicine (DGIM) in *FAZ*, 20/04/2018a] in other countries, e.g., Mexico and France. Tax proponents also used the German smoking ban and tax on alcopops to emphasize the “effectiveness of legal prohibition” [German Professional Association of Paediatricians (BVKJ) in *FAZ*, 11/10/2018]. Moreover, they repeatedly referred to recommendations by health authorities, especially WHO, to frame sugar taxation as a necessary health intervention. However, while tax proponents did not present sugar taxation as a measure which is alone sufficient to halt the NCD epidemic, they regularly advocated its implementation together with other interventions, such as advertisement bans, food labelling, and school and kindergarten interventions.

Types of evidence

Regarding the effectiveness of sugar taxation, both tax opponents and proponents predominantly employed examples from other countries, mostly from Mexico and the UK. Sometimes, both proponents and opponents used the same country examples, highlighting different aspects of the case studies to support their particular positions. Policy advocates on both sides of the debate made only limited explicit reference to scientific (i.e. observational and quasi-experimental) studies when framing the effectiveness of sugar taxation. In contrast, tax proponents repeatedly and explicitly mentioned scientific studies when stating the harmfulness of sugar. As we have seen, the existence and reliability of these studies were often contested by tax opponents. Furthermore, tax proponents referred to recommendations by authorities, especially WHO, and used other health-promoting taxes to demonstrate the effectiveness of legislative interventions.

Evidence-related framing strategies

Drawing on Fooks and colleagues' (2019) study on the beverage industry's use of evidence, we summarised the framing strategies used by tax opponents in Germany as set out in Table 1.

Table 1 here

The German sugar tax debates in comparative perspective

When this analysis was undertaken, several previous studies had been published on the framing of sugar taxation in the US, the UK and Mexico. Table 2 provides a comparison of the German case with the findings of these studies. It shows how the framing of the policy problem and objectives, evidence claims in relation to sugar taxation and types of evidence cited differed between countries. There is a clear alignment between the framing of the policy problem, policy objectives and the framing of sugar as a health issue between contexts. In regard to sugar taxation, it is noteworthy that, in contrast to the comparison countries, the allegedly negative effects of these measures on employment and the economy were less salient in Germany. Finally, there are considerable differences regarding the type and origin of evidence cited in each debate. While modelling studies and key publications (i.e. specific papers or reports to which stakeholders predominantly referred) were important in Mexico, the US and the UK, Germany relied more on evidence from other countries. This likely reflects the timing of the German debate which came after similar debates and tax implementations in other countries and could, thus, draw on their experiences.

Table 2 here

Discussion

Our study demonstrates that in the German debate, both tax supporters and opponents referred to evidence, but presented and interpreted it differently. By international comparison, the German sugar tax debate was similar in terms of policy problems and objectives, and argumentation put forward by both supporters and opponents of the tax. However, in contrast with policy debates elsewhere, German stakeholders drew more on evidence from other countries than on modelling studies, relied less on key publications, and did not extensively use arguments related to economic harm such as job losses.

In interpreting our findings, the specific context of the German debate must be considered. In contrast to other countries, there was no concrete proposal by the government to adopt a

sugar or SSB tax and there was strong political opposition from the responsible ministry. The German debate, therefore, considered sugar taxation in more general terms, rather than in relation to a concrete policy proposal and was part of a broader discourse on health promotion interventions. In terms of Kingdon's multiple streams model, in Germany, the problem stream and policy stream were open while the political stream was blocked, meaning there was no window of opportunity for policy change (Kingdon 1995). In other countries which have debated the introduction of sugar taxes, there was a specific proposal (Niederdeppe et al. 2013; Nixon, Mejia, Cheyne, & Dorfman 2015) or the intention by the government to develop a sugar taxation policy (Thomas-Meyer et al. 2017; Buckton et al. 2018; Carriedo Lutzenkirchen 2018; Purtle et al. 2018; Hilton et al. 2019). In Mexico, Philadelphia, US and the UK, the window of opportunity, i.e. the alignment of the three streams, subsequently occurred and allowed for the implementation of sugar taxation (Thomas-Meyer et al. 2017; Buckton et al. 2018; Carriedo Lutzenkirchen 2018; Purtle et al. 2018; Hilton et al. 2019), whereas in several states of the US, no tax had been implemented at the time when the corresponding analyses were published (Niederdeppe et al. 2013; Nixon, Mejia, Cheyne, & Dorfman 2015). Thus, Germany's case is unique because there was neither a specific proposal nor a governmental intention to develop any sugar taxation policy.

The lack of such a concrete plan for the introduction of a sugar tax might account for the limited salience of Germany-specific modelling studies and thus the reliance on international studies within the German debate. Likewise, this might be the reason for fewer references related to economic effects, e.g. presumed job losses. Since such references were frequently used by tax opponents in policy debates in other countries, tax supporters in Germany should, in the case that specific proposals for sugar taxes enter the policy agenda, anticipate similar arguments and be prepared to counter them with independent analyses on the economic effects of a sugar tax in the German context. This may require planning and funding for these studies to be in place in anticipation of future policy developments.

Regarding the effectiveness of sugar taxation, tax opponents across all countries used the framing of obesity as a complex, multifactorial problem to argue that it cannot be addressed with single, "simple" approaches like a sugar tax. This resonates with the 'nothing can be done until everything is done' argumentation described in the literature (Petticrew et al. 2017). There is an inherent contradiction between this argument and tax opponents' implicit demand for unequivocal evidence showing that sugar taxes single-handedly lead to decreases in obesity rates. In Germany, tax supporters missed the opportunity to point out these contradictions.

Although they proposed a bundle of measures to tackle obesity, they did not regularly situate the availability of evidence on sugar taxation within the necessity of a multi-strategic approach. This was also reflected in their choice of examples. Mexico and the UK were cited frequently concerning their soda tax, whereas the comprehensive policy package implemented in Chile (which included taxes, marketing restrictions, labelling rules and school nutrition standards) was discussed rarely. Hence, by taking these points into account, pro-tax argumentation might be improved while rebutting complexity-related anti-tax argumentation.

Concerning the use of evidence from other countries, we have shown that German stakeholders drew on experiences regarding effectiveness and tax design from other countries, especially the UK and Mexico. In this regard, the current study confirms the findings of previous studies in the field of tobacco control, which demonstrate the way in which policy debates in one setting are drawn on by policy actors in another both from an argumentative and policy framing perspective and through the development of policy networks and personal connections between advocates in each setting (Hawkins et al. 2020). This suggests that the success or failure of sugar taxes or other health promotion interventions in one country have considerable spill-over effects on policy processes in other countries. From a public health perspective, this affirms that public health researchers and advocates should bear the global picture in mind when acting in their local context.

The use of the same evidence on both sides of the discussion indicates a political use of evidence, as described by Weiss (1979). This means that evidence is employed and framed in a way that supports pre-existing positions, which are assumed to be more determined by underlying interests and values. This also shows that evidence is indeed, in line with the EIPM paradigm, only one aspect of the complex policy processes around sugar taxation. Our paper on responsibility for health confirms this presumption of diverging underlying values (Moerschel et al. In Press). Tax opponents tended to promote individual responsibility and shared responsibility models which protect the industry's freedom while tax proponents questioned individual responsibility and highlighted instead governmental responsibility for health. Among politicians, both views existed, with the health minister, under whose remit the sugar tax fell, tending towards the shared responsibility model (Moerschel et al. In Press).

Finally, the present article confirms the importance of framing analysis for understanding health policy debates (Koon et al. 2016), particularly those in the area of nutrition policy (Scott & Nixon 2018; Lauber et al. 2020) as well as other contested areas on health policy involving powerful vested interests and industry actors, including alcohol

regulation (Hawkins & Holden 2013; McCambridge et al. 2018) and tobacco control (Akin-Onitolo & Hawkins 2021). This study is of particular value as it adds to the much more limited literature on policy framing and health-harming industries in the international research literature which focuses on policy debates beyond the English speaking world, and in a European context (Zatonski et al. 2018).

Strengths and limitations

To our knowledge, this study is the first framing analysis on sugar taxation from Germany and therefore adds diversity to the current evidence on sugar taxation related policy processes. This is especially important since previous studies have shown considerable international variation in policy processes and debates on public health issues, including between the UK and Germany (Ettelt & Hawkins 2018). In conducting our analysis, we followed the Standards for Reporting Qualitative Research (SRQR) criteria. In particular, we carried out our analysis in a reflective way and consistently checked codes against the data. The primary analysis was done by one author (KSM) and double-checked by a second author (PvP). This contributed to its rigour and strength.

For feasibility reasons, we were unable to include local newspapers or social media, and, thus, analysed only part of the German media landscape. Furthermore, it was outside the scope of this work to analyse corporate documents, policy documents, protocols of political debates, articles in the trade press and press releases of relevant stakeholders. Therefore, our analysis covers only part of the broader discourse on sugar taxation in Germany.

Directions for future research

To further deepen the understanding of the German debate and policy process and the role of evidence in it, future research should include local newspapers and the new discussion spaces offered by social media (Rowbotham et al. 2019). Furthermore, an analysis of corporate, civil society and government documents and stakeholder interviews have shed light on policy processes and the use of evidence in other countries and should equally be considered for Germany (Hawkins & Holden 2013; Carriedo Lutzenkirchen 2018). Moreover, although this project already made attempts to analyse stakeholder alliances, this aspect deserves further investigation, e.g. in terms of a discourse network analysis (Buckton et al. 2019).

Furthermore, beyond modelling health-related outcomes of sugar taxation or comprehensive health-promoting taxes, which has been done before (Effertz 2017), German tax proponents

should be prepared to provide studies on the economic effects of sugar taxation in the German context.

Conclusion

In conclusion, this study has shown that evidence claims played a key role in the German debate on sugar taxation. There was little use of economic arguments by tax opponents, but taking the experience of policy debates in other countries into account, the German public health community should consider anticipating potential future policy deliberations in this area and promote independent economic analyses which can be brought to bear to support such measures. Tax opponents in all countries employed a complexity framing and German public health advocates might be able to improve their argumentation further by taking this into account. Furthermore, examples and evidence from other countries were of particular importance to the German debate, highlighting the global political relevance of 'local' policy processes and research. Public health researchers should keep this global interconnectedness of policy processes in mind when acting in local contexts. Evidence was used in a political way, suggesting that there are competing underlying interests, values and ideologies. Nonetheless, many arguments used by tax opponents do not withstand critical scrutiny from a public health perspective. Public health advocates could strengthen their case and improve the soundness of the public debate by proactively countering spurious arguments by tax opponents.

References

The Supplementary material is available here: doi.org/10.6084/m9.figshare.19165748

Akin-Onitolo, A., & Hawkins, B. (2021) 'Framing tobacco control: the case of the Nigerian tobacco tax debates', *Health Policy and Planning*, 1–11.

Backholer, K., Sarink, D., Beauchamp, A., Keating, C., Loh, V., Ball, K., Martin, J., & Peeters, A. (2016) 'The impact of a tax on sugar-sweetened beverages according to socio-economic position: a systematic review of the evidence', *Public Health Nutrition*, 19(17): 3070–3084.

Bandy, L. K., Scarborough, P., Harrington, R. A., Rayner, M., & Jebb, S. A. (2020) 'Reductions in sugar sales from soft drinks in the UK from 2015 to 2018', *BMC Medicine*, 18(1): 20.

- Baumgartner, F. R., & Jones, B. D. (1993) *Agendas and Instability in American Politics*, Chicago: The University of Chicago Press. .
- Bes-Rastrollo, M., Sayon-Orea, C., Ruiz-Canela, M., & Martinez-Gonzalez, M. A. (2016) 'Impact of sugars and sugar taxation on body weight control: A comprehensive literature review', *Obesity*, 24(7): 1410–1426.
- Braun, V., & Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3(2): 77–101.
- Buckton, C. H. ., Fergie, G., Leifeld, P., & Hilton, S. (2019) 'A discourse network analysis of UK newspaper coverage of the “sugar tax” debate before and after the announcement of the Soft Drinks Industry Levy', *BMC Public Health*, 19(1): 490.
- Buckton, C. H., Patterson, C., Hyseni, L., Katikireddi, S. V., Lloyd-Williams, F., Elliott-Green, A., Capewell, S., & Hilton, S. (2018) 'The palatability of sugar-sweetened beverage taxation: A content analysis of newspaper coverage of the UK sugar debate', *PLoS ONE*, 13(12): e0207576.
- Carriedo Lutzenkirchen, A. A. (2018) *A policy analysis of the 2014 Mexican soda tax*, PhD thesis, London School of Hygiene and Tropical Medicine.
- Charmaz, K. (2014) 'The Logic of Grounded Theory Coding Practices and Initial Coding', in K. Charmaz (Ed), *Constructing Grounded Theory*, London: SAGE Publications Ltd. 2nd ed., pp. 109–137.
- Effertz, T. (2017) *Die Auswirkungen der Besteuerung von Lebensmitteln auf Ernährungsverhalten, Körpergewicht und Gesundheitskosten in Deutschland*, Hamburg. Retrieved from <https://adipositas-gesellschaft.de/wp-content/uploads/2020/07/Studie-gesunde-MwSt.pdf>
- Entman, R. M. (1993) 'Framing: Toward Clarification of a Fractured Paradigm', *Journal of Communication*, 43(4): 51–58.
- Ettelt, S., & Hawkins, B. (2018) 'Scientific Controversy, Issue Salience, and E-Cigarette Regulation: A Comparative Study of Policy Debates in Germany and England', *European Policy Analysis*, 4(2): 255–274.
- FAO, IFAD, UNICEF, WFP, & WHO (2019) *The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns and downturns*, Rome. Retrieved from <http://www.fao.org/3/ca5162en/ca5162en.pdf>

- Fernandez, M. A., & Raine, K. D. (2019) 'Insights on the Influence of Sugar Taxes on Obesity Prevention Efforts', *Current Nutrition Reports*, 8(4): 333–339.
- Fooks, G. J., Williams, S., Box, G., & Sacks, G. (2019) 'Corporations' use and misuse of evidence to influence health policy: A case study of sugar-sweetened beverage taxation', *Globalization and Health*, 15(1): 1–20.
- Greenhalgh, T., & Russell, J. (2006) 'Reframing Evidence Synthesis As Rhetorical Action in the Policy Making Drama', *Healthcare Policy / Politiques de Santé*, 1(2): 34–42.
- Greenhalgh, T., & Russell, J. (2009) 'Evidence-Based Policymaking: A Critique', *Perspectives in Biology and Medicine*, 52(2): 304–318.
- Hawkins, B., & Ettelt, S. (2019) 'The strategic uses of evidence in UK e-cigarettes policy debates', *Evidence & Policy: A Journal of Research, Debate and Practice*, 15(4): 579–596.
- Hawkins, B., & Holden, C. (2013) 'Framing the alcohol policy debate: industry actors and the regulation of the UK beverage alcohol market', *Critical Policy Studies*, 7(1): 53–71.
- Hawkins, B., Holden, C., & Mackinder, S. (2020) *The Battle for Standardised Cigarette Packaging in Europe*, Cham: Palgrave Pivot. 1st ed.
- Hawkins, B., & Parkhurst, J. (2015) 'The 'good governance' of evidence in health policy', *Evidence and Policy*, 12(4): 575–592.
- Hilton, S., Buckton, C. H., Patterson, C., Katikireddi, S. V., Lloyd-Williams, F., Hyseni, L., Elliott-Green, A., & Capewell, S. (2019) 'Following in the footsteps of tobacco and alcohol? Stakeholder discourse in UK newspaper coverage of the Soft Drinks Industry Levy', *Public Health Nutrition*, 22(12): 2317–2328.
- Kingdon, J. W. (1995) *Agendas, alternatives, and public policies* New York: Longman. 2nd ed.
- Koon, A. D., Hawkins, B., & Mayhew, S. H. (2016) 'Framing and the health policy process: A scoping review', *Health Policy and Planning*, 31(6): 801–816.
- Lauber, K., Ralston, R., Mialon, M., Carriedo, A., & Gilmore, A. B. (2020) 'Non-communicable disease governance in the era of the sustainable development goals: A qualitative analysis of food industry framing in WHO consultations', *Globalization and Health*, 16(1): 1–15.
- McCambridge, J., Mialon, M., & Hawkins, B. (2018) 'Alcohol industry involvement in

- polycymaking: a systematic review', *Addiction*, 113(9): 1571–1584.
- Moerschel, K. S. (2020) *MSc Project Report. Media coverage of sugar taxation in Germany: a qualitative framing analysis*, Master's thesis, London School of Hygiene and Tropical Medicine.
- Moerschel, K. S., von Philipsborn, P., Hawkins, B., & McGill, E. (2021) 'Concepts of responsibility in the German media debate on sugar taxation: a qualitative framing analysis', *European Journal of Public Health*.
- Niederdeppe, J., Gollust, S. E., Jarlenski, M. P., Nathanson, A. M., & Barry, C. L. (2013) 'News Coverage of Sugar-Sweetened Beverage Taxes: Pro- and Antitax Arguments in Public Discourse', *American Journal of Public Health*, 103(6): e92–e98.
- Nixon, L., Mejia, P., Cheyne, A., & Dorfman, L. (2015) 'Big Soda's long shadow: news coverage of local proposals to tax sugar-sweetened beverages in Richmond, El Monte and Telluride', *Critical Public Health*, 25(3): 333–347.
- Nixon, L., Mejia, P., Cheyne, A., Wilking, C., Dorfman, L., & Daynard, R. (2015) 'We're part of the solution': Evolution of the food and beverage industry's framing of obesity concerns between 2000 and 2012', *American Journal of Public Health*, 105(11): 2228–2236.
- O'Brien, B. C., Harris, I. B., Beckman, T. J., Reed, D. A., & Cook, D. A. (2014) 'Standards for reporting qualitative research: A synthesis of recommendations', *Academic Medicine*, 89(9): 1245–1251.
- Petticrew, M., Katikireddi, S. V, Knai, C., Cassidy, R., Hessari, N. M., Thomas, J., & Weishaar, H. (2017) 'Nothing can be done until everything is done': The use of complexity arguments by food, beverage, alcohol and gambling industries', *Journal of Epidemiology and Community Health*, 71(11): 1078–1083.
- Purtle, J., Langellier, B., & Lê-Scherban, F. (2018) 'A Case Study of the Philadelphia Sugar-Sweetened Beverage Tax Policymaking Process', *Journal of Public Health Management and Practice*, 24(1): 4–8.
- Rein, M., & Schön, D. (1996) 'Frame-critical policy analysis and frame-reflective policy practice', *Knowledge and Policy*, 9(1): 85–104.
- Rowbotham, S., McKinnon, M., Marks, L., & Hawe, P. (2019) 'Research on media framing of public policies to prevent chronic disease: A narrative synthesis', *Social Science &*

- Medicine*, 237(May): 112428.
- Saldaña, J. (2016) 'First Cycle Coding Methods', in *The Coding Manual for Qualitative Researchers*, London: SAGE Publications Ltd. 3rd ed., pp. 67–210.
- Schaller, K., & Mons, U. (2018) 'Steuer auf zuckerhaltige Getränke und Einflussnahme der Industrie zur Verhinderung regulatorischer Maßnahmen', *Ernährungs Umschau*, 65(2): M82–M89.
- Scheufele, D. A. (1999) 'Framing as a Theory of Media Effects', *Journal of Communication*, 49(1): 103–122.
- Scott, C., & Nixon, L. (2018) 'The shift in framing of food and beverage product reformulation in the United States from 1980 to 2015', *Critical Public Health*, 28(5): 606–618.
- The GBD 2015 Obesity Collaborators (2017) 'Health Effects of Overweight and Obesity in 195 Countries over 25 Years', *New England Journal of Medicine*, 377(1): 13–27.
- Thomas-Meyer, M., Mytton, O., & Adams, J. (2017) 'Public responses to proposals for a tax on sugar-sweetened beverages: A thematic analysis of online reader comments posted on major UK news websites', *PLOS ONE*, 12(11): e0186750.
- Weiss, C. H. (1979) 'The Many Meanings of Research Utilization', *Public Administration Review*, 39(5): 426–431.
- World Cancer Research Fund (2020) *Health-related food taxes*, https://policydatabase.wcrf.org/level_one?page=nourishing-level-one#step2=2%23step3=315
- World Health Organization (2015) *Guideline: Sugars intake for adults and children*, Geneva. Retrieved from http://apps.who.int/iris/bitstream/10665/149782/1/9789241549028_eng.pdf
- World Health Organization (2016) *Fiscal policies for diet and the prevention of noncommunicable diseases*, Geneva. Retrieved from <http://www.who.int/dietphysicalactivity/publications/fiscal-policies-diet-prevention/en/>
- Wright, A., Smith, K. E. K. E., & Hellowell, M. (2017) 'Policy lessons from health taxes: a systematic review of empirical studies', *BMC Public Health*, 17(1): 583.
- Zatonski, M., Hawkins, B., & McKee, M. (2018) 'Framing the policy debate over spirits excise tax in Poland', *Health Promotion International*, 33(3): 515–524.

Research Ethics Statement

The authors of this paper have declared that research ethics approval was not required since the paper does not present or draw directly on data/findings from empirical research.

Funding details

This work did not receive any funding.

Contributor statement

KSM conceptualised and administered the research project, gathered and analysed the data and wrote the first and subsequent drafts. PvP supported the conceptualisation and data collection, validated the coding, contributed to the analysis and interpretation of results, and reviewed and edited the first and subsequent drafts. BH and EM were involved in the conceptualisation of the project, supervised the research project and reviewed and edited the first and subsequent drafts.

Conflicts of interest

KSM worked for the German NCD Alliance (DANK) for one and a half year between 2018 and 2019, i.e. before starting the research project. PvP has published articles and statements arguing for the adoption of a sugar tax in Germany, and has been involved in organizations working for this case, including the German NCD Alliance. He is member of the German Green Party, representatives of which have called for a tax on sugar-sweetened beverages. All statements and opinions in this article are his own. BH and EM state that they have no conflict of interest.

Acknowledgements

N/A

Table 1: Evidence-related framing strategies used by tax opponents in Germany.

Framing strategy	Description
Obesity as a complex problem	Framing of obesity as a complex, multifactorial phenomenon that cannot be tackled by ‘simplistic’, single measures such as a sugar tax.
Sugar as innocent	<p>Assuming that, as small amounts of sugar have no immediately noticeable negative effects, sugar must be harmless.</p> <p>Arguing that, as the consumption of one type of sugar (namely table sugar, i.e. pure, granulated sucrose sold in this form to consumers) has decreased in recent years, sugar in general cannot be responsible for the rise in obesity.</p>
Nutritional science as unreliable	Claiming that nutritional science, and the evidence that links sugar consumption to negative health outcomes, are unreliable.
Sugar tax as ineffective	Framing tax in terms of health outcomes, demanding direct, unequivocal evidence showing considerable reductions of population-level obesity rates due to sugar taxation, and claiming that there is no such evidence.
Sugar tax as dangerous	Arguing that sugar taxes lead to higher consumption of artificial sweeteners, with presumed negative health effects.

Tables 2a-2c: Evidence-related framing and types of evidence used across countries.

Table 3a: Evidence-related framing of sugar taxation by tax proponents across countries.

Issue	Framing	Germany¹	Mexico²	US³	UK⁴
Policy problem	Obesity and other NCDs	✓	✓	✓	✓
Policy objective	Decrease in the overconsumption of sugar and SSBs	✓	✓	✓	✓
	Reduction in the availability of sugar	✓			
Sugar	Scientifically proven harmfulness of sugar	✓	✓	✓	✓
Sugar taxation	Evidence of positive effects on behavioural outcomes (e.g. SSB purchases)	✓	✓	✓	✓

Table 4b: Evidence-related framing of sugar taxation by tax opponents across countries.

Issue	Framing	Germany¹	Mexico²	US³	UK⁴
Policy problem	Obesity and other NCDs	✓	✓	✓	✓
Policy objective	Reduction in obesity and other NCDs	✓	✓	✓	✓
	Decrease in the overconsumption of sugar and SSBs		✓		
Sugar	Lack of evidence on the importance of sugar intake for the development of	✓	✓	✓	✓

Issue	Framing	Germany¹	Mexico²	US³	UK⁴
	obesity and complexity of obesity				
	Sugar consumption not rising/declining while obesity prevalence increases	✓			✓
Sugar taxation	Lack of evidence of positive effects on health outcomes (e.g. body weight)	✓	✓	✓	✓
	Lack of evidence of effects on behavioural outcomes		✓		
	Negative effects on employment and economy*		✓	✓	✓

Table 2c: Types of evidence cited across countries.

Type of evidence cited	Germany¹	Mexico²	US³	UK⁴
Modelling studies and key publications		✓	✓	✓
Evidence from Mexico	✓			✓
Evidence from the UK	✓			

Ticks indicate that the framing was salient in the respective country.

¹ Present paper. ² Carriedo Lutzenkirchen 2018. ³ Niederdeppe et al. 2013; Nixon et al. 2015; Purtle et al. 2018. ⁴ Thomas-Meyer et al. 2017; Buckton et al. 2018; Hilton et al. 2019.

*In contrast to studies of Mexico and the UK, the analyses of proposed SSB taxes at the state or municipal level in the US did not indicate whether evidence was cited in relation to economic arguments in those debates (Niederdeppe et al. 2013; Nixon et al. 2015; Purtle et al. 2018).