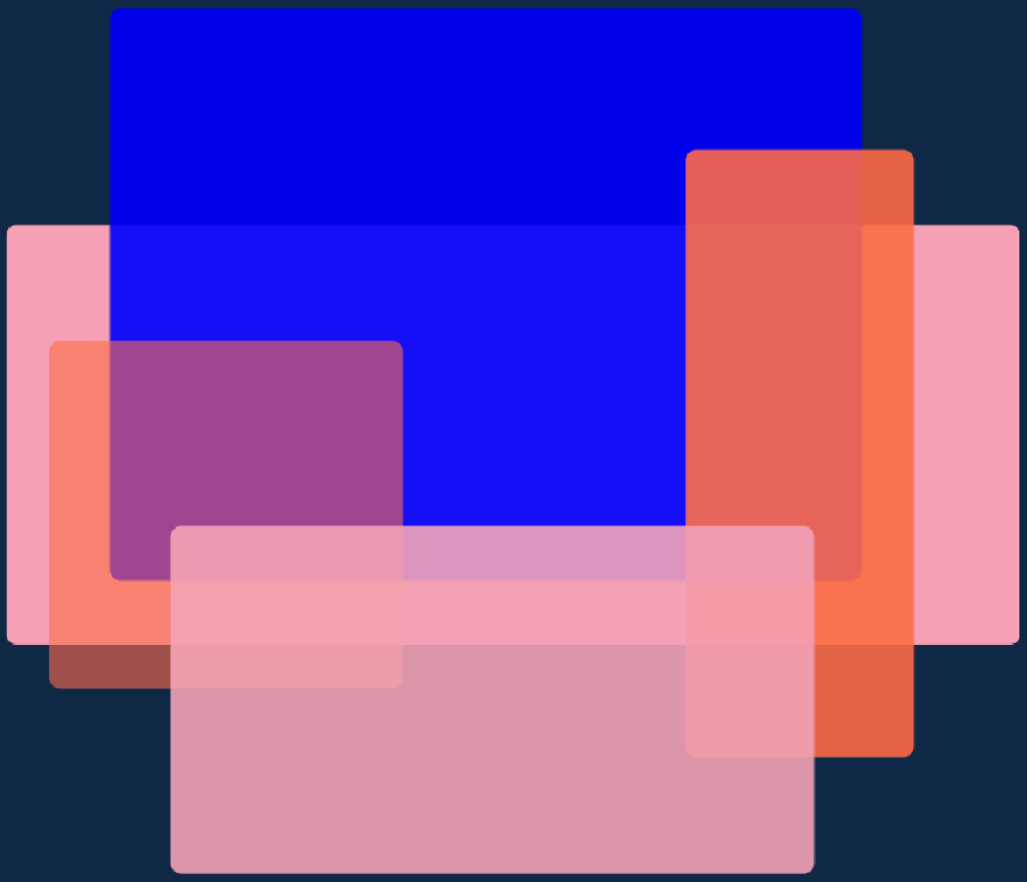
Blueprint
by nesta

Blueprint for halving obesity: rapid review

What is the effect of fiscal interventions applied to the food system on obesity-related outcomes?



Author: Katherine Parkin

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Summary table

Of note, four papers were identified which are presented in tables 1-4 in the Results section. The summary table below presents details of just the main paper being used for Nesta's modelling work on fiscal interventions for obesity reduction.

Title	Does a spoonful of sugar levy help the calories go down? An analysis of the UK Soft Drinks Industry Levy
Author and year	Dickson, Gehrsitz and Kemp (2023)
Type of study	An event-study design and interrupted time-series approach. Also difference-in-difference method. "Novel electronic point of sale data that cover most of the UK soft drinks market with longitudinal nutritional information and a variety of event-study specifications"... "These data give us a weekly read on the near-universe of soft drink transactions in the vast majority of supermarket chains across the UK, as well as thousands of convenience stores. They cover purchases for both 'at-home' and 'on-the-go' consumption."

Outcome variable	• Outcome of interest for this review: Calorie intake
	• Other outcomes included:
	  ○ Price
	  ○ Sales volumes

Treatment	2018 UK Soft Drinks Industry Levy (SDIL)
Control	Baseline comparison data
Authors' findings	The authors state that: "We document that all but a few global soft drinks brands reduced sugar content and hence avoided the tiered levy. For brands that maintained their original sugar content, the levy was on average over-shifted resulting in substantial retail price increases and consequent reductions in consumption, particularly for colas. In total, the levy is responsible for a reduction in intake of about 6,600 calories from soft drinks per annum per UK resident."… "Most of these calorie reductions happened in fact before the implementation of the levy as a result of a supply-side response

	where manufacturers reformulated their products to contain less sugar, consequently avoiding the levy entirely. Reformulating brands typically saw no change in either sales volumes or prices. We show that in our data reformulation accounts for more than 80% of the levy-induced calorie reductions from SSB consumption. The demand-side response to higher prices for levied products following the introduction of the levy – the mechanism through which a sugar tax is typically assumed to mainly work – accounts for the much smaller remainder."... "...the SDIL induced a total reduction of 6.1bn calories per week from soft drinks consumption. Our estimate is that reformulation accounts for around 84% of this, with the remaining 16% coming from the consumer response to higher prices induced by the levy."
Magnitude of effect (Children)	Not specified
Magnitude of effect (Adults)	Reduction of 6,600kcal from soft drinks per annum per UK resident (ie, equivalent to 18.08kcal/day)
Notes on Nesta's modelling	Nesta's modelling work on financial incentive policies used the following approach: the Dickson, Gehrsitz and Kemp (2023) paper (above) was used which estimated the calories reduced by SDIL as 6,600kcal per person per year (ie, 18.08kcals per person per day). In addition, the IFS report (Table 2.1) was used, showing the calories from sugar in milk drinks is 0.4%, while that from soft drinks is 1.2%. The ratio is one-third. Then we assumed that if a similar level of reformulation was achieved, we would expect to see a reduction equivalent to one-third that of soft drinks (ie, 1/3 x 18.08). Finally, as a conservative estimate we took 50% of that (1/2 x 6); thus, an additional ~3kcals due to extending SDIL to milk-based drinks bringing the total to ~21kcals.

Rapid umbrella review

Research question

What is the effect of fiscal interventions applied to the food system on obesity-related outcomes?

Background

Obesity is a public health crisis and rates have nearly doubled in recent decades; it is estimated nearly 2 billion people are living with obesity worldwide. Excess weight is a significant risk factor for premature death from non-communicable diseases. Despite these figures, policies exist to prevent a further rise in obesity prevalence.

One suggested intervention to help reduce population-level obesity is to apply fiscal interventions to the food system. Interventions covered in this review are those that are set by the government to stimulate a change in public spending, borrowing, or taxes with the aim of influencing the supply or demands for specific food and drink products. An existing example of a fiscal policy aimed at reducing individuals' calorie intake is the 'Soft Drinks Industry Levy' (SDIL). In 2016, the UK Government announced the introduction of the levy which came into effect two years later (April 2018). The levy is applied at the point of production, with drinks with total sugar content above 5g per 100 millilitres being taxed at 18p per litre, and drinks above 8g per 100 millilitres taxed at 24p per litre.

Objective

The objective of this review is to systematically search grey literature to identify examples of fiscal interventions that are comparable to the SDIL, that is, a government-enforced intervention that aims to (a) increase the supply of lower energy density food and drink products; or (b) decrease the demand of higher energy density food and drink products. The aim of the review is to both identify feasible policies and identify evidence relating to the impact of such a policy on obesity-related outcomes.

Methods

Eligibility criteria

Types of study. Due to the nature of this intervention, in that it is difficult to evaluate using traditional scientific methodology, we expected the number of eligible reviews or primary studies to be low. In the absence of studies that evaluate fiscal policies using quasi-experimental methodology, we included studies that used simulation modelling to estimate the effects of the intervention on our outcomes of interest.

Intervention. We defined the intervention as any action taken by the government (in any developed country) that modified tax, spending, or borrowing that would impact the supply of, or demand for, food or drink products with either high or low energy density.

Comparator. The comparator would be the counterfactual to taking action (ie, no action, business as usual).

Outcomes. Studies had to include either clinical outcomes (eg, weight, BMI, % fat change) or food intake outcomes (eg, energy intake, number of items consumed, food purchasing data) in the affected populations.

Information sources and article selection

We followed search methods proposed in Godin et al. (2015), a peer reviewed publication that describes methods for conducting rigorous and systematic grey literature searches. We engaged in the following steps: (1) grey literature databases (see appendix 1) (2) Google and Google Scholar search (see appendix 1), (3) targeted websites (see appendix 1) (4) consultation with members of the project's Expert Advisory Group (EAG) (see appendix 2), and (5) consultation with experts who do not sit on the project advisory group.

Screening

Due to the rapid nature of the review, a single reviewer screened titles/abstracts and full texts and discussed any uncertainty with a second reviewer.

Assessment of methodological quality

We did not expect that the search would result in multiple high quality studies that would require comparison. As per our protocol, we were led first by the suitability of the study to our research question. If there were multiple relevant studies/reviews identified, we selected the best available evidence according to our expert consultation with members of the EAG.

Data extraction

The JBI Data Extraction Form for Review for Systematic Reviews and Research Syntheses (see appendix 3) was used to inform data extraction from the studies included in the review. Characteristics to be attached to the review report included:

- Review characteristics: author/year, objectives, participants (characteristics, total number), setting/context, interventions of interest, date range of included studies, detailed description of the included studies (number/type/country of origin), appraisal instrument and rating, type of review/method of analyses and outcomes.
- Results: findings of the review and comments.

Results

The searches and consultation with our EAG resulted in the identification of four papers and reviews on fiscal interventions to reduce obesity:

- Griffith et al. (2021) on a tax on added salt and sugar.
- Dickson, Gehrsitz and Kemp (2023) with an analysis of the SDIL.
- Public Health England (2020) with a progress report on sugar reduction following a voluntary sugar reduction programme challenging all sectors of the food industry to reduce sugar by 20% by 2020 in food categories which contribute most to sugar intake of children aged up to 18 years. This also included the SDIL.
- Dimbleby (2021) with the 'National Food Strategy: Independent Review', specifically Chapter 16: The Plan. Relevant to the present review was a recommendation that the UK Government introduce a £3/kg tax on sugar

and a £6/kg tax on salt sold for use in processed foods or in restaurants and catering businesses.

The included papers are briefly summarised in tables below. However, for detailed information about each study, please refer to the original studies (linked above).

Table 1: Details of Griffith et al. (2021) paper

Title	The impact of a tax on added sugar and salt
Author and year	Griffith et al. (2021)
Type of study	Analysis of Kantar Fast Moving Consumer Goods (FMCG) Purchase Panel (Take Home) 2019 and Kantar Out of Home Purchase Panel 2016-2019. Authors calculate the change in purchases (and assume that all calories purchased are consumed). The DHSC's calorie model was used to estimate the impact of the sugar tax on health and benefits were modelled over a period of 25 years. London School of Hygiene and Tropical Medicine (LSHTM) carried out modelling to estimate the impact of salt taxes on health.
Outcome variable	• Outcome of interest for this review: calorie reduction • Other outcomes included: Health-related economic benefits (eg, QALYs, NHS costs, social care costs etc.)
Treatment	Tax on added sugar (£3 per kilo) and salt (£6 per kilo). Of note, only sugar reductions are relevant for obesity outcomes.
Control	None specified (though seems like control would be baseline data).
Authors' findings	Of note, only sugar reduction results are relevant for obesity outcomes, so salt results are not reported in detail below but can be found in the paper. Griffith et al. note that the actual impact will depend on how firms and consumers respond. As such, they describe a range of scenarios, with differing realistic levels of response (eg, full reformulation to passing the tax onto prices for the consumer). They state: "Fully responsive firms would reformulate products to reduce sugar and salt (we assume the maximum reformulation would be to targets set by Public Health England, PHE). Fully responsive consumers would

substitute away from products in proportion to the increase in price, and not increase purchases of added sugar or salt on other products."

The authors note potential price increases (for consumers), with the actual price increase determined by the extent to which companies respond to the tax by reformulating vs passing on the cost to product costs.

The impact on purchases of added sugar and salt were as follows: "If consumers are fully responsive, the impact of an added sugar and salt tax would be to reduce added sugar from between 7.0 to 13.0 grams per person per day and salt by between 0.2 to 0.7 grams per person per day, whatever firms do. If firms fully reformulate then the impact will be to reduce sugar between 8.5 to 13.0 and salt between 0.6 to 0.7 grams per person per day, whatever consumers do. The reduction will be more than 3.0 grams of sugar per person per day and more than 1.0 gram of salt per person per day unless consumers and firms are both very unresponsive (consumers and firm respond by less than 40% of the price change/reformulation)."

Below are figures taken from the paper to reflect the result of four different scenarios:

Table 5.3: *Scenario 1: reduction in added sugar and calories*

	Added sugar		Calories	
lshtmAge	Mean	Sd	Mean	Sd
Female 0-17	-1.3	1.3	-5.1	4.8
Male 0-17	-1.5	1.4	-5.8	5.3
Female 18+	-2.4	2.2	-9.1	8.2
Male 18+	-2.9	2.6	-10.9	9.6
dhscAge	Mean	Sd	Mean	Sd
Female 0-4	-0.9	0.8	-3.3	3.0
Male 0-4	-1.0	1.0	-3.7	3.8
Female 5-12	-1.5	1.4	-5.8	5.1
Male 5-12	-1.8	1.4	-6.6	5.4
Female 13-18	-2.3	1.7	-8.7	6.3
Male 13-18	-2.9	2.2	-10.8	8.2
Female 19-64	-2.3	2.0	-8.5	7.5
Male 19-64	-2.7	2.3	-10.2	8.7
Female 65+	-3.8	3.2	-14.4	11.9
Male 65+	-4.0	3.4	-15.2	12.8

Notes: Reformulation of 30% of target, consumers respond by 30% of price increase. Mean reduction in grams of added sugar per person per day from a tax on added sugar in snacks of £3 per kilo. Calories are 3.75 times grams reduction in added sugar. For ages less than 13 at home food only.

Table 5.4: *Scenario 2(a): reduction in added sugar and calories*

	Added sugar		Calories	
lshtmAge	Mean	Sd	Mean	Sd
Female 0-17	-2.1	2.1	-7.9	7.7
Male 0-17	-2.4	2.2	-9.0	8.4
Female 18+	-4.0	3.7	-15.1	14.0
Male 18+	-4.8	4.3	-17.8	16.0
dhscAge	Mean	Sd	Mean	Sd
Female 0-4	-1.4	1.3	-5.1	4.7
Male 0-4	-1.5	1.6	-5.7	6.0
Female 5-12	-2.4	2.2	-9.0	8.3
Male 5-12	-2.8	2.3	-10.3	8.7
Female 13-18	-3.8	2.9	-14.3	10.9
Male 13-18	-4.5	3.5	-17.0	13.2
Female 19-64	-3.8	3.4	-14.1	12.8
Male 19-64	-4.4	3.9	-16.6	14.4
Female 65+	-6.5	5.3	-24.2	19.8
Male 65+	-6.6	5.8	-24.9	21.7

Notes: Reformulation of 100% target, no response by consumers. Mean reduction in grams of added sugar per person per day from a tax on added sugar in snacks of £3 per kilo. Calories are 3.75 times grams reduction in added sugar. For ages less than 13 at home food only.

Table 2: Details of Dickson, Gehrsitz and Kemp (2023) paper

Title	Does a spoonful of sugar levy help the calories go down? An analysis of the UK Soft Drinks Industry Levy
Author and year	Dickson, Gehrsitz and Kemp (2023)
Type of study	An event-study design and interrupted time-series approach. Also difference-in-difference method. "novel electronic point of sale data that cover most of the UK soft drinks market with longitudinal nutritional information and a variety of event-study specifications"... "These data give us a weekly read on the near-universe of soft drink transactions in the vast majority of supermarket chains across the UK, as well as thousands of convenience stores. They cover purchases for both 'at-home' and 'on-the-go' consumption."

Outcome variable	• Outcome of interest for this review: Calorie intake
	• Other outcomes included:
	  ○ Price
	  ○ Sales volumes

Treatment	2018 UK Soft Drinks Industry Levy (SDIL)
Control	Baseline comparison data
Authors' findings	The authors state that: "We document that all but a few global soft drinks brands reduced sugar content and hence avoided the tiered levy. For brands that maintained their original sugar content, the levy was on average over-shifted resulting in substantial retail price increases and consequent reductions in consumption, particularly for colas. In total, the levy is responsible for a reduction in intake of about 6,600 calories from soft drinks per annum per UK resident."… "Most of these calorie reductions happened in fact before the implementation of the levy as a result of a supply-side response where manufacturers reformulated their products to contain less sugar, consequently avoiding the levy entirely. Reformulating brands typically saw no change in either sales volumes or prices. We show that in our data reformulation accounts for more than 80% of the levy-induced calorie reductions from SSB consumption.

	The demand-side response to higher prices for levied products following the introduction of the levy – the mechanism through which a sugar tax is typically assumed to mainly work – accounts for the much smaller remainder."... "...the SDIL induced a total reduction of 6.1bn calories per week from soft drinks consumption. Our estimate is that reformulation accounts for around 84% of this, with the remaining 16% coming from the consumer response to higher prices induced by the levy."
Magnitude of effect (Children)	Not specified
Magnitude of effect (Adults)	Reduction of 6,600 calories from soft drinks per annum per UK resident (ie, equivalent to 18.08kcal/day)

Table 3: Details of Public Health England (2020) paper

Title	Sugar reduction: report on progress between 2015 and 2019
Author and year	Public Health England (2020)
Type of study	Pre-post comparison of before and after the programme started
Outcome variable	• Outcome of interest for this review: calories per single serve • Other outcome included: change in sugar content
Treatment	Voluntary sugar reduction programme and wider reformulation programme including SDIL "This programme challenges all sectors of the food industry to reduce sugar by 20% by 2020 in the categories of food that contribute most to the sugar intakes of children aged up to 18 years. In May 2018 unsweetened juice and sweetened milk based drinks were incorporated into the sugar reduction programme, and technical guidelines published. All sectors of industry were challenged to reduce sugar by 5% in juice based drinks, and 20% for milk based drinks by 2021. Milk based drinks also have an interim ambition of 10% reduction by 2019. The ambition for mono juices is no increase in the baseline simple average sugar content. In

	January 2019 fermented (yogurt) drinks were added to the programme, with a sugar reduction ambition of 20% by 2021."
Control	For retailers and manufacturer branded products, the control was baseline data from 2015. For the eating out of home sector, the control was baseline data from 2017.
Authors' findings	Results for sugar are not reported here; the focus in the present rapid review was calorie reduction. "**Calorie content of food products likely to be consumed on a single occasion** **Retailers and manufacturer branded products** The main findings were (see Table ES1b): • Overall there has been hardly any change, since 2015, in calories in products likely to be consumed on a single occasion (sales weighted average 146kcals per portion in 2015 and 147kcals in 2019). • There have been some changes at category level; the largest decreases were 7.8% for yogurts and fromage frais, and 3.1% for chocolate confectionery. • The largest increase was 9.0% for puddings. • Cakes had an increase of 2.2% and morning goods had an increase of 2.5%, both against a 2017 baseline. **Eating out of home sector** The main findings were (see Table ES1b): • Overall there has been a reduction in average calories per portion from 394kcals in 2017 to 355kcals in 2019, which represents a decrease of 9.7%. • Ice creams, lollies and sorbets (down 17.6%), cakes (down 11.5%) and puddings (down 9.1%) showed the largest decreases. • Chocolate confectionery had the largest increase in calories per portion (up 6.1%).

Calories in products likely to be consumed on a single occasion in the eating out of home sector are higher than in retailers and manufacturer branded products across all categories, apart from chocolate confectionery."

Table ES1b. Summary of change in calories likely to be consumed on a single occasion (per single serve) by food category

	Calories per single serve	
Product Category	Retailers and manufacturers (% change in SWA[+])	Eating out of home sector (% change in SA[$])
Overall	**0.9**	**-9.7**
Biscuits	0.3	-4.4
Breakfast cereals	N/A **	1.9
Chocolate confectionery	-3.1	6.1
Ice cream, lollies and sorbets	-1.5	-17.6
Puddings	9.0	-9.1
Sweet spreads and sauces	N/A **	N/A **
Sweet confectionery	0.2	N/A ***
Yogurts and fromage frais	-7.8	1.0
Cakes	2.2 *	-11.5
Morning goods	2.5 *	-2.7

Notes
+ Sales weighted average is the mean weighted by total sales, giving more influence to products with higher sales
$ Simple average is the simple arithmetic mean. Products are given equal influence. The baseline is 2017
* The baseline for cakes and morning goods is 2017 rather than 2015
** Products not generally sold in single serve portions
*** Data for sweet confectionery in the eating out of home sector has been excluded due to incomparability of results

…"There is a great deal of variation in the change in the sugar and calorie content of products at business and brand level, with some businesses moving towards or doing more than the guidelines set, while others have not changed or have seen an increase in sugar and/or calorie content. The full assessment of changes made in retailers and manufacturer branded food products and food products in the eating out of home sector can be found in the results chapter."

"**Juice and milk based drinks**

Retailers and manufacturer branded products – changes in sugar and calorie content

The main findings were (see Table ES1c):

- There have been reductions in the sales weighted average sugar per 100ml for some categories, including 22.1% for pre-packed milk based drinks, 5.3% for pre-packed

flavoured milk substitute drinks and 13.4% for pre-packed fermented (yogurt) drinks.

- There were also some reductions in the simple average sugar per 100ml, in particular 17.8% for coffee and tea powders, syrups and pods as consumed, and 12.1% for milkshake powders, syrups and pods as consumed (both made up as per manufacturer's instructions).
- There was a 3.6% reduction in the sales weighted average sugar per 100ml for prepacked blended juices. For pre-packed mono juices there was no increase in the simple average sugar per 100ml.
- The number of calories likely to be consumed on a single occasion decreased in all categories other than pre-packed mono juices."

Table ES1c. Summary of change in sugar content and the number of calories likely to be consumed on a single occasion (per single serve) by juice and milk based drink category in retailers and manufacturer branded products

	% Change in SWA* or simple average**	
Product category	Sugar per 100ml	Calories per single serve
Pre-packed milk based drinks	-22.1 *	-11.2 *
Pre-packed flavoured milk substitute drinks	-5.3 *	-2.9 *
Pre-packed fermented (yogurt) drinks¥	-13.4 *	-4.1 *
Coffee and tea powders, syrups and pods as consumed	-17.8 **	N/A ‡
Hot chocolate and malt powders, syrups and pods as consumed	0.2 **	N/A ‡
Milkshake powders, syrups and pods as consumed	-12.1 **	N/A ‡
Pre-packed mono juices	-1.2 **	2.0 **
Pre-packed blended juices	-3.6 *	-6.1 *

Notes

* Sales weighted average is the mean weighted by total sales, giving more influence to products with higher sales

** Simple average is the simple arithmetic mean. Products are given equal influence

‡ Not reported due to the format in which products are sold

¥ Pre-packed fermented (yogurt) drinks are a subset of the yogurts and fromage frais food category due to the composition and similarity, but are reported with milk based drinks

"**Eating out of home sector – changes in sugar and calorie content**

The main findings were (see Table ES1d):

- There was an increase in the simple average sugar content for open cup milkshakes of 7.8%, but a decrease in the number of calories likely to be consumed on a single occasion of 2.8%.
- There was a decrease in the simple average sugar content of 6.8% for open cup hot/cold drinks, but an increase in the number of calories likely to be consumed on a single

occasion of 10.0%.

- There has been a 1.5% increase in the simple average sugar content of blended juices, and a 1.1% increase in the calories likely to be consumed on a single occasion."

Table ES1d. Summary of change in sugar content and the number of calories likely to be consumed on a single occasion (per single serve) by juice and milk based drink category in the eating out of home sector[7]

	Change (%) in simple average*	
Product Category	Sugar per 100ml	Calories consumed on a single occasion
Open cup Milkshakes	7.8	-2.8
Open cup hot/cold drinks	-6.8	10
Blended juices	1.5	1.1

Notes
*Simple average is the simple arithmetic mean. Products are given equal influence

The results for the assessment of progress in juice and milk based drinks can be found in Appendix 3.

"**Soft Drinks Industry Levy**

…

- The number of calories likely to be consumed on a single occasion fell by 35.2% between 2015 and 2019.
- In the eating out of home sector, there was a reduction of 38.5% in the simple average total sugar content for drinks subject to the SDIL and a reduction of 37.7% in the calories for drinks likely to be consumed on a single occasion."

Magnitude of effect (Children)	[Dependent on food category - see table ES1b above]
Magnitude of effect (Adults)	Not specified

Table 4: Details of Dimbleby (2021) – National Food Strategy (Chapter 16: The Plan)

Title	National Food Strategy: Independent Review – Chapter 16: The Plan
Author and year	Dimbleby (2021)
Type of study	Independent review and policy recommendations. This was preceded by a public Call for Evidence, modelling of a shortlist of suggestions, consultation with expert panel and other stakeholders, and testing of the most challenging ideas in focus groups and with citizens in 'deliberative dialogues' around the country.
Outcome variable	n/a
Treatment	Various recommendations, but relevant to the present review is the following: Recommendation 1: Introduce a Sugar and Salt Reformulation Tax. Use some of the revenue to help get fresh fruit and vegetables to low-income families. This would involve the Government introducing a £3/kg tax on sugar and a £6/kg tax on salt sold for use in processed foods or in restaurants and catering businesses in order to incentivise manufacturers to reduce sugar and salt.
Control	n/a
Authors' findings	The report states: "Our modelling suggests this tax would lower the average sugar intake by 4–10g per person per day, and the salt intake by 0.2-0.6g per person per day. This would reduce the average calories eaten per person per day by 15-38kcal. According to the UK's expert group on calorie reduction, this could completely halt weight gain at a population level (which would require an average reduction of 24kcal per person per day)."... "An estimated 300,000 years of healthy life are lost to diet-related illness or disease in the UK every year, with all the worry, work and logistical strain that such a situation entails. Once the years lost to premature death are factored in, that rises to almost 1.5 million. According to our modelling, the Sugar and Salt Tax would save 37,000–97,000 of those years."

Magnitude of effect (Children)	Not specified
Magnitude of effect (Adults)	Reduction in average calories eaten per person per day of 15-38kcal

Appendices

Appendix 1: Search strategy

Grey literature database	Search term	Notes
King's Fund Library	'Sugar OR calories OR energy density' AND 'tax OR levy'	Sort by 'Relevance' and screen the first 10 pages
World Cancer Research Fund International (NOURISHING database)	All policies in database	n/a
Gov.UK website	'Sugar OR calories OR energy density' AND 'tax OR levy'	Sort by 'Relevance' and screen the first 10 pages
Google and Google Scholar	Sugar tax or fiscal policy	Sort by 'Relevance' and screen the first 3 pages (for both)
Google and Google Scholar	Energy density tax or fiscal policy	Sort by 'Relevance' and screen the first 3 pages (for both)
Google and Google Scholar	Calorie tax or fiscal policy	Sort by 'Relevance' and screen the first 3 pages (for both)

Targeted website(s)
National Food Strategy website (and report) Obesity Health Alliance (Turning the Tide on Obesity) report

Appendix 2: Members of the EAG

Peymane Adab, University of Birmingham, Professor of Chronic Disease Epidemiology & Public Health

Mary Brennan, University of Edinburgh Business School, Chair of Food Marketing and Society

Tom Burgoine, University of Cambridge, Senior Research Associate

Emilie Combet Aspray, University of Glasgow, Professor of Human Nutrition

Gareth Hollands, UCL, Principal Research Fellow in Evidence Synthesis and Behavioural Science

Lindsay Jaacks, University of Edinburgh, Professor of Global Health and Nutrition

Susan Jebb, University of Oxford, Professor of Diet and Population Health

Kat Jenner, Obesity Health Alliance, Director

Laura Johnson, Laura Johnson Consultancy Ltd, Consultant

Clare Llewellyn, UCL, Associate Professor of Behavioural Science and Health

Theresa Marteau, University of Cambridge, Director of Behaviour and Health Research

Kimberley Neve, Cancer Research UK, Prevention Policy Research Manager

Rachel Pechey, University of Cambridge, Associate Professor/Sustainable Healthy Food Group

Sumantra (Shumone) Ray, NNEdPro Global Institute for Food, Nutrition and Health, Executive Director

Jessica Renzella, University of Oxford, Lecturer in Population Health

Simon Russell, UCL, Senior Research Fellow and Unit Manager of the NIHR Policy Research Unit in Obesity at the UCL and GOSH

Appendix 3: JBI Data Extraction Form for Review for Systematic Reviews and Research Syntheses

Study details
Author/year
Objectives
Participants (characteristics/total number)
Setting/context
Description of interventions/phenomena of interest
Search details
Sources searched
Range (years) of included studies
Number of studies included *I*
Types of studies included
Country of origin of included studies
Appraisal
Appraisal instruments used
Appraisal rating
Analysis
Method of analysis
Outcome assessed
Results/findings
Significance/direction
Heterogeneity
Comments