




## POLICY BRIEF

Investigating the impact of a  
salt and sugar tax on health and  
environmental outcomes




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 SHEFS (Sustainable and Healthy Food Systems) is a global research programme using novel techniques to generate and synthesise evidence, and to help decision-makers create policies that deliver nutritious and healthy

diets in an environmentally sustainable and socially equitable manner.



With thanks to  Recipe for Change, a campaign calling for an industry levy to help make our food healthier, while raising revenue that can be invested back into children's health.

# POLICY BRIEF

## Investigating the impact of a salt and sugar tax on health and environmental outcomes:

How would switching to foods which are lower in salt and sugar affect affordability, healthy weight and the environment?

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### SUMMARY

- This briefing summarises **research** which models the possible effects on food choice of a salt and sugar tax, as recommended in the 2021 **National Food Strategy** (NFS). It looks at the impact of consumers substituting frequently consumed foods for lower salt and sugar alternatives within the same food category.
- It seeks to assess the affordability of such swaps, and also models the impact they might have on healthy weight and the environment.
- The research finds that even very small swaps within just eight commonly consumed food categories (therefore likely to be realistic for the general population) can have notable impacts on both healthy weight at a population level and several environmental impact outcomes.
- Consuming foods lower (as opposed to those high) in salt and sugar could lead to important reductions in people's daily calorie intake and body weight, lowering the prevalence of overweight and obesity in the UK from approximately 60-65% to 40-45%. This is likely to significantly bring down the current £19.2bn cost to the National Health Service (NHS) (Frontier Economics, 2023) every year as a result of overweight and obesity.
- The food swaps modelled resulted in notable reductions in the environmental impact associated with typical UK diets. For example, the total daily reductions in greenhouse gas emissions (GHGEs) from food swaps for the eight categories looked at could lower the average food-related emissions of an adult in the UK by to 2-3% (Murakami *et al.*, 2018) without requiring substantial dietary change.
- This modelling of substitutions suggests the introduction of a new sugar and salt tax would not necessarily result in an added cost to consumers. Prices of all foods would increase, but in the context of the suggested substitutions, going from foods high in salt/sugar to those lower in salt/sugar would not be more expensive for consumers. Consequently, low-income households could be protected from potential price rises.
- The results of this study support the introduction of targeted fiscal measures to reduce both salt and sugar consumption in the UK, ensuring that any potential risks to low-income consumers are minimised.







# Introduction

## BACKGROUND

On average, UK adults consume 40% more sugar and salt than is recommended. Every year, an estimated 90,000 avoidable deaths are caused by diets containing high levels of salt and added sugars (Afshin *et al.*, 2019). Overweight and obesity costs the NHS £19.2bn each year (Frontier Economics, 2023) and is predicted to continue to increase (Janssen *et al.*, 2020). People on low incomes and some ethnic minorities are hardest hit, with deprivation strongly linked with overweight and diet-related ill health (National Food Strategy, 2021). At the same time, the production and consumption of food and drink contributes to just over a third of the UK's total GHGEs (WRAP, 2021) as well as other environmental stressors (Murphy-Bokern, 2008).

**The total volume of sugar sold from soft drinks decreased by 29%**



**The Climate Change Act** commits the UK government by law to reducing GHGEs to net zero by 2050 (Climate Change Committee, 2024). To do this, the Climate Change Committee (CCC) recommends that we need to urgently transition diets to be healthier and more sustainable (CCC, 2023).

## POLICY ATTEMPTS TO REDUCE HIGH LEVELS OF SALT AND SUGAR CONSUMPTION

There have been several policy attempts to address high salt and sugar consumption levels in recent years. The UK Soft Drinks Industry Levy (SDIL), a tax introduced in 2018 and applied to UK-produced or imported soft drinks containing added sugar, has shown positive results (Scarborough *et al.*, 2020). The total volume of sugar sold from soft drinks decreased by 29% (Bandy *et al.*, 2020) and led to sugar intake from soft drinks falling by an average of 2.7%, per household per week (Rogers *et al.*, 2023). In contrast, the voluntary sugar reduction program (national guidelines for all sectors of the food industry on how to achieve a 20% sugar reduction across the top sugar contributing food categories) was less successful (Public Health England, 2017). It led to only marginal decreases in the levels of sugar in food categories that contribute the largest

proportions of free sugar to children's diets – a 3.5% reduction on average, ranging from 0.9% for confectionery to 14.9% for breakfast cereals (Office for Health Improvement & Disparities, 2022). This suggests that targeted and mandatory fiscal policies like the SDIL could be effective for shaping the availability of healthier food options. However, because of the narrow range of products the SDIL covers, its potential impact on diets and health has been limited.

Building on the success of the SDIL, the NFS sought to recommend a new "Salt and Sugar Reformulation tax" on manufacturers purchasing sugar and salt for use in processed foods and drinks (NFS, 2021). This mandatory measure would cover a wide range of products, particularly processed and prepared foods, which are the principal sources of sugar and salt in British people's diets (NFS, 2021). Most importantly, it would put the onus on businesses and not on individuals; encouraging the reformulation of products (to use less sugar and salt) rather than being a tax on consumers (NFS, 2021).



This is important, since the latter could have negative effects on resources of the lowest-income households that already spend a large part of their disposable income on food. There are a range of estimates of the percentage of overall budgets this comes to; The Broken Plate report found the most deprived fifth of the population would need to spend 50% of their disposable income on food to meet the cost of the government-recommended healthy diet compared to just 11% for the least deprived fifth (The Food Foundation, 2023a).

### **A REGRESSIVE POLICY?**

At the time the NFS was published there was some scepticism about the recommendation of a salt and sugar tax in the media, with some claiming that the costs would be passed on to the consumer, significantly impacting household bills and the cost of living. However, the evidence suggests that whether the tax is economically regressive will depend on the extent to which manufacturers choose to reformulate their products, the extent to which tax costs are passed through to consumers, and the extent to which consumers change their product choices to avoid being subject to any increased costs (The Food Foundation, 2022).

To reduce the risk of the tax being regressive, the NFS proposed a series of additional measures to protect low-income households.

It recommended using the revenue from the tax to subsidise healthier foods, such as through funding social prescribing of fruit and vegetables, and through increasing the number of children who could benefit from Free School Meals, holiday schemes and the Healthy Start Scheme (The Food Foundation, 2022). However, since such measures are already needed to combat food insecurity (even before the introduction of the tax), this would be the absolute minimum that would be required (The Food Foundation, 2022).

### **THIS BRIEFING**

The evidence on what substitutions consumers would be likely to make when faced with different options or an increase in the cost of their favourite high in salt and/or sugar foods (as the result of a salt and sugar tax, for instance) is scarce and inconclusive. One study found that when a saturated fat and salt tax were introduced consumers increased the proportion of fruit and vegetables they purchased (Waterlander *et al*, 2019). On the other hand, there is some evidence to suggest that – in the context of price changes – consumers would prefer swaps for similar foods within the same food category (i.e., replacing a higher sugar biscuit with a lower sugar one rather than substituting this for a piece of fruit) (Epstein *et al*, 2015; Goldfield *et al*, 2002).





This research attempts to explore this evidence gap by looking at the potential co-benefits of dietary substitutions for eight commonly consumed categories of food that would lead to reduced salt and sugar consumption. It examines the impact of swapping foods high in salt and sugar with those lower in salt and sugar within the same food category, and whether this can contribute to better outcomes for people’s weight status and the environment without incurring an added cost to consumers. Unlike previous studies, this research seeks to explore the effects of a ‘worst-case scenario’ of fiscal policy intervention, using modelling which assumes reformulation is not undertaken by manufacturers in response to the introduction of a salt and sugar levy, and that the full cost of the levy is instead passed on to consumers.

With 1 in 4 households with children in the UK affected by food insecurity (The Food Foundation, 2023b), and significant dietary inequalities between the most and least deprived quintiles, it is vital that any fiscal levers do not further constrain the resources of low-income households. In reality (and as was the case with SDIL), in the event of a tax being implemented there is likely to be a large amount of reformulation undertaken by manufacturers. This would support consumers to afford their most preferred products and automatically also reduce their salt/sugar consumption.

This research has been modelled on foods commonly purchased by households in the lowest income quintile. This would ensure the most popular products for the lowest income quintile would be covered in the cost comparison, and the body weight and BMI outcomes modelled would positively impact these groups.

This study specifically aims to determine the affordability of food swaps if the tax was passed onto consumers. The research shows that even in this scenario there are still likely to be positive impacts for health and the environment. The findings of this study therefore add to the growing body of research that supports the introduction of targeted fiscal measures to reduce both salt and sugar consumption in the UK.

***It is vital that any fiscal levers do not further constrain the resources of low-income households.***

## Methods

As a basis for all analyses, purchase data from the Kantar Fast Moving Consumer Goods (FMCG) Purchase Panel (Take Home) 2017 was used. This data includes sociodemographic information of households in England and Wales. It also includes information on the type of foods purchased by these households, their price per unit, and their weight, energy and nutrient content.

For this research, eight food categories were chosen. The eight food groups typically contain high amounts of sugar and/or salt and are food groups that people spend a comparably large share of their total food expenditures on – a quarter (24.57%) of people’s total spend goes towards these eight categories alone (Griffith *et al*, 2021). These categories are therefore likely to have a significant impact on household food budgets if they went up in price. The chosen categories and the nutrient(s) in focus are detailed in Table 1.

TABLE 1

Food categories

FOOD GROUP	NUTRIENT/S IN FOCUS
Biscuits	Salt and sugar
Biscuits (crackers)	Salt
Bread	Salt
Breakfast cereals	Sugar
Confectionary	Sugar
Desserts	Sugar
Savoury snacks	Salt
Sweet spreads	Sugar

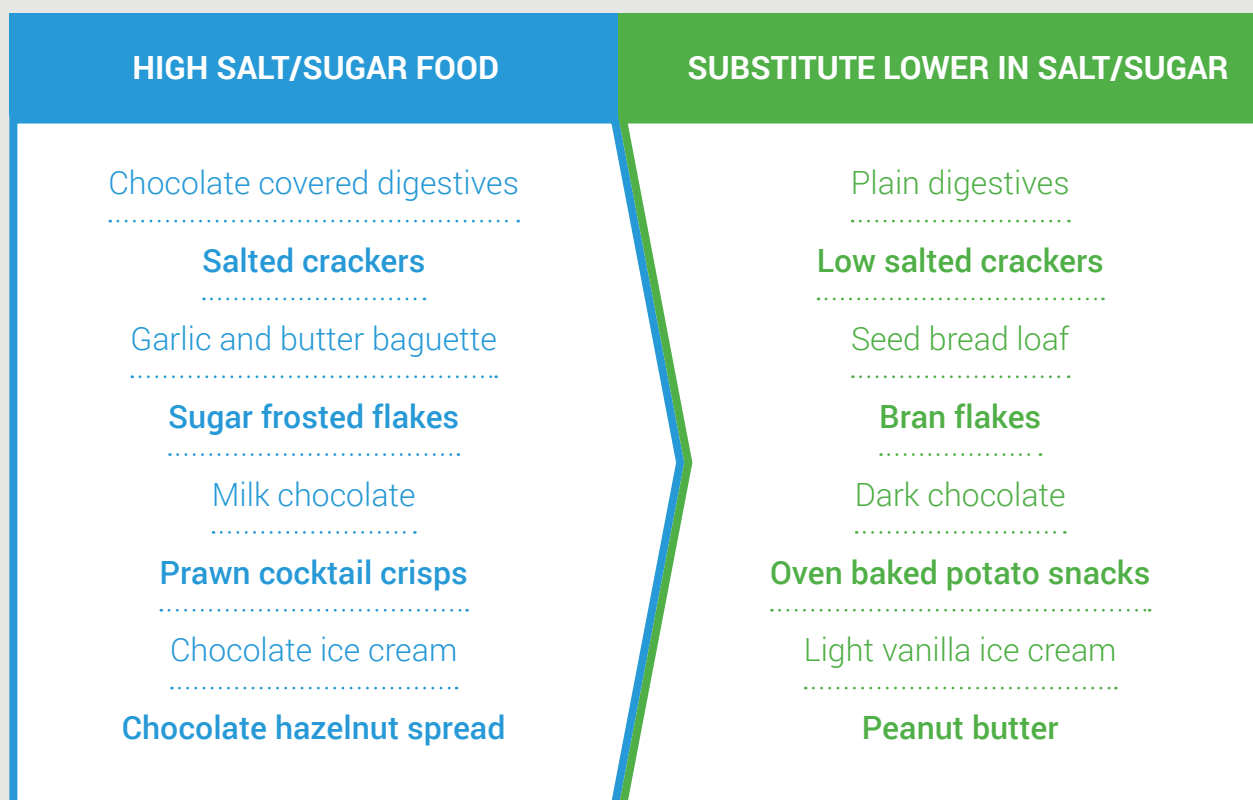


Within these eight categories, ten popular foods were chosen – defined as the most commonly purchased foods in each category which are high in salt and/or sugar. Ten substitute foods offering close equivalent products were also chosen – these were the most commonly purchased foods lower in salt and/or sugar for the same eight categories. The foods chosen were commonly purchased by the households in the lowest income quintile. This was to make sure that the most popular products

for the lowest income quintile would be covered in the cost-comparison. Figure 1 shows examples of specific food items that were included in the list of high salt/sugar as well as the substituted lower salt/sugar foods within each food category. Unless otherwise specified, foods classified as lower in salt and/or sugar were those containing a maximum of 1.5g/100g of product for salt and a maximum of 22.5g/100g of product for sugar in line with NHS recommendations.

**FIGURE 1**

Example swaps from foods high in salt/sugar to substitutes lower in salt/sugar.



To model changes in BMI, new body weights (and thus new BMIs) resulting from a change in calorie intake were calculated only for adults considered overweight (defined as BMI  $\geq$  25 kg/m<sup>2</sup>). The average BMI of the entire baseline adult population was then compared to the average BMI of the adult population.

To model changes in environmental impact categories, environmental impact information for all foods which came under each of the food categories was extracted and averaged based on a meta-analysis of food product Life Cycle Assessments (LCA) compiled from published literature.





# Findings

## Changes in nutrients and prices:

Applying the salt and sugar tax recommended in the NFS resulted in an increased price for all foods (both the higher and lower salt and/or sugar options) after the tax was applied. However, on average, the healthier substitute foods which were lower in salt and/or sugar were cheaper than the higher salt/sugar options after a tax was applied. This was the case for all food categories except for Confectionery and Spreads. The estimated price increase in high salt foods included in the analysis was between 4.4-29%, compared to 3.9-19% in the foods lower in salt. Similarly, the estimated price increase in the high sugar foods was between 27-92% across food categories, compared to 3-26% in the foods lower in sugar. This means that even though there was a price increase across all the foods, the cost of healthier substitute foods could be lower in

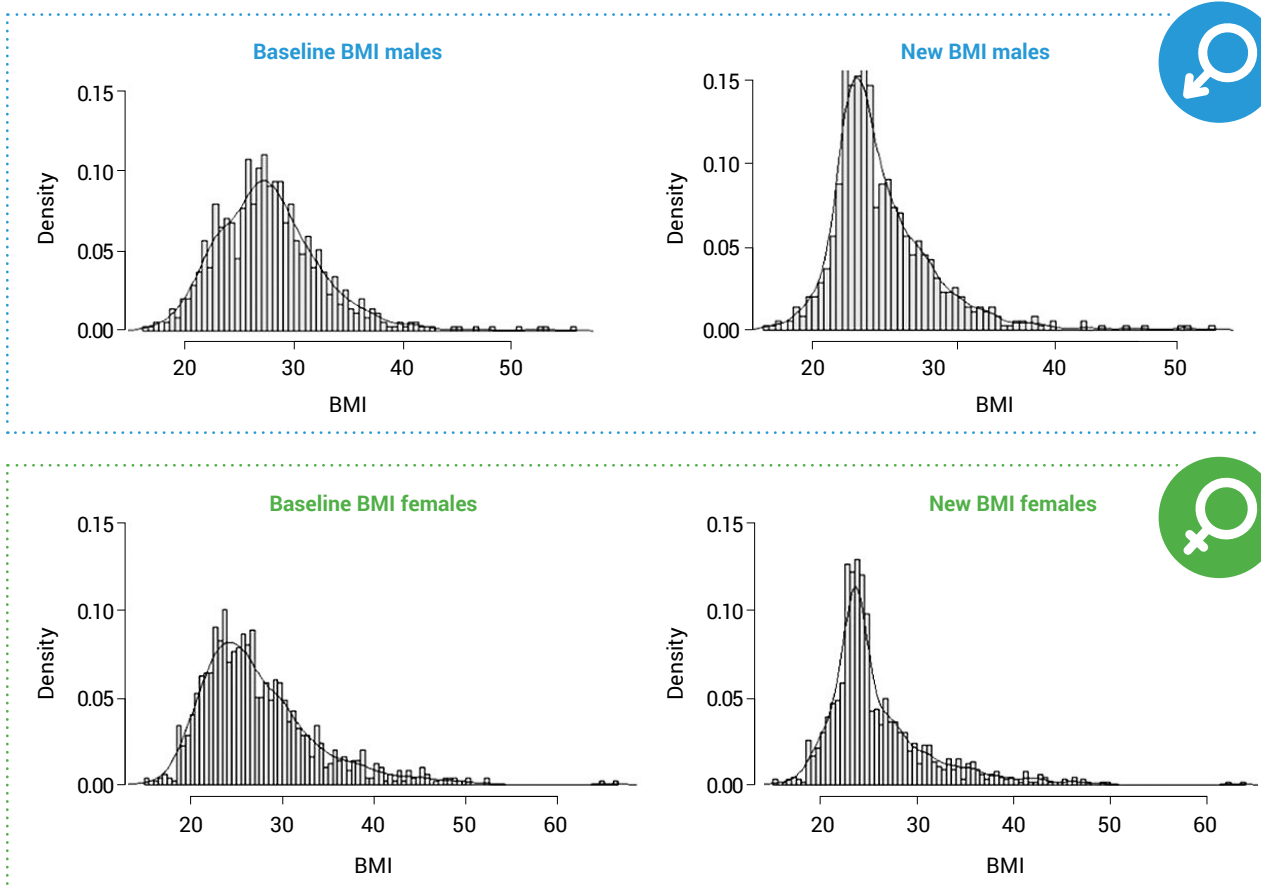
real terms than the less healthy options after a tax was applied.

## Changes in calorie intake, bodyweight and BMI:

The modelling suggests that substitutions could lead to reductions in the number of calories consumed from these categories, and therefore a reduction in average BMI and bodyweight. For both males and females with overweight (a BMI of >25), daily calorie intake reduced (by 204 and 159 kcal, respectively), and this led to reductions in bodyweight and BMI over time. This suggests these substitutions could result in a relative reduction of average BMI in the UK adult population by 7% and 5.4% for males and females respectively and lower the proportion of adults considered overweight, i.e. having a BMI  $\geq 25$ , as shown in Figure 2.

FIGURE 2

Distribution of BMI in the adult UK population at baseline and after weight-loss resulting from substitutions of foods high in salt sugar with comparable foods lower in salt and sugar within the same food category. The modelled new BMI for both males and females is achieved after ~3 years





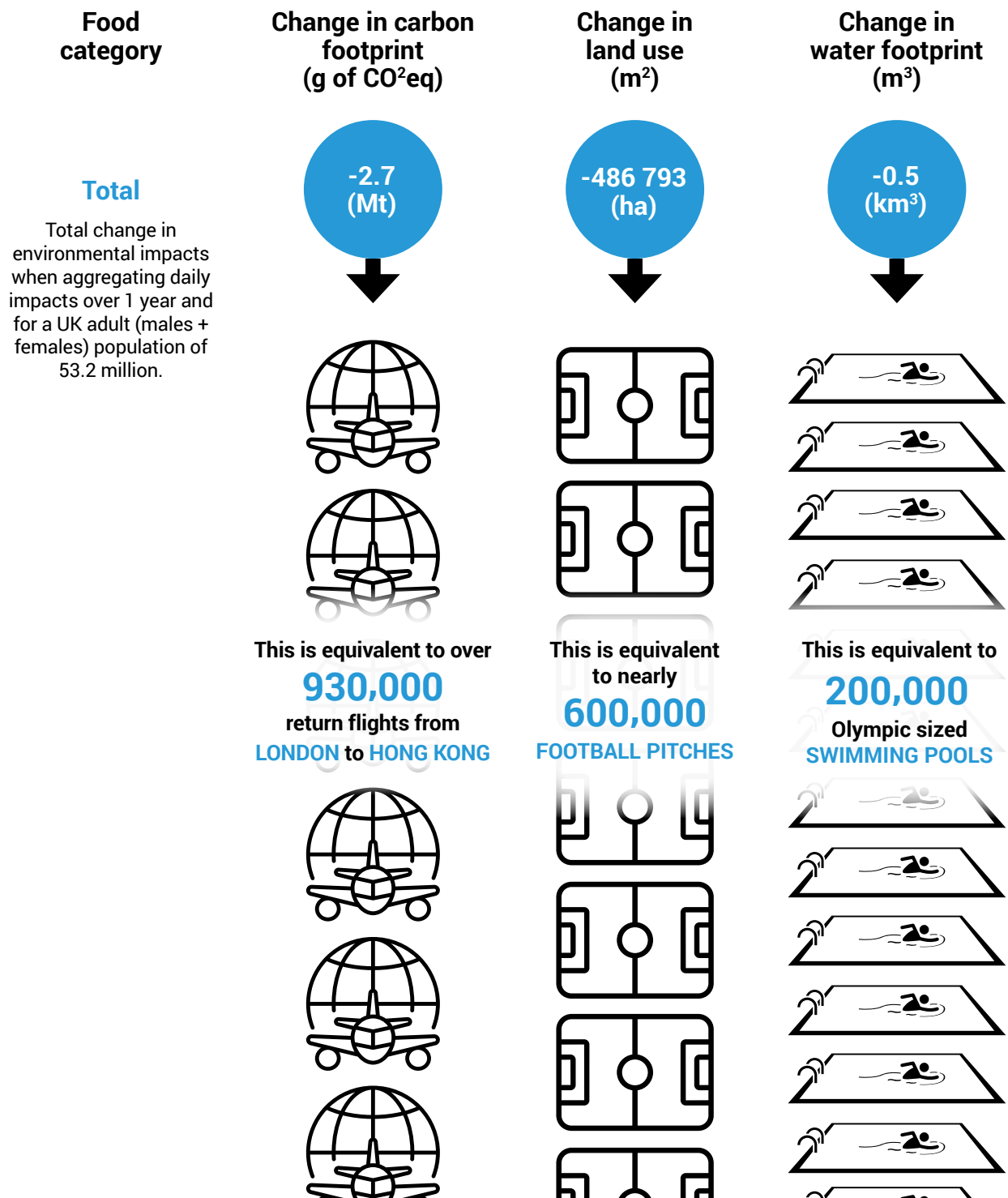


### Changes in environmental impact:

Environmental impacts were reduced for all food categories. The greatest reductions were observed for Bread, Confectionery, and Desserts across all environmental impact categories. Table 2 shows the total change in environmental impacts for the eight food groups when comparing consumption of foods high in salt/sugar with the substitutes lower in salt/sugar.

TABLE 2

Change observed in environmental impacts across eight food groups when comparing consumption of foods high in salt/sugar with substitutes lower in salt/sugar





## Placing these findings in a wider UK context

The findings show that there's opportunity for UK citizens to substitute foods high in salt and sugar with comparable foods lower in salt and sugar within the same food category. It shows that a salt and sugar tax would not have to force people into major changes in their weekly shop; it could allow them to still buy relatively similar snacks and foods as they normally do, while at the same time lowering the prevalence of overweight and obesity and reducing the environmental damage associated with food systems. Indeed, consumers could be incentivised to buy the lower sugar and salt snacks as, in many cases, they could be cheaper than the higher sugar and salt products. These shifts are important as it can be very difficult to significantly shift typical

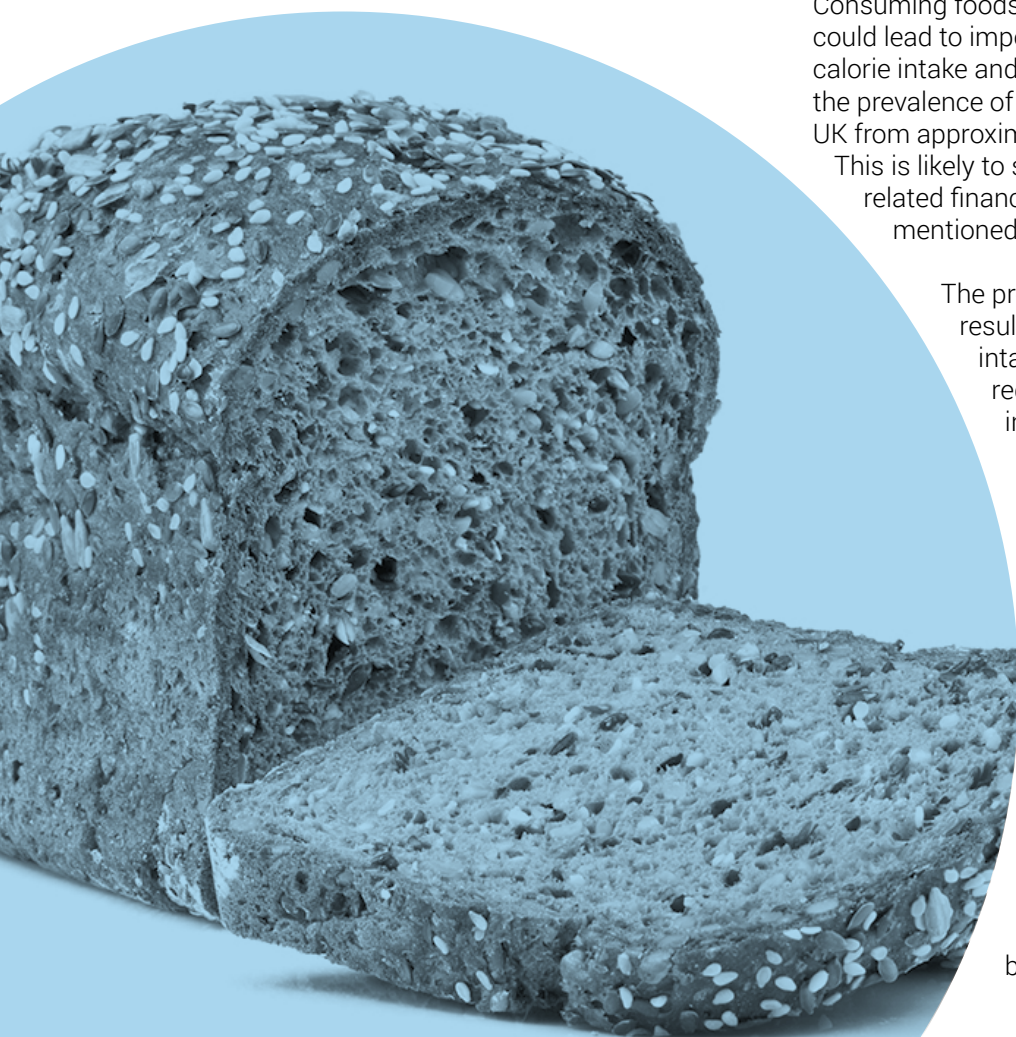
dietary patterns; while ideally consumers would swap from a biscuit to a piece of fruit, in reality this requires a significant change in habitual behaviour. Targeting similar products with healthier profiles is therefore arguably more practical and achievable in the short and medium term.

The suggested substitutions would mainly be like-for-like and would not necessarily result in an added cost to consumers in the context of the introduction of a new sugar and salt tax. Prices of all foods would increase, but in the context of the substitutions, going from foods high in salt/sugar to those lower in salt/sugar would not be more expensive for consumers. As a result, low-income households could be protected from potential price rises.

Consuming foods that are lower in salt and sugar could lead to important reductions in people's daily calorie intake and therefore body weight, lowering the prevalence of overweight and obesity in the UK from approximately 60-65% to about 40-45%.

This is likely to significantly bring down obesity-related financial costs to the NHS, as previously mentioned.

The proposed food substitutions, resulting in a lowered daily energy intake, also generated notable reductions in environmental impacts. For example, the total daily reductions in GHGE from the food swaps could lower the average daily per capita food-related emissions of an adult in the UK by up to 2-3% (Murakami *et al*, 2018). Although this is a fairly small percentage change, it shows this could be an important contributor to the CCC's emissions target, given it is an achievable measure which requires no substantial dietary changes (for example swapping meals centred around meat and dairy for those that are plant based).





## Conclusion

Action is urgently needed by UK policymakers to tackle the causes of obesity and diet-related disease, as well as acting to reduce the environmental impact of our food system.

Policy interventions which result in increased food costs being passed onto the consumer are the worst-case scenario. The SDIL demonstrated that policies which put the onus on businesses, rather than on consumers, can be successful and reduce the risk of putting further financial strain on low-income households. Nevertheless, this research shows that even in this scenario where all costs are passed onto consumers, there are still likely to be positive impacts for population health and the environment.

The research suggests policymakers should consider fiscal incentives for reformulation, such as a salt and sugar tax (as recommended by the NFS), ensuring that any potential risk to people on low incomes is minimised. As such, the revenue raised from the tax should be invested back into supporting children's health and reducing dietary inequalities by supporting those on lower incomes to access a healthier diet.

In the absence of government intervention, businesses should seek to reformulate products that are high in salt and/or sugar.





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