

# Tracking restaurant menu items in the UK

Energy and nutrient trends

## Coffee Break Seminar

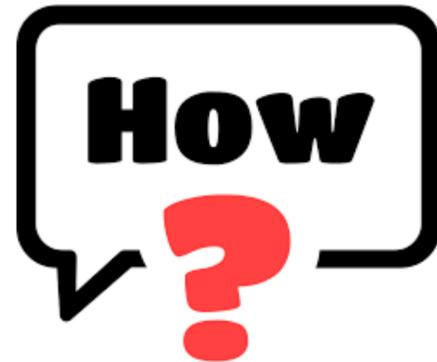
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Population Health Interventions (PHI)  
MRC Epidemiology Unit



# Content



do we need to track the nutrient composition of restaurant menu items?



can we track the nutrient composition of restaurant menu items?



have we found through tracking restaurant menu items in the UK?

# Saltiest chips/fries competition

Which one contains the highest amount of salt?



**McDonald's Fries  
(Medium)**

**0.62 g**



**Nando's Chips  
(Regular)**

**0.60 g**



**The Regal: Bowl  
of Chips  
(Wetherspoons)**

**2.2 g**



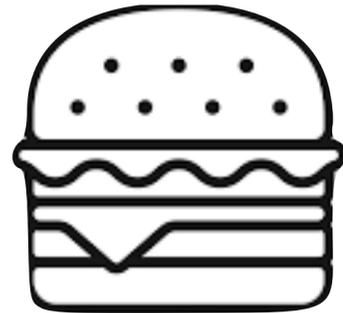
**McCain Home  
Chips (one  
serving of 100g)**

**0.54 g**

# Nutrient composition of restaurant menu items

## Why?

Restaurant foods tend to be high in **energy, fat, and salt**, yet low in **fibre and micronutrients**.



Compare to their supermarket equivalents, the food and drinks served out-of-home (or takeaway meals) contain **twice as many calories** on average

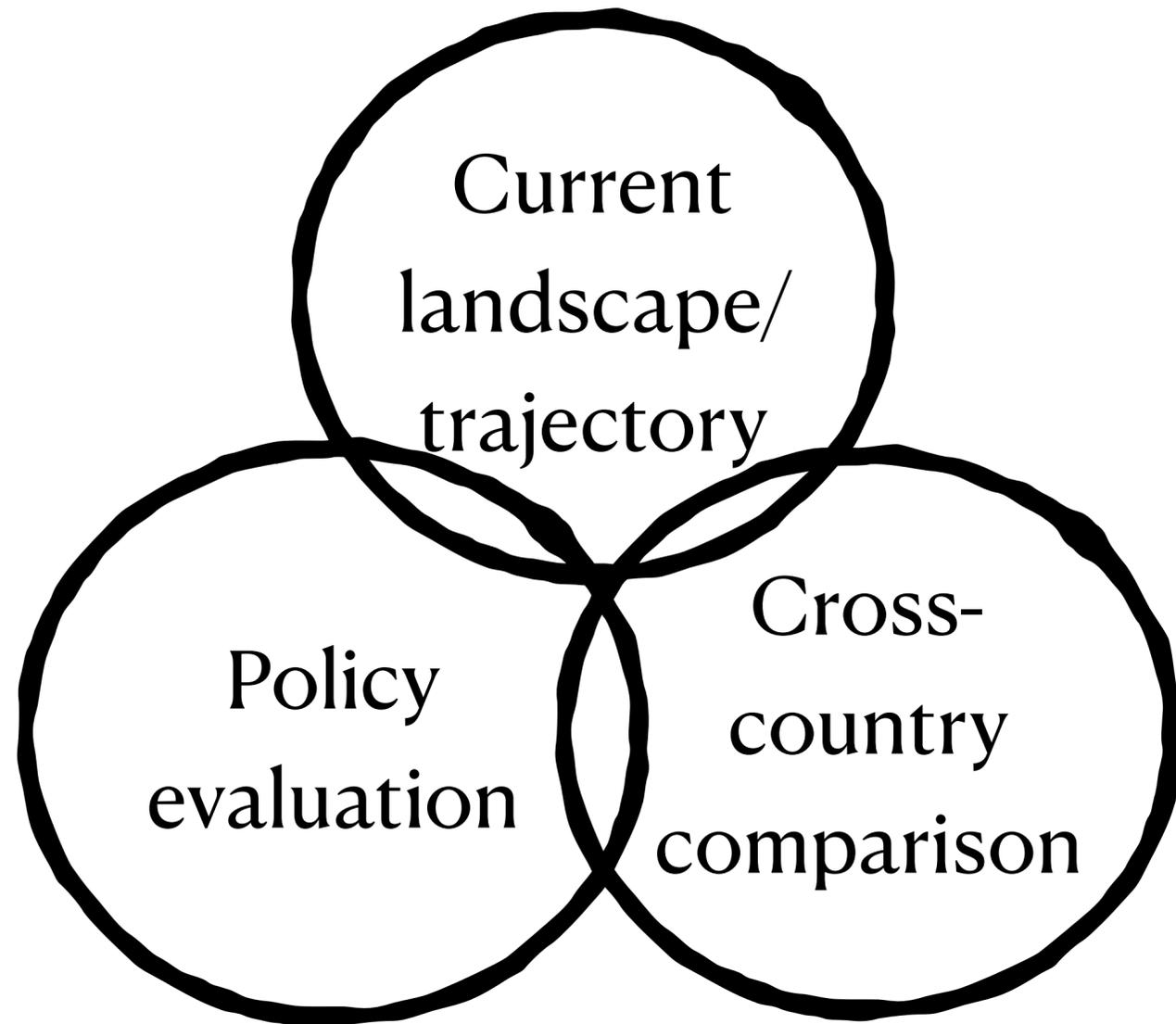


The food we eat outside the home makes up **20-25%** of adult daily calorie intake.

Frequent restaurant food consumption is associated with higher **daily energy intake** and **BMI**

# Nutritional composition of restaurant menu items

Why?



Restaurant food environment



Participant YH's food diary

Breakfast: regular oat latte + croissant from Caffe Nero



Lunch: Italian B.M.T wrap from subway

Dinner:  
tantanmen beef brisket ramen from wagamama



Improve the estimation of nutrient consumption

# Nutritional composition of restaurant menu items

How?



# Nutritional composition of restaurant menu items

How?

**Luckily, some restaurants post this information online and/or in-store!**



News story

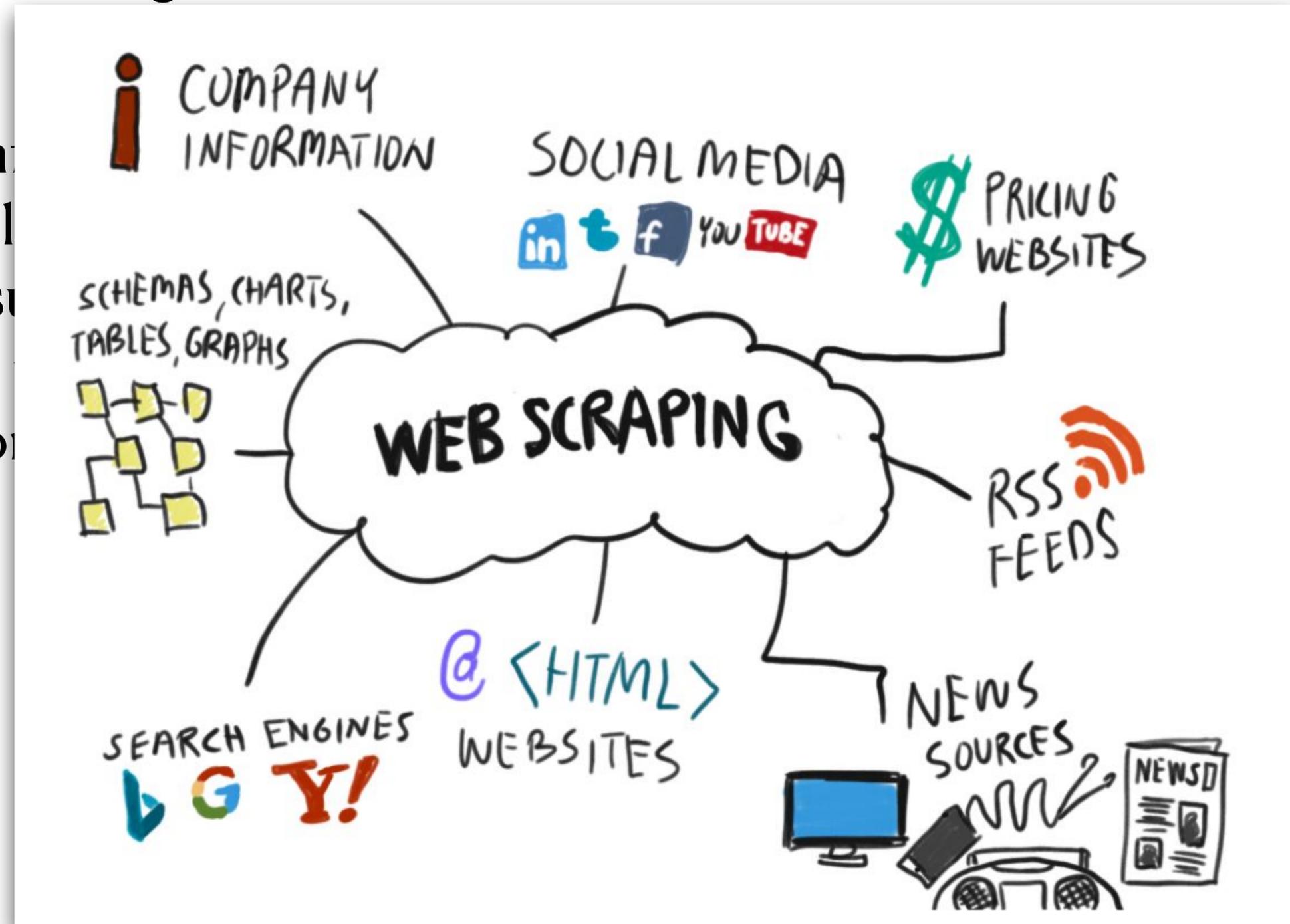
**Calorie labelling on menus to be introduced in cafes, restaurants and takeaways**

Government renews drive to tackle obesity and improve the nation's health

# Nutritional composition of restaurant menu items

## Building a database

- Energy and nutritional information of menu items served by 1000 restaurants (potentially subject to the calorie labelling rule) and the nutritional information of



# Web scraping

## The power of web scraping



Nutrition and metabolism  
Research

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 Rapid Responses

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 Alerts

### Nutrient composition comprehensive, real-time

Richard Andrew Harrington,  Vyas A  
Correspondence to Dr Richard Andrew Har

#### Abstract

**Objectives** Traditional methods for c  
rapid pace of change in the food and c  
marketplace, and presents analyses ill

**Design** foodDB has been used to coll  
November 2017. As of June 2018, foo  
multiple timepoints.

**Methods** Weekly extraction of nutriti  
websites. This process was automated

**Results** Analyses using a single week  
and showed that lower price ready me  
analyses of 903 pizzas revealed that 1  
discontinued or new market entries.

**Conclusions** foodDB is a powerful ne  
granularity of collection provides pow  
branded foods, timely observation of p

### A primer on theory-driven web scraping: Automatic extraction of big data from the Internet for use in psychological research.

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Landers, R. N., Brusso, R. C., Cavanaugh, K. J., & Collmus, A. B. (2016). A primer on theory-driven web scraping: Automatic extraction of big data from the Internet for use in psychological research. *Psychological Methods*, 21(4), 475–492. <https://doi.org/10.1037/met0000081>

The term *big data* encompasses a wide range of approaches of collecting and analyzing data in ways that were not possible before the era of modern personal computing. One approach to big data of great potential to psychologists is web scraping, which involves the automated collection of information from webpages. Although web scraping can create massive big datasets with tens of thousands of variables, it can also be used to create modestly sized, more manageable datasets with tens of variables but hundreds of thousands of cases, well within the skillset of most psychologists to analyze, in a matter of hours. In this article, we demystify web scraping methods as currently used to examine research questions of interest to psychologists. First, we introduce an approach called th

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### Web scraping for food price research

Judith Hillen ▾

British Food Journal  
ISSN: 0007-070X

Article publication date: 12 November 2019 [Reprints & Permissions](#)

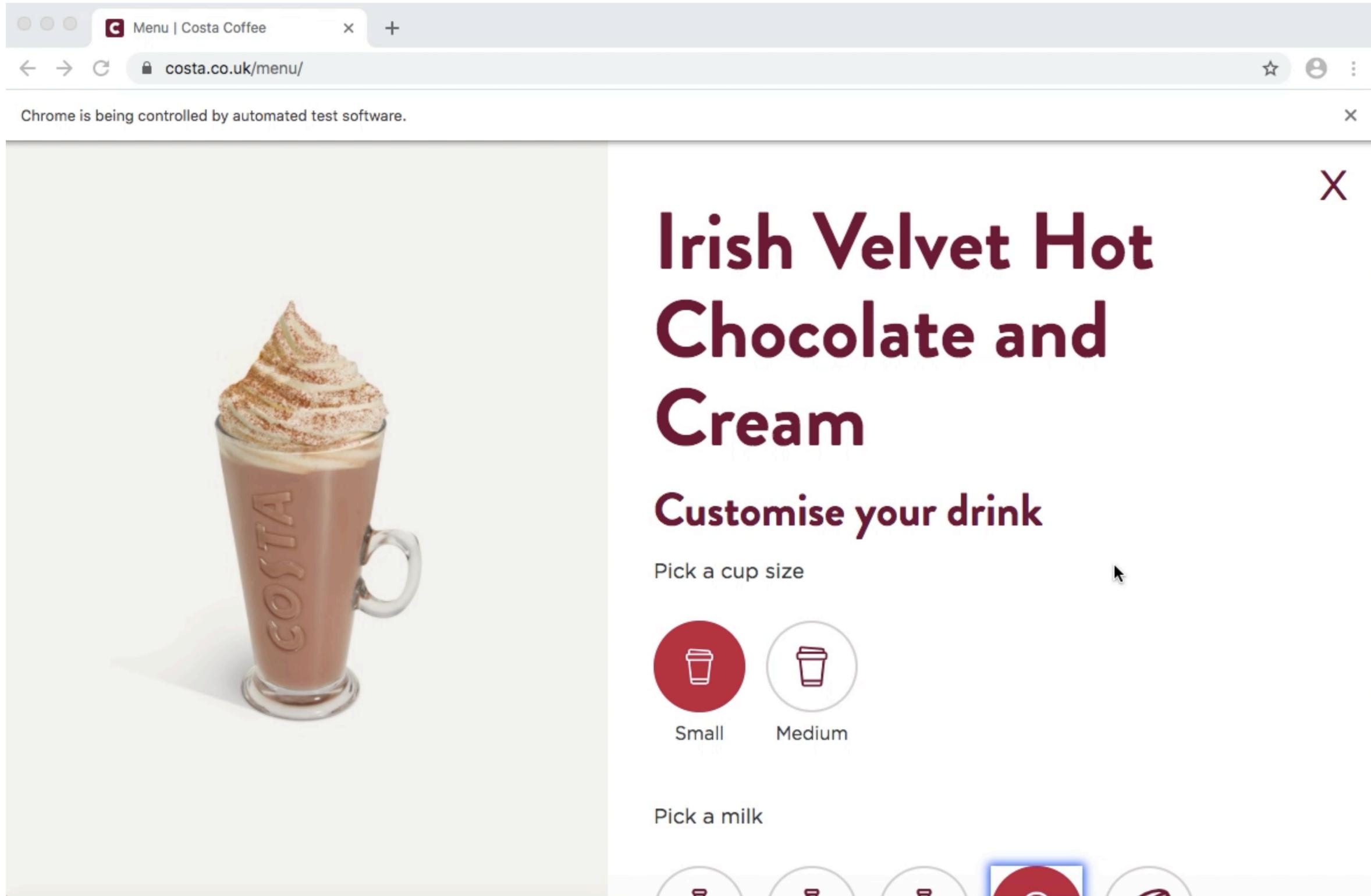
Issue publication date: 27 November 2019

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DOWNLOADS  
 410

# Web scraping

## web crawler in action



The screenshot shows a web browser window with the following elements:

- Browser Tab:** Menu | Costa Coffee
- Address Bar:** costa.co.uk/menu/
- Notification:** Chrome is being controlled by automated test software.
- Product Image:** A glass mug with 'COSTA' embossed on it, filled with a hot chocolate drink topped with whipped cream and a dusting of powder.
- Section Header:** Irish Velvet Hot Chocolate and Cream
- Text:** Customise your drink
- Form:** Pick a cup size
- Options:** Small (selected) and Medium
- Form:** Pick a milk
- Options:** Four milk options are visible at the bottom, with the first one (Whole Milk) selected.



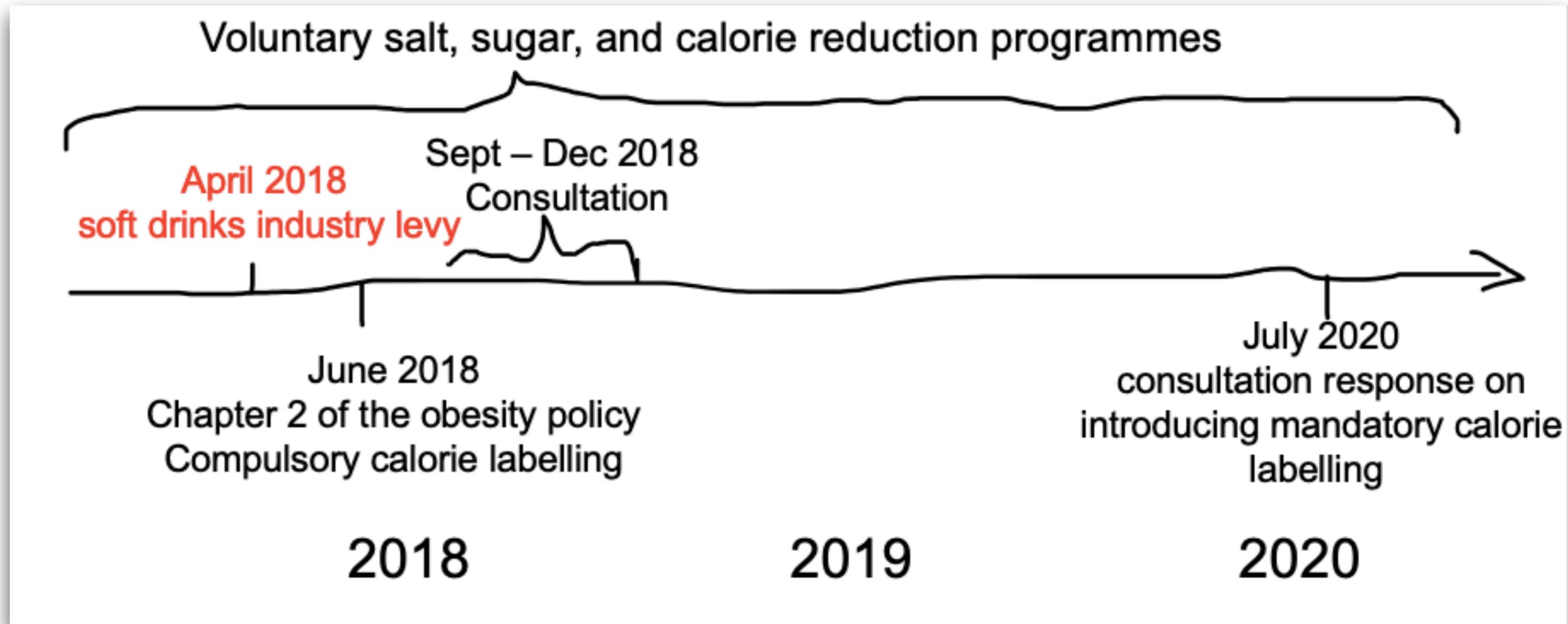
# MenuTracker database

## Data collected (quarterly)

<b>Collection</b>	<b>Month Year</b>	<b>Number of food outlets (restaurants)</b>	<b>Number of Menu Items</b>	<b>Primary sampling frame</b>
<b>Pilot Data Collection</b>	April-June 2018	42	10,782	top 100 based on volume sales
<b>Pilot Data Collection</b>	April 2019	48	13,678	over 20 outlets
<b>Pilot Data Collection</b>	October 2020	40	9,330	top 100 based on volume sales
<b>Pilot Data Collection</b>	December 2020	40	11,584	top 100 based on volume sales
<b>Quarterly Data Collection</b>	March 2021	85	18,005	Over 250 employees
<b>Quarterly Data Collection</b>	June 2021	83	19,310	Over 250 employees
<b>Quarterly Data Collection</b>	September 2021	79	19,323	Over 250 employees
<b>Quarterly Data Collection</b>	December 2021	81	19,698	Over 250 employees

# Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 -2020



# Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 -2020

## Core Items

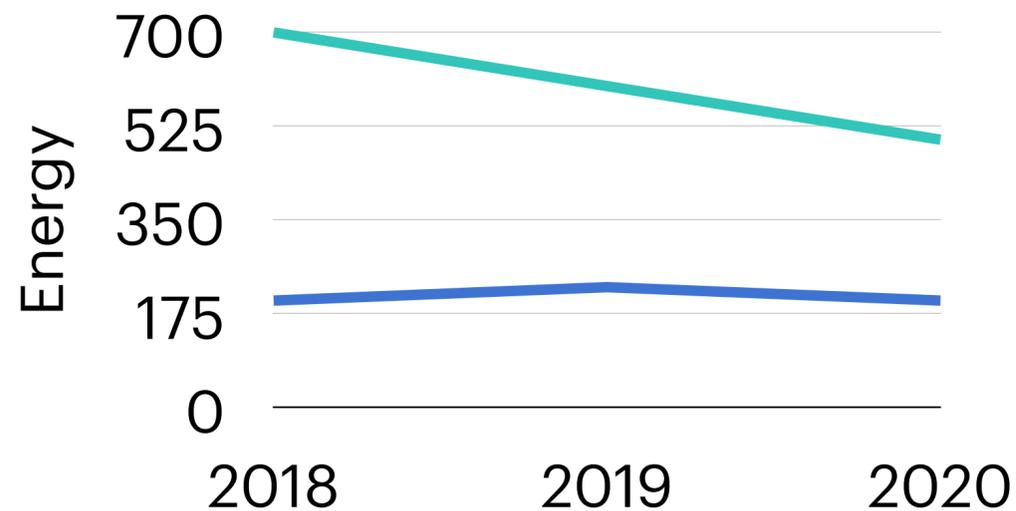
Items available in all three years



Big Mac



Quarter Pounder™ with Cheese



Newly introduced items  
reintroduced items  
removed items



McPlant



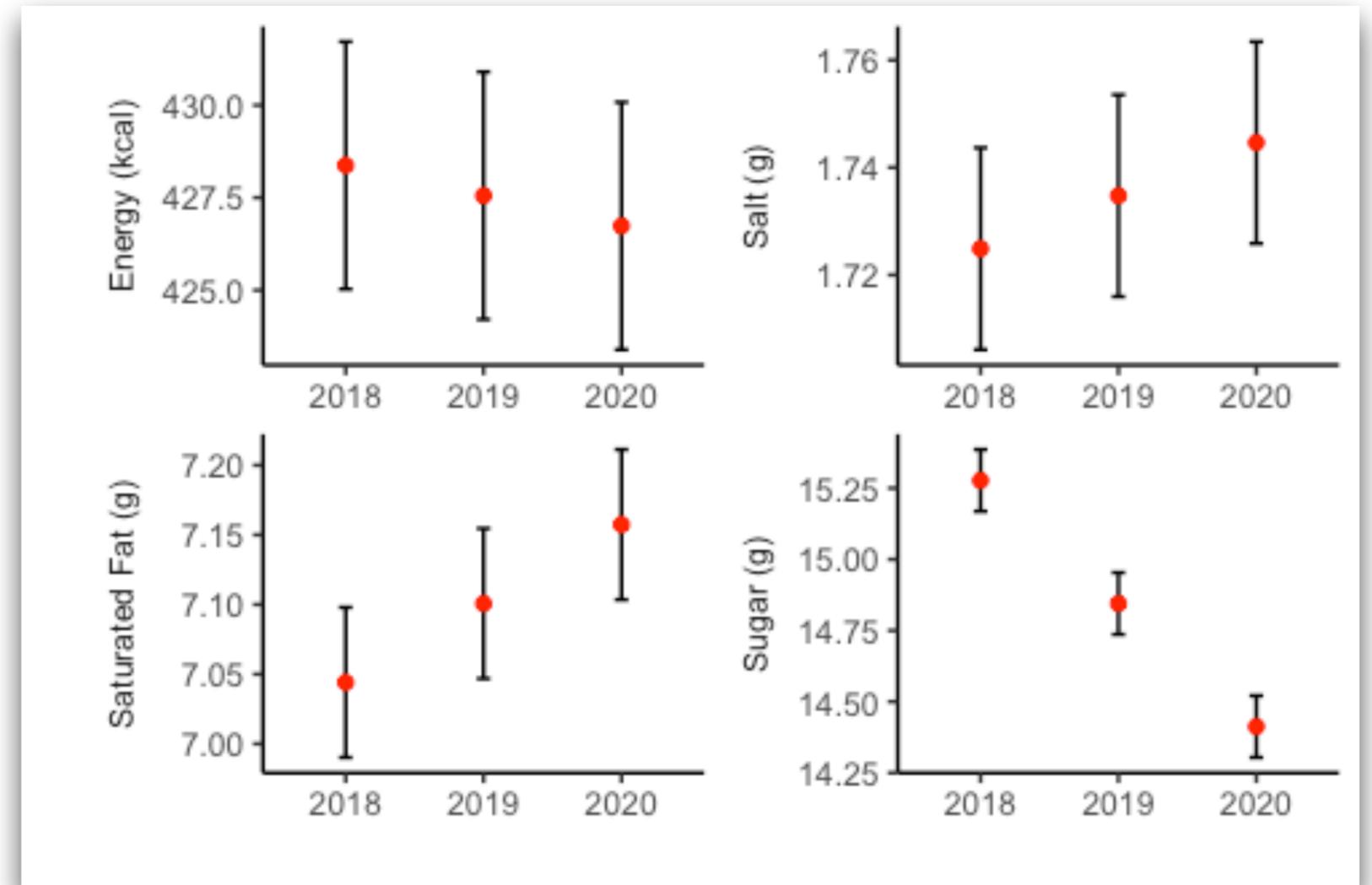
Nacho cheese wedges

	2018	2019	2020
McPlant	?	?	500
Nacho cheese wedges	?	500	?
Removed items	500	?	?

# Energy and nutrient trends

## Menu items served by large chain restaurants in the UK, 2018 -2020

- Sugar per serving reduced from **15.28 g** in 2018 to **14.41 g** in 2020 ( $p < 0.05$ ).
- We also observed a downward trend for energy, and upward trends for salt and saturated fat, but these were not statistically significant



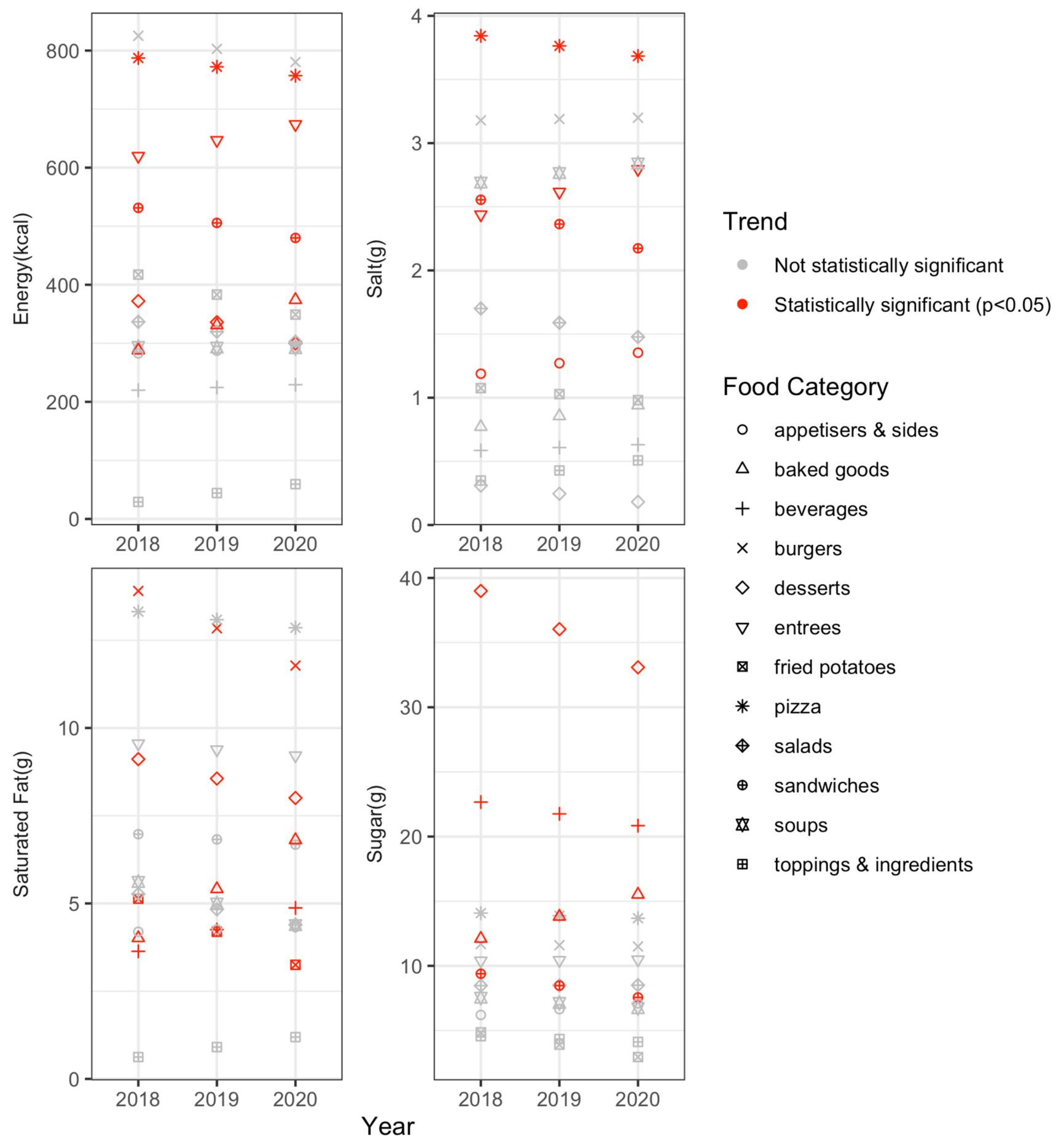
**Figure 2** Predicted mean energy (kcal), salt (g), saturated fat (g), and sugar (g) per serving by year, among all menu items. Models were adjusted for children's menu item status, shareable status, food category, and restaurant type. The 95% confidence intervals (CI) are represented by vertical bars, and the predicted mean values are represented by red dots.

# Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 -2020

*All menu items, by food category* →

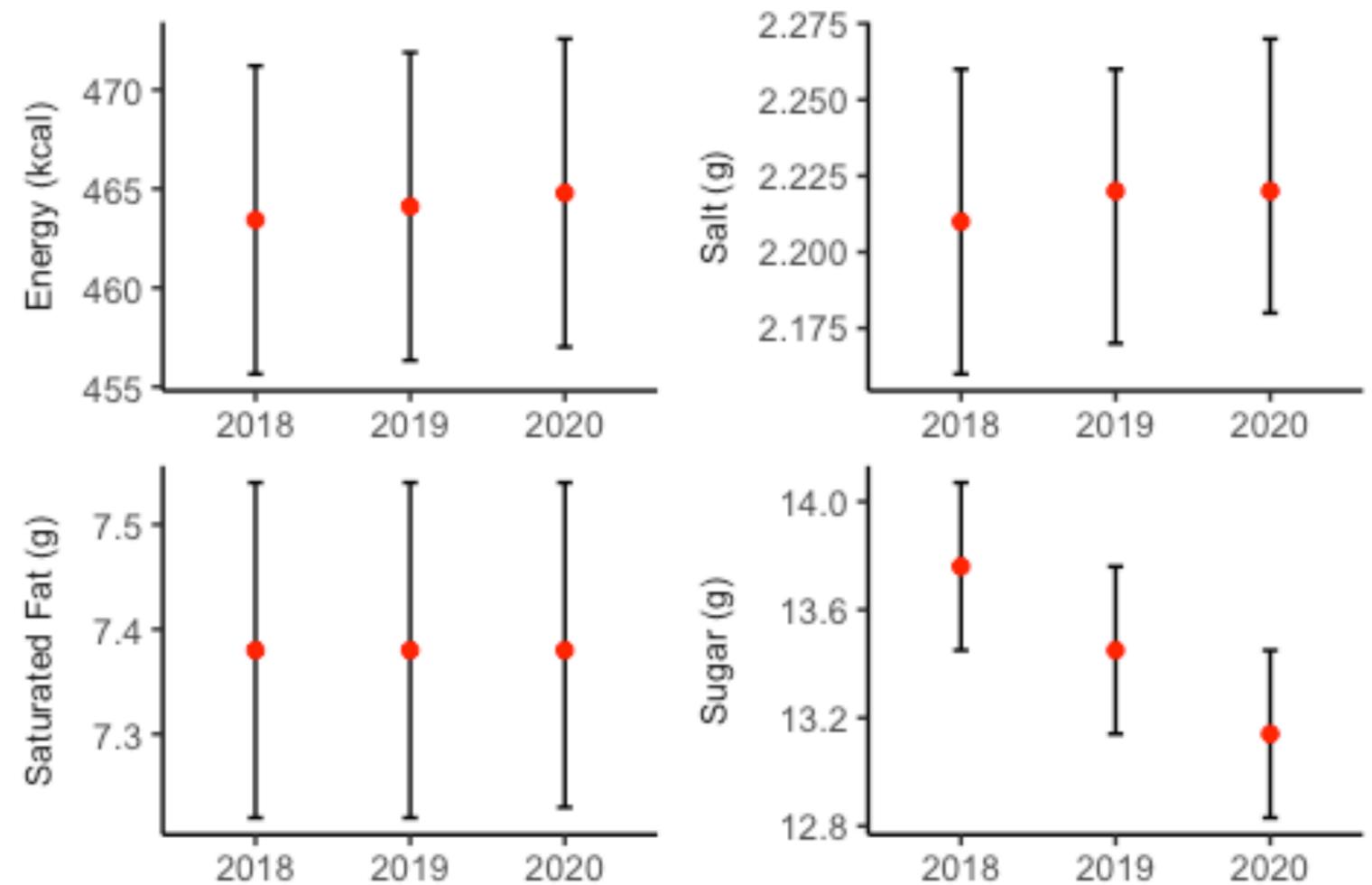
- Changes were **sporadic** and **consistent** across different food categories.
- No significant changes were observed in the nutrient content of salads, soups, and toppings & ingredients.



# Energy and nutrient trends

## Menu items served by large chain restaurants in the UK, 2018 -2020

- Sugar per serving decreased by **0.31g** per year (95% CI= -0.45, -0.17).
- There were no significant changes in salt, sugar, and saturated fat content among core items.



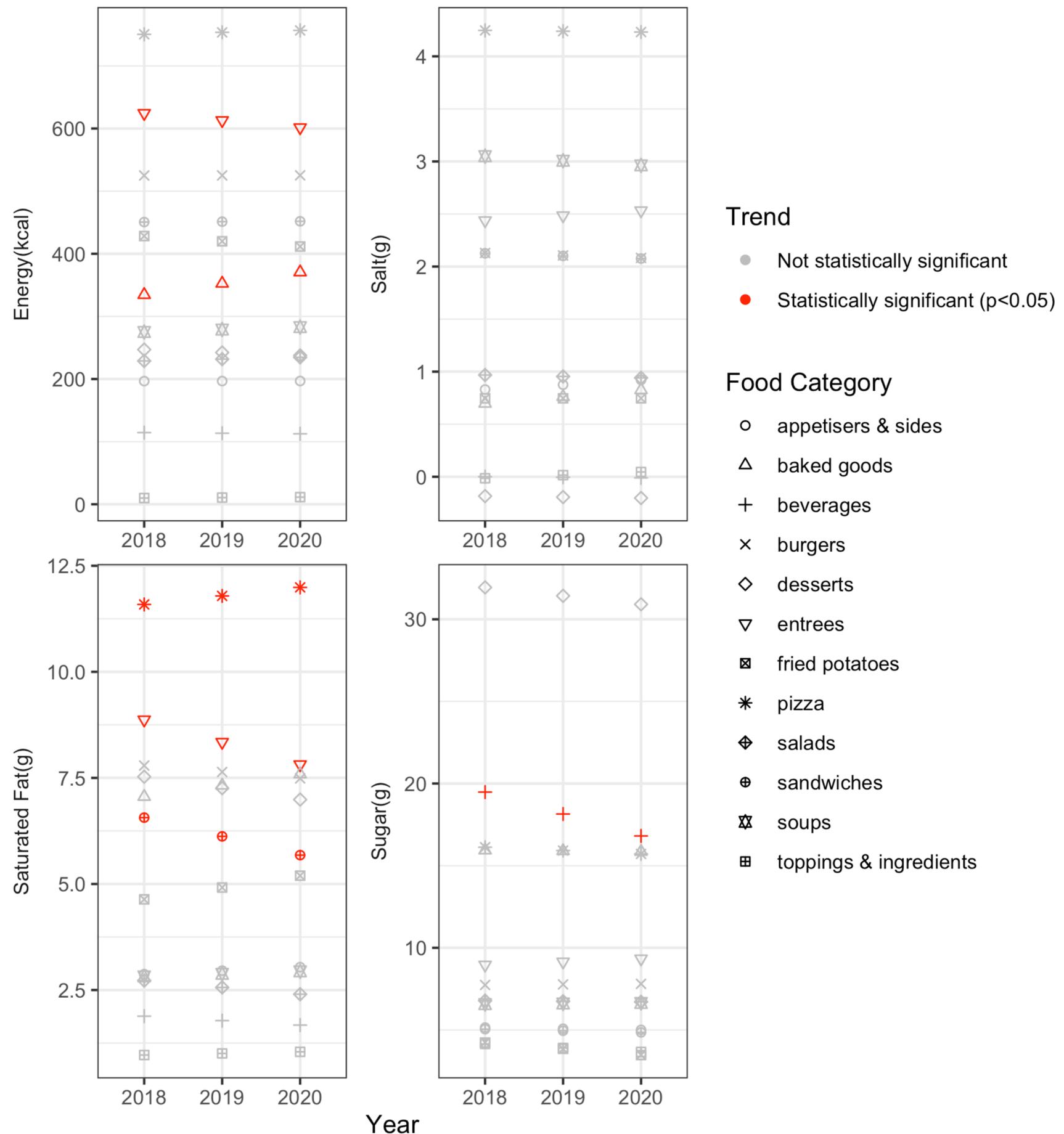
**Figure 4** Predicted mean energy (kcal), salt (g), saturated fat (g), and sugar (g) per serving by year, among core items. Models were adjusted for children's menu item status, shareable status and food category. The 95% confidence intervals (CI) are represented by vertical bars, and the predicted mean values are represented by red dots.

# Energy and nutrient trends

Menu items served by large chain restaurants in the UK, 2018 -2020

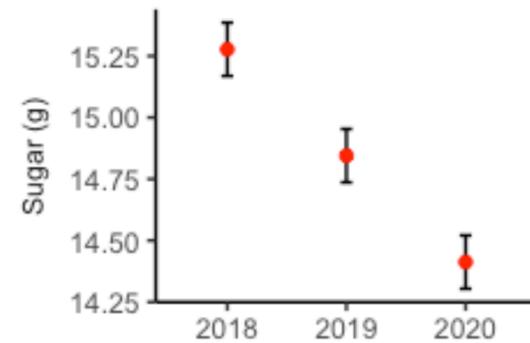
*Core items, by food category* →

- Saturated fat content of menu items decreased in sandwiches, but increased in pizzas. There was a **downward trend for sugar in beverages**, but no significant trend in salt in any food category.
- There were no significant changes in appetisers & sides, burgers, desserts, fried potatoes, salads, soups, and toppings & ingredients, among core items.

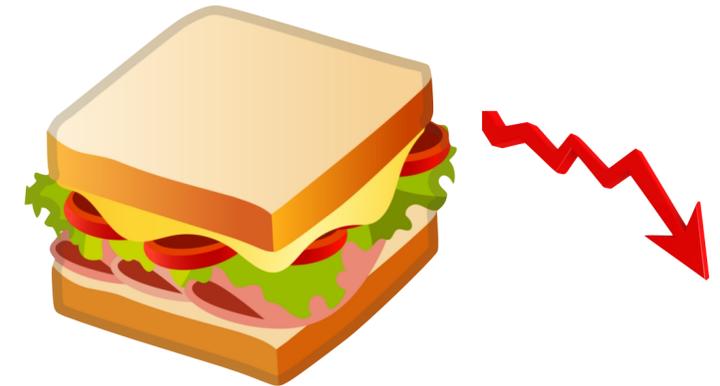


# Energy and nutrient trends

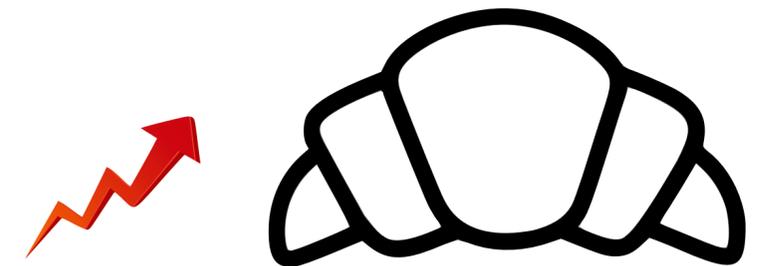
## Menu items served by large chain restaurants in the UK, 2018 -2020



Among core items, sugar per serving reduced significantly from 2018 to 2020, especially in **beverages.**



Energy, salt, and saturated fat content in menu items **remained constant overall**



Our results showed that **sugar** content of all menu items and core items declined from 2018 to 2020.

# Energy and nutrient trends

## Menu items served by large chain restaurants in the UK, 2018 -2020

- Policies focusing on **single nutrient** do not necessarily improve the **nutrient quality** of restaurant food items.
- Our results signal that **little progress** has been made towards a healthier restaurant environment by industry self-regulation between 2018 and 2020, when no mandatory policy for the out-of-home sector has been implemented. More robust policy approaches may be needed to improve the overall nutritional quality of restaurant foods.

# Acknowledgement

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