



THE BROKEN PLATE 2022

The State of the
Nation's Food System



The Food
Foundation

Examining vital signs indicating the health of our food system, how it impacts on our lives and how we must change the food environment so that it delivers healthy and sustainable diets for everyone

ABOUT THE FOOD FOUNDATION

The Food Foundation is an independent charity working to address challenges in the food system in the interests of the UK public. Working at the interface between academia and policymakers (parliamentarians, civil servants, local authorities, business leaders) we use a wide range of approaches to make change happen including events, publications, media stories, social media campaigns and multi-stakeholder partnerships. We also work directly with citizens to ensure their lived experience is reflected in our policy proposals. We work with many partners on a range of different thematic areas, working closely with academics to generate evidence and campaigners who can drive change. We are independent of all political parties and business, and we are not limited by a single issue or special interest.

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The Nuffield Foundation is an independent charitable trust with a mission to advance social well-being. It funds research that informs social policy, primarily in Education, Welfare, and Justice. It also funds student

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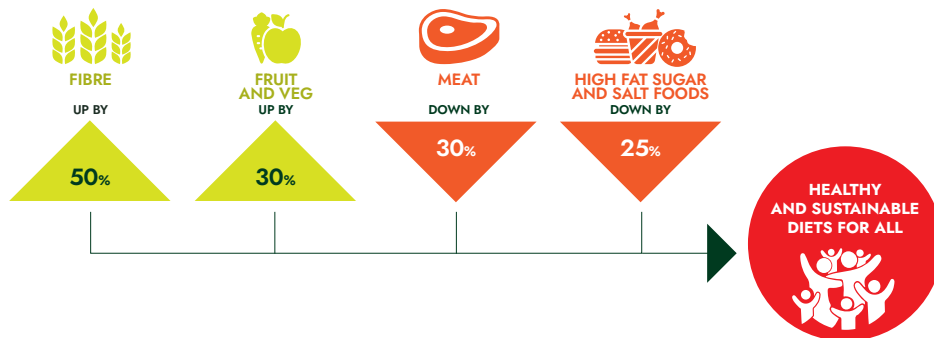
Fusion21 is a national social enterprise specialising in efficient and impactful public sector procurement and social value services. The Fusion21 Foundation was set up as a registered charity, to help build brighter futures for the communities that Fusion21 operate in. The foundation has three areas of focus: Employment and Skills; Health and Wellbeing; Financial Inclusion and Resilience. The Fusion21 Foundation has funded improvements to the methodology for assessing the 'Affordability of a Healthy Diet' metric in this report, but the views expressed are those of the authors and not necessarily of the Fusion21 Foundation.

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Introduction

The way our food system has evolved over time has made unhealthy and environmentally unsustainable foods the norm, causing unprecedented levels of obesity and diet-related disease, and making food production and consumption major drivers of climate change. But the food system can continue to evolve and can be reorientated to support diets that are healthy for us and the planet. Government, businesses, city leaders and investors have the power to make these changes happen.



The 2021 National Food Strategy for Englandⁱ identified four key areas where dietary shifts are needed to unlock a healthy and sustainable future: increased consumption of fibre, and fruit and vegetables; and decreased consumption of meat, and high fat, salt and/or sugar (HFSS) foods. So how do we achieve this shift in diets?

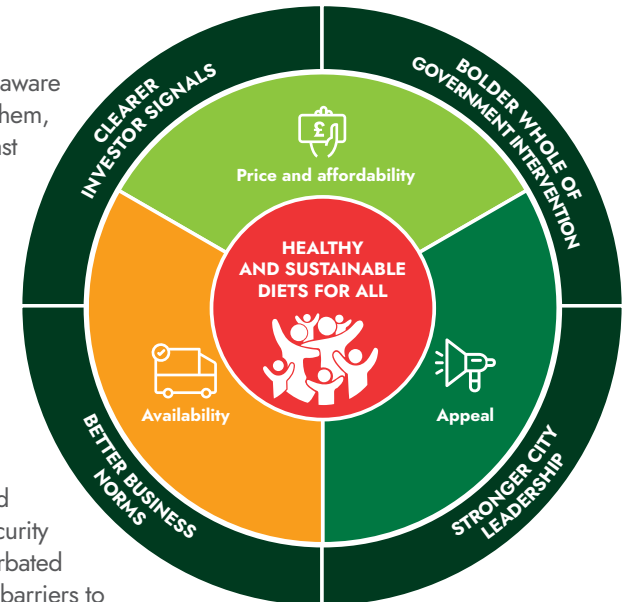
The evidence clearly shows that the environments in which we make food choices exert a powerful influence on our diets. Increasing the affordability, availability, and appeal of the foods we need to eat more of, relative to the foods we should eat less of, is critical to helping people shift their diets to benefit their own health, as well as the health of the planet.

Nutritional knowledge and cooking skills can also be important drivers of food choice. However, evidence indicates that food education does not on its own facilitate people to

have healthy diets. Almost everyone is aware that fruit and vegetables are good for them, and that sugary and salty snacks and fast food aren't — and yet, as a nation we continue to eat in a way that is not conducive to good health. People are often quick to unfairly blame themselves for making the 'wrong' choices without taking into account that the system is set against them choosing the healthy option.

People on low incomes have lower quality diets, higher rates of diet-related disease and higher levels of food insecurity — an issue that has been greatly exacerbated by the cost-of-living crisis. Many of the barriers to healthy diets are greater for people on lower incomes and the food system exacerbates these inequalities. Shifting the drivers of dietary choice in favour of healthier foods has the potential to reduce these barriers and make healthy and sustainable diets the default and the easiest for everyone — including those on a low income.

This year's *Broken Plate* report assesses ten key metrics which provide an indication of the state of our food system and the food environment. The metrics are organised according to the three key drivers of dietary choice outlined above — affordability, availability and appeal. These are the key areas in which change is needed if we are to make it easy for everyone to eat well. Policy interventions in these areas are summarised to provide insight into whether there is adequate policy in place to drive progress. Lastly, six outcome metrics are assessed to reflect the impact that the food system is currently having on our health and the environment, and the impact that it will continue to have in the future if nothing changes.



At a glance

FOOD ENVIRONMENT METRICS

PRICE AND AFFORDABILITY



Affordability of a healthy diet P8

The poorest fifth of UK households would need to spend 47% of their disposable income on food to meet the cost of the Government-recommended healthy diet. This compares to just 11% for the richest fifth.

What needs to happen: Ensure everyone has sufficient income to afford to eat a healthy diet.



Wages in the food system P10

22% of workers in the food system earn the National Minimum Wage or below, compared to 8% of workers across the whole UK economy.

What needs to happen: Pay all workers in the food system a wage that allows them to meet their everyday needs.



Cost of healthy food P12

More healthy foods are nearly three times as expensive per calorie as less healthy foods.

What needs to happen: Rebalance the cost of food so healthy options are the most affordable.



Cost of sustainable alternatives P14

More sustainable plant-based alternatives are approximately 60% more expensive than dairy milk.

What needs to happen: Ensure that price isn't a barrier to choosing sustainable options, including for people on low incomes.

AVAILABILITY



Monitoring of food in schools P18

25% of state schools in England and 47% of state schools in Scotland are known to be meeting school food nutritional requirements (compliance in the rest is unknown).

What needs to happen: Monitor compliance with school food requirements to ensure that all children can access a nutritious school lunch.



Places to buy food on the high street P20

More than 1 in 4 (26%) places to buy food are fast food outlets.

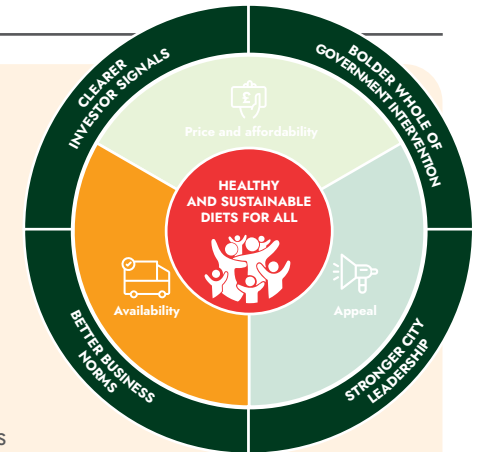
What needs to happen: Use local authority planning powers to prevent further proliferation of unhealthy fast-food outlets.



Sustainability of convenience food in high street retail settings P22

71% of sandwiches from high street retailers contain meat or fish, with no significant improvement in the past three years.

What needs to happen: Make more sustainable convenience foods the more readily available option.



FOOD ENVIRONMENT METRICS

**Business reporting on healthy and sustainable food sales P24**

Just 1 major UK food retailer, caterer or restaurant chain currently reports publicly on sales of healthy foods, vegetables, and animal vs plant-based proteins.

What needs to happen: Require food businesses to report publicly on the proportion of food they sell that is healthy and sustainable.

**Sugar in children's food in retail settings P26**

Only 7% of breakfast cereals and 4% of yogurts marketed to children are low in sugar.

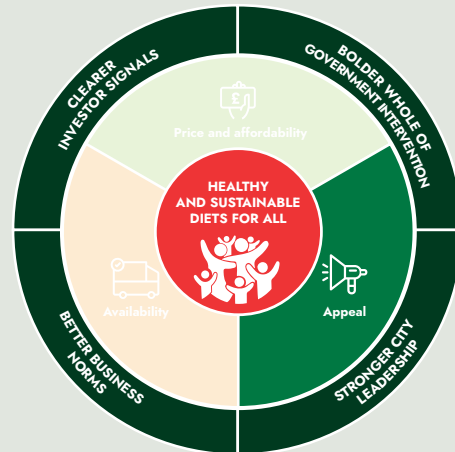
What needs to happen: Reformulate products with too much sugar and stop marketing unhealthy food to children.

APPEAL

**Advertising spend P30**

Approximately a third (32%) of food and soft drink advertising spend goes towards less healthy food and drink, compared to just 1% for fruit and vegetables.

What needs to happen: Address the imbalance in advertising spend between more healthy and less healthy foods



OUTCOME METRICS

HEALTH AND ENVIRONMENTAL OUTCOMES

**Children's weight P34**

The percentage of children with obesity in their first year of school has risen by nearly 50% in one year, affecting twice as many children in the most deprived fifth compared with the least deprived fifth.

**Children's growth P35**

Children in the most deprived tenth of the population are on average over 1cm shorter than children in the least deprived tenth by Year 6 (age 10–11).

**Diabetes-related amputations P36**

Nearly 10,000 diabetes-related amputations are carried out on average per year, an increase of 23% in five years.

**Healthy life expectancy P38**

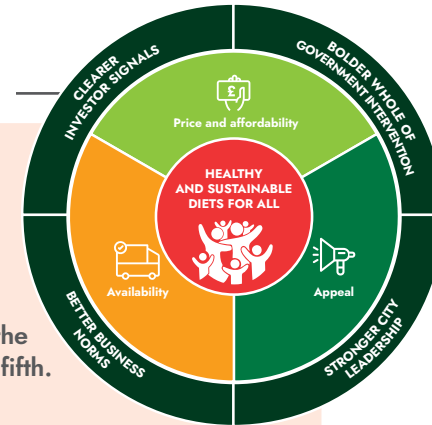
Healthy life expectancy in the most deprived tenth of the population is 20 years less for women and 18 years less for men than in the least deprived tenth.

**Children's health trajectory P39**

If current trends continue then, amongst children born this year, 1 in 4 will suffer overweight or obesity by the time they start school, rising to 3 in 4 by age 65.

**Climate change impact of food P41**

If things continue as they are, by 2050 emissions from the food system will be four times higher than the level that is needed if the UK is to meet its net zero target.





FOOD ENVIRONMENT METRICS

Price and Affordability

This section looks at four key metrics on price and affordability:



P8 Affordability of a healthy diet



P12 Cost of healthy food



P10 Wages in the food system



P14 Cost of sustainable alternatives

Price and affordability are major determinants of the food people choose to purchase, particularly for people on low incomes. A healthy and sustainable diet is simply out of reach financially for many people; even for people on slightly higher incomes, it can be a less appealing as it is the more expensive option.

Food prices have risen substantially this year, driven by domestic and global factors including labour shortages and increased input costs (most significantly fuel and fertiliser)ⁱⁱ. As a result, the cost of people's weekly food shop has been creeping up and up.

The ability to afford food is not only affected by food prices, but also by the amount of income families have and the costs of other essentials. Even before the cost-of-living crisis, the affordability of food was for many families a barrier to accessing sufficient quality and quantity of food. Over the past year, inflation levels have soared, but benefit and wage levels have not kept up. Families have had to spend more on housing, energy and other essentials, putting further pressure on their food budgets. Not only does this mean many people can't afford enough food and are forced to go hungry at times, but it also means people are more likely to switch to cheaper calories that are less nutritious, further escalating the obesity crisis and risk of dietary diseaseⁱⁱⁱ. This year, food insecurity levels have increased dramatically, with over 7 million adults living in households reporting food insecurity in April^{iv}. Ironically, people working in the food system are often some of the least well paid, with nearly half of workers in the food system reporting food insecurity.

To make it possible for everyone to eat well, the balance of prices needs to shift so that healthy, sustainable foods are the most affordable and within everyone's means. Additionally, minimum wage and benefits levels should take into account the cost of eating a healthy, sustainable diet.



“Our council flat has pay-as-you-go gas and electric. I like cooking and my daughter loves the meals I make, but unfortunately cooking a healthy meal from scratch costs a lot more in gas than the electric it takes to just zap something in the microwave.”

DOMINIC WATERS, FOOD FOUNDATION AMBASSADOR @SingleDadSW



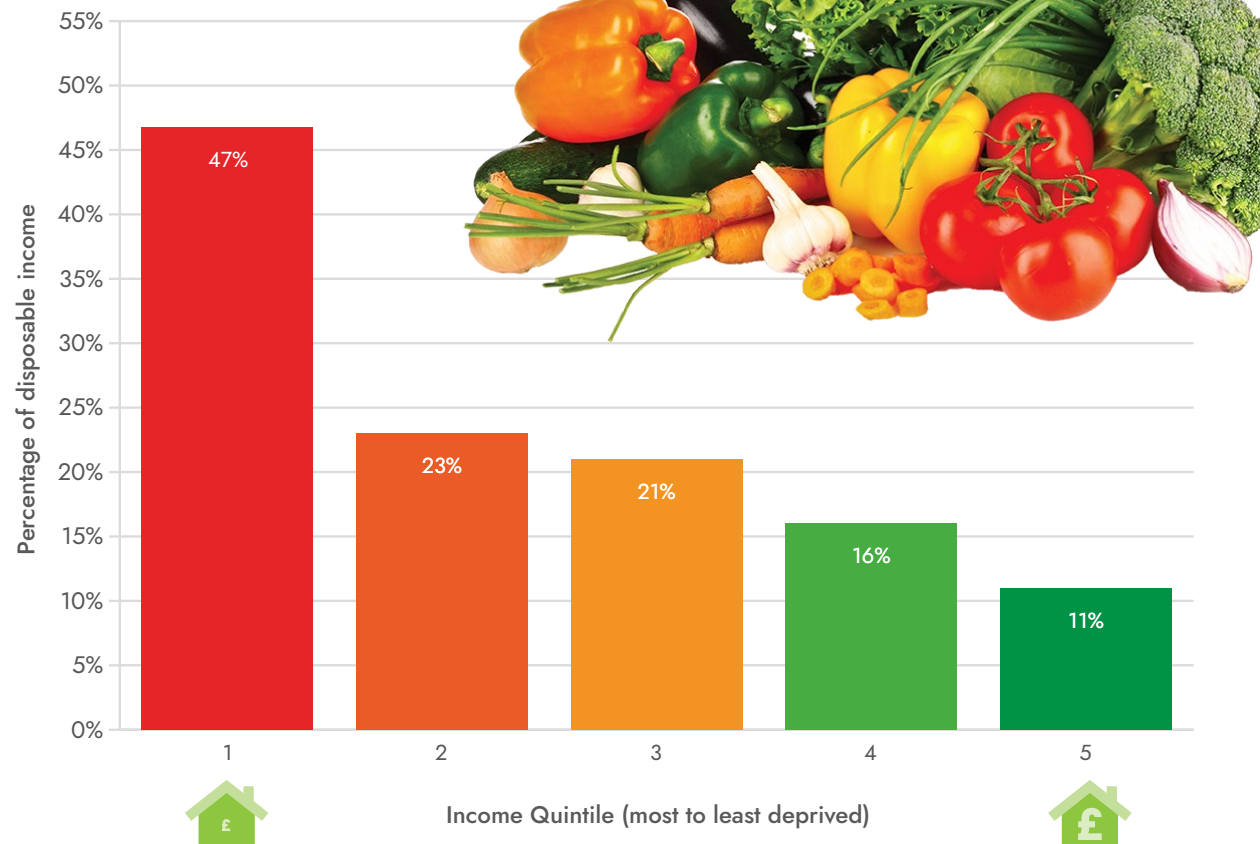
Affordability of a healthy diet



The poorest fifth of UK households would need to spend **47%** of their disposable income on food to meet the cost of the Government-recommended healthy diet. This compares to just **11%** for the richest fifth.



Percentage of disposable income required to afford the Eatwell Guide by income quintile



Source: FoodDB, University of Oxford; London School of Hygiene & Tropical Medicine secondary analysis of the Family Resources Survey 2020-21.

WHAT'S HAPPENING?

The Eatwell Guide is the Government's official guidance setting out the types of foods and the proportion of those foods people should eat to have a healthy, nutritious diet. Analysis shows the poorest fifth of households would need to spend an unrealistic 47% of their disposable income (after housing costs) on food in order to eat according to the Eatwell Guidelines. This is over twice as high a proportion of disposable income as the second most deprived fifth (who would have to spend 23% of their disposable income) and more than four times as high as the least deprived fifth (11%). The data show that a healthy diet remains out of reach for many and is much harder for the poorest in society to afford.

In recent months, food price inflation (and inflation in other areas of household spending) has made it

increasingly difficult for low income households to afford a healthy diet. Food prices rose by 8.6% in the 12 months to May 2022, and overall inflation for the same period is now sitting at 9.1%^v. Food price rises are expected to continue in the latter part of the year, driven by labour and supply chain pressures caused by the Ukraine war, Covid-19, Brexit and long-term issues such as climate change^{vi}. This will continue to put a healthy diet ever further out of reach for those in the poorest households.

WHAT NEEDS TO HAPPEN:

Ensure everyone has sufficient income to afford to eat a healthy diet

Please note: This year we have updated our methodology for this metric and it is not directly comparable to previous years. The cost of the Eatwell Guide was calculated based on October 2019 price data and updated to account for inflation to April 2022. The amount of disposable income per quintile is based on 2020/21 data from the Government's Households Below Average Income dataset (the most recent available at the time of writing).

IS POLICY SUPPORTING PROGRESS?



To enable everyone to eat well, incomes (both from wages and benefits) need to be set at a level that accounts for the cost of healthy, sustainable food. Currently, the assessments used when setting both minimum wage and benefits levels fail to account for this cost. During the Covid-19 pandemic, the Government introduced a £20 weekly 'uplift' to Universal Credit. During this period, food insecurity rates among benefits recipients fell significantly^{vii}, but the uplift was subsequently removed in Autumn 2021. In May 2022, the Government committed to supporting people with the cost-of-living crisis with a £650 one-off payment to those in receipt of benefits, as well as a £400 per household payment to support with energy bills – this is welcome, but will not be sufficient to counter the overall inadequacy of benefits rates. The Government's recent Food Strategy recognised the importance of healthy and sustainable diets being accessible for all, but did not announce any additional measures to support households with incomes or food access.

With thanks to the Fusion21 Foundation for funding the analysis to update the methodology for this metric

FUSION²¹



"I've been in receipt of Free School Meal vouchers for my amazing daughter ever since Marcus Rashford did his thing. But what you could get for £3 prior to Covid is considerably more food than what £3 gets you now. This needs addressing ASAP and the amount allocated for each child should be raised to reflect the cost-of-living crisis."

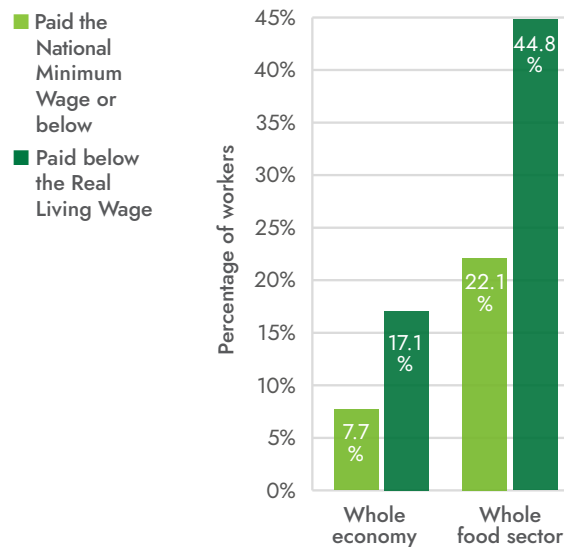
DOMINIC WATTERS, FOOD FOUNDATION AMBASSADOR @SingleDadSW

Wages in the food system



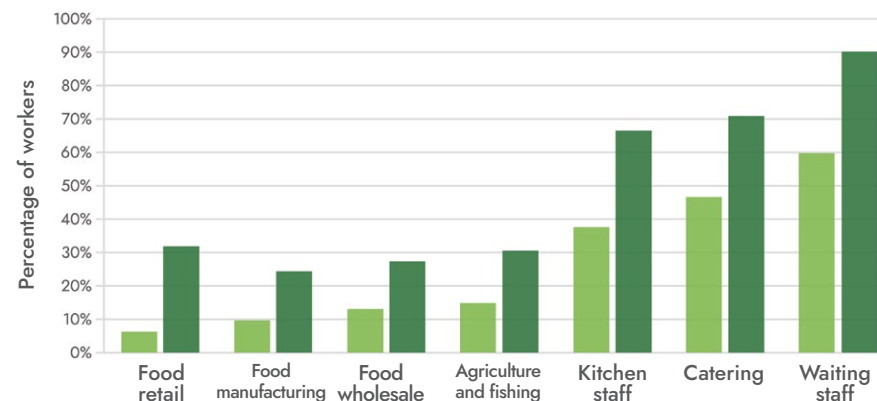
22% of workers in the food system earn the National Minimum Wage or below, compared to **8%** of workers across the whole UK economy.

Percentage of workers paid at or below the National Minimum Wage and below the Real Living Wage by sector

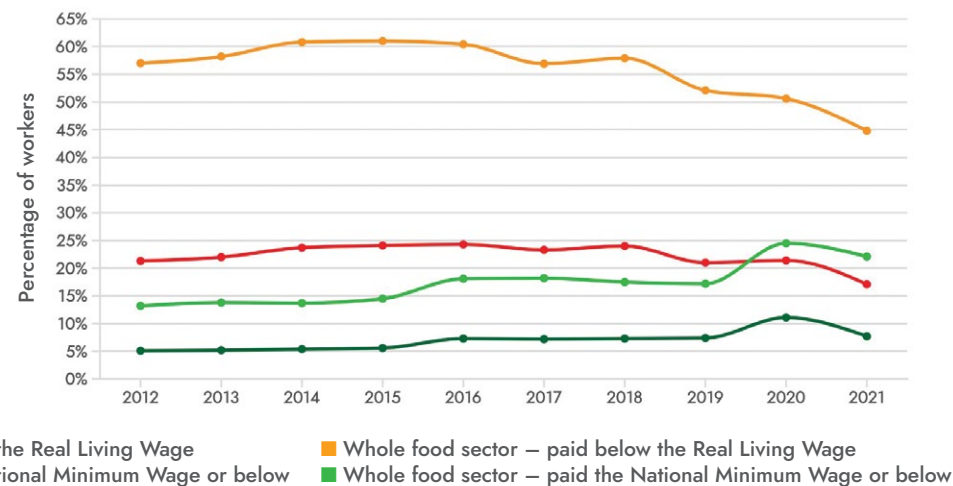


Percentage of workers paid at or below the National Minimum Wage and below the Real Living Wage in the food sector

■ Paid the National Minimum Wage or below
■ Paid below the Real Living Wage



Percentage of workers paid at or below the National Minimum Wage and below the Real Living Wage in the food sector



Source: Resolution Foundation analysis of Annual Survey of Hours and Earnings 2012–2021, Office for National Statistics.

WHAT'S HAPPENING?

The proportion of people on low pay within the food sector remains substantially elevated compared to the wider economy, with the situation particularly acute for kitchen, catering and waiting staff. In 2021, 22% of workers in the food system earned the National Minimum Wage or below, compared to 8% of workers across the whole UK economy. The National Minimum Wage set by Government is the minimum amount businesses in the UK are legally required to pay workers – rates vary based on age, with workers not entitled to the full adult rate until age 23. In the analysis presented here the relevant age-specific minimum wage has been applied.

The impact of the Covid-19 pandemic can be clearly seen in the data. The jump in the proportion of workers paid the minimum wage or below in 2020 & 2021 was driven by some workers receiving lower pay while on furlough, with a particularly steep increase seen in the number of workers paid the minimum wage or below among food sector workers. In 2021, the proportion of workers paid the minimum wage or below has dropped almost back to pre-pandemic levels in the economy as a whole, but in the food sector remains 5 percentage points higher than in 2019 (22.1% in 2021 compared with 17.2% in 2019). This suggests that wages in the food sector have not recovered as quickly as wages in the wider economy.

More encouragingly, the proportion of workers in the food sector paid below the Real Living Wage has continued to fall in 2021 (from 50.6% in 2020, to 44.8% in 2021), and the gap on this measure between the food sector and the wider economy has slightly narrowed. The Real Living Wage is the minimum pay recommended by the Living Wage Foundation, based on the cost of living. It is therefore preferable to the Government-mandated National Minimum Wage which is significantly lower.

In the middle of a severe cost-of-living crisis, with the prices of basic essentials seeing rapid price inflation, more businesses should be paying their workers at least the Real Living Wage, particularly those businesses that suffered less during the pandemic such as food retail.

IS POLICY SUPPORTING PROGRESS?



The Government is aiming for the National Living Wage (for workers over the age of 23) to reach two-thirds of median earnings by 2024. The Low Pay Commission makes recommendations for the level at which the National Living Wage should be updated each year in order to reach this goal. In 2022, the National Living Wage was increased by 6.6% to £9.50 per hour. In addition, the National Minimum Wage (for workers age 21 and over) was increased by 9.8% to £9.18 per hour

(the higher increase for the National Minimum Wage results in a narrowing of the gap between the two rates – the ambition being to align the two rates by 2024). There is no higher weighting for London despite the cost of living being higher in London than in many other areas in the UK. Both rates remain below the Real Living Wage as calculated by the Living Wage Foundation, which is currently set at £9.90 per hour nationally and £11.05 in London, and is applicable to all workers over the age of 18.

WHAT NEEDS TO HAPPEN:

Pay all workers in the food system a wage that allows them to meet their everyday needs.



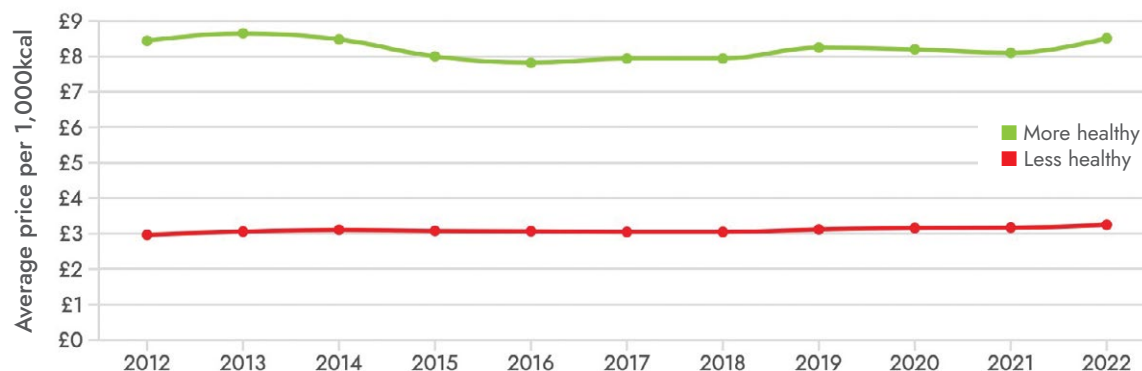
Cost of healthy food



More healthy foods are nearly **three times** as expensive per calorie as less healthy foods.

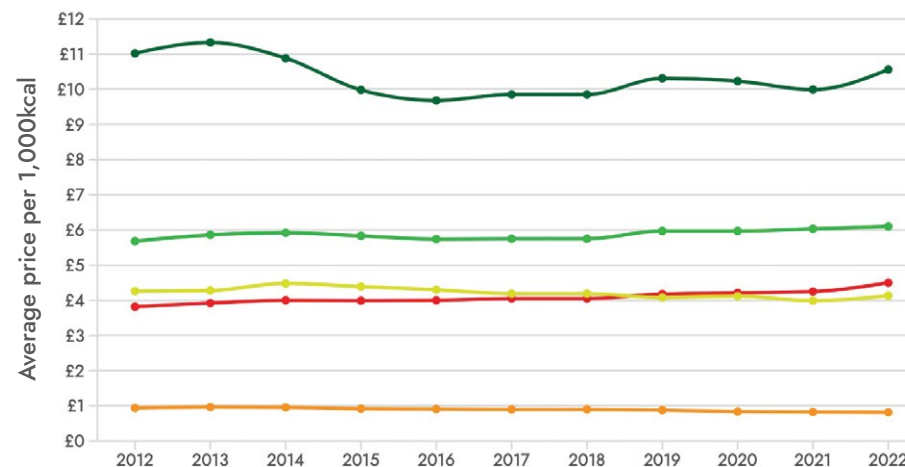


Average price of food and drink by Nutrient Profile Modelling score category



Average price of food and drink by Eatwell Guide food category

- Fruit and vegetables
- Meat, fish, eggs, beans, other sources of non-dairy protein
- Milk and dairy foods
- High in fat and/or sugar food and drinks
- Bread, rice, potatoes, pasta



Source: MRC Epidemiology Unit (University of Cambridge) analysis of the Consumer Price Index (CPI) average retail price food indices (2012–2022), Office for National Statistics.

WHAT'S HAPPENING?

In 2022, the cost of healthier foods per calorie continues to be markedly higher than unhealthy foods. The average cost of more healthy foods per 1,000kcal is £8.51, compared to £3.25 for less healthy foods*. Furthermore, from 2021 to 2022, more healthy foods have increased in price by twice as much as less healthy foods (5.1% vs 2.5%).



Breaking it down into the categories in the Eatwell Guide (the Government-recommended healthy diet) tells a similar story. Fruit and vegetables are the most expensive Eatwell Guide food category by a significant margin, costing on average £10.56 per 1,000kcal. In comparison, foods high in fat, sugar and/or salt (HFSS) are considerably cheaper, costing on average just £4.50 per 1,000kcal.

These prices do not take into consideration promotions, which are disproportionately applied to less healthy foods, making the discrepancy even greater.

This difference in the price of healthy foods relative to less healthy foods demonstrated here disincentivises people from buying healthy options. If there is going to be a shift in the quality of diets, the healthier option needs to be the most affordable.

**as defined by the Government's Nutrient Profile Model – foods are categorised as more or less healthy depending on the levels of energy, saturated fat, sugar, salt (higher content is less healthy); and fruit, veg and nuts, fibre and protein (higher content is more healthy).*

IS POLICY SUPPORTING PROGRESS?



The Government was planning to restrict volume-based promotions (e.g. multi-buys and buy-one-get-one-free offers) on foods high in fat, sugar and/or salt (HFSS) from October 2022, but implementation of these restrictions has recently been delayed by 12 months, supposedly due to the cost-of-living crisis. However, these offers do not save customers money – they drive impulse purchasing, causing people to spend an additional 22% per household on food and drink on average^{viii}. Other policies that the Government has introduced in recent years which could help to start rebalancing food prices include, for example, the 2018 sugary drinks levy (set at 24p per litre of drink containing more than 8g of sugar per 100ml, and 18p per litre of drink containing 5–8g of sugar per 100ml). In its recent Food Strategy, the Government stated their ambition to increase the proportion of healthy food sold in the UK, but did not specify how they would drive or measure progress.

WHAT NEEDS TO HAPPEN:

Rebalance the cost of food so healthy options are the most affordable



“Although there is a popular narrative telling us we should take personal responsibility for our diets and the foods we consume, I find this is becoming increasingly impossible. The exorbitant costs of healthy foods, when taken in comparison to processed products with less nutritional value, means choices are being stripped away from families. Processed foods, high in fat, salt and sugar, are more than fifty percent cheaper than fruit and vegetables, leaving many parents unable to access a healthy diet for their families.” KATHLEEN KERRIDGE, FOOD FOUNDATION AMBASSADOR

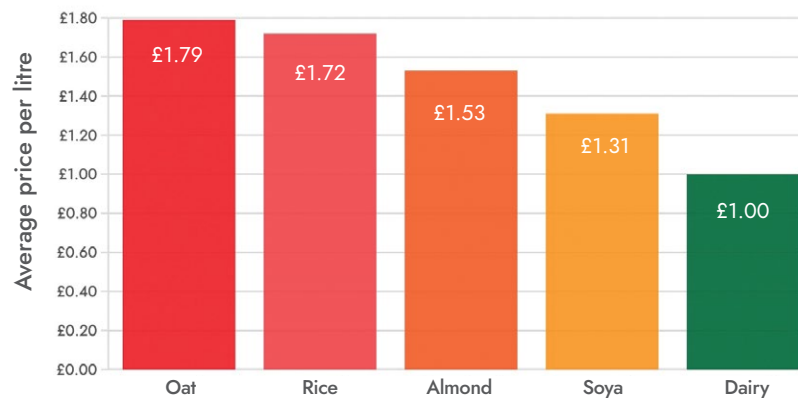
Cost of sustainable alternatives



More sustainable alternative milks are approximately **60%** more expensive than dairy milk.



Average price of dairy milk and plant-based alternatives

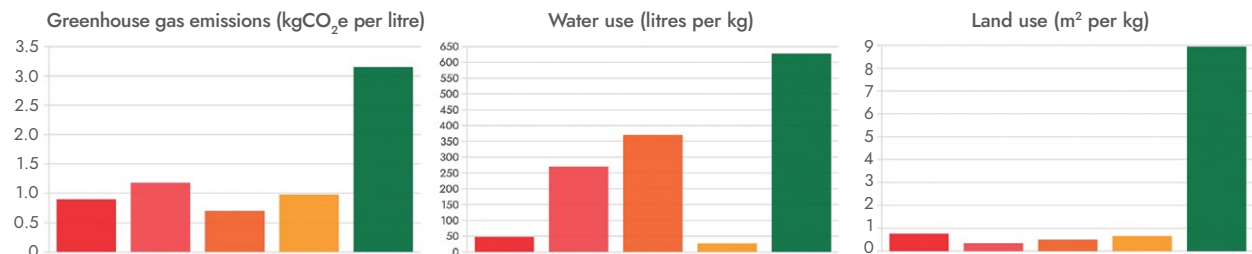


Source: Data collected from Aldi, Tesco and Waitrose (May 2022) and analysed by the London School of Hygiene & Tropical Medicine. Dairy milk prices per litre is for 2 pint bottles of semi-skimmed cows milk.



Environmental impact of dairy milk and plant-based alternatives

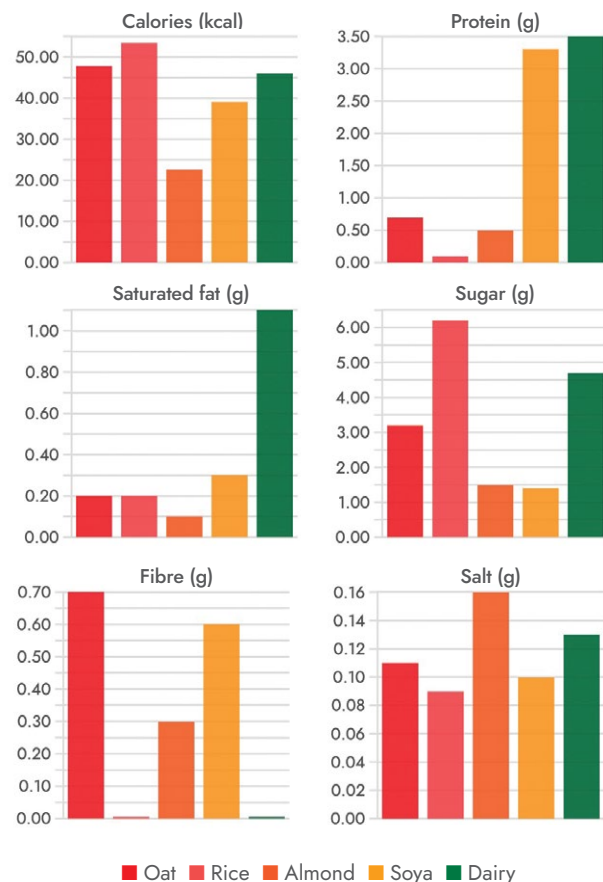
■ Oat ■ Rice ■ Almond ■ Soya ■ Dairy



Sources: Our World in Data: Environmental Impacts of Food Production^{ix}.

P15 – Data collected from Aldi, Tesco and Waitrose (May 2022) and analysed by the London School of Hygiene and Tropical Medicine. Dairy milk prices per litre is for 2 pint bottles of semi-skimmed cows milk.

Average macronutrient content per 100ml of dairy milk and plant-based alternatives



WHAT'S HAPPENING?

Dairy milk alternatives can be more sustainable options that are less damaging to the environment and contribute less to climate change. For this reason, they have gained popularity in recent years as people try to shift to more sustainable diets. However, the price of these alternatives in comparison to dairy milk could be a barrier to people purchasing them.

Plant-based alternatives are more expensive than dairy milk. Oat and rice are the most expensive alternatives at £1.79 and £1.72 per litre respectively. Soya is more affordable at £1.31 per litre. By contrast dairy milk is just £1.00 per litre on average (based on cows milk sold in 2 pints).

However, it is important to note that the nutritional content and environmental impact of plant-based alternatives is a complicated picture. Dairy milk is worse for the environment, with higher greenhouse gas emissions, water use and land use than the alternatives. However, which dairy alternative is preferable from an environmental perspective is more debatable.

Almond has the lowest greenhouse gas emissions but substantially higher water use than the other alternatives. Rice has the smallest land use but the highest greenhouse gas emissions and high water use.

It is also important to take the nutritional content into consideration when considering the value of milks. With the exception of soya, plant-based alternatives are much lower in protein than dairy milk, although it's worth noting very few people in the UK are deficient in protein so this may not be a major concern. Saturated fat is notably lower in all the plant-based alternatives than in dairy. Sugar content varies across the milks (and in some cases is naturally occurring sugar).

Some plant-based alternatives have added vitamins and minerals that naturally occur in dairy milk. Where plant-based alternatives are fortified, they largely match dairy's content of calcium, iodine and vitamin B2. They tend to be lower in B12, which vegans can be deficient in and can lead to anaemia. However, a large proportion of plant-based alternatives are not fortified, increasing the risk of micronutrient deficiencies. Interestingly, branded plant-based alternatives are less likely to be fortified than supermarkets' own-brand plant-based alternatives.

Price shouldn't be a barrier to people switching to more sustainable foods and drinks. If people are going to transition to more sustainable diets, then those options need to be the most affordable and convenient option for everyone, and need to ensure adequate nutrition can still be achieved.

IS POLICY SUPPORTING PROGRESS?



The Government has invested £18 million through the Strength in Places Fund in the 'Growing Kent and Medway' research/innovation project, which aims to develop Kent and Medway as the UK's leading region for climate-smart food production and processing. However, much greater ambition is needed to ensure that sustainable options are the most affordable for everyone.

WHAT NEEDS TO HAPPEN:

Ensure that price isn't a barrier to choosing sustainable options, including for people on low incomes.



Availability

This section looks at five key metrics which assess the availability of healthy and sustainable food and drink across different settings:



P18 Quality of food in schools



P20 Places to buy food on the high street



P22 Sustainability of convenience food in high street retail settings



P24 Business reporting on healthy and sustainable food sales



P26 Sugar in children's food in retail settings

Availability of food is another key dietary driver of food choice. The ease with which people can access healthy and sustainable foods are important factors in determining what they eat. For example, if there is a plate of biscuits on the table during a meeting, people are much more likely to eat one. This matters in all of the settings where people spend time eating or buying food: on high streets, in restaurants, takeaway outlets, in school canteens, and in supermarkets.

Local food environments vary across the country. Where people live can significantly affect their level of access to healthy food whether because they are in a rural environment or because they are in an area that is densely packed with takeaways but no outlets selling fresh food. The Government's levelling up agenda aims to reduce geographical inequalities, and access to healthy food should be a critical part of that agenda.

People are understandably more likely to eat food which is convenient and readily available. Many products we routinely see on supermarket shelves and menus in restaurants, cafes and takeaways are too high in fat, salt and/or sugar, and lacking in fruit and vegetables. Measures like calorie and nutrition labelling can be helpful in some cases, but they put the responsibility on the individual to decipher whether something is healthy or not, and often the minority of available options are actually healthy. If instead manufacturers reformulated their products and businesses offered more healthy options, it would make these foods more readily available for people to eat. To be able to assess if things are moving in the right direction, businesses need to transparently report on the health and sustainability of what they're selling.

Schools are particularly important settings for helping children to get sufficient nutrition to grow up healthily, focus in class and reach their full potential. Because of the vital role schools can play, it is vital that the food that is available in schools is healthy.



“It’s sad that School Food Standards are not monitored, but also what about the children in care experiencing food insecurity? Where are the food standards for them, whose parent is ultimately the Government?”

DOMINIC WATERS, FOOD FOUNDATION
AMBASSADOR @SingleDadSW

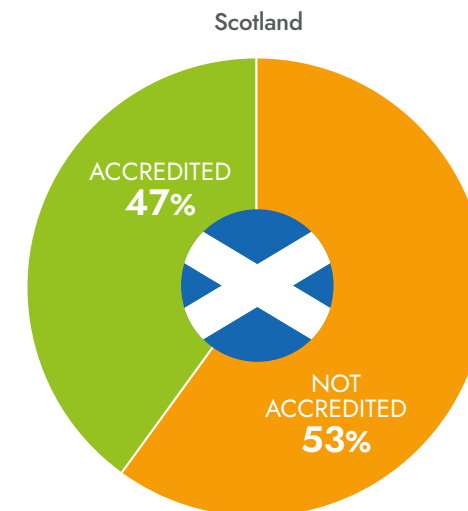
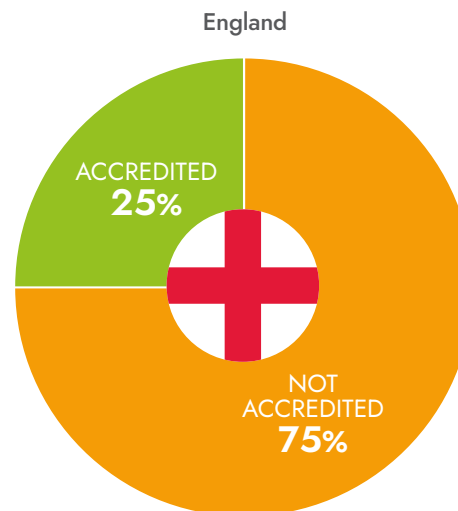
Monitoring of food in schools



25% of state schools in England and **47%** of state schools in Scotland are known to be meeting school food nutritional requirements (compliance in the rest is unknown).

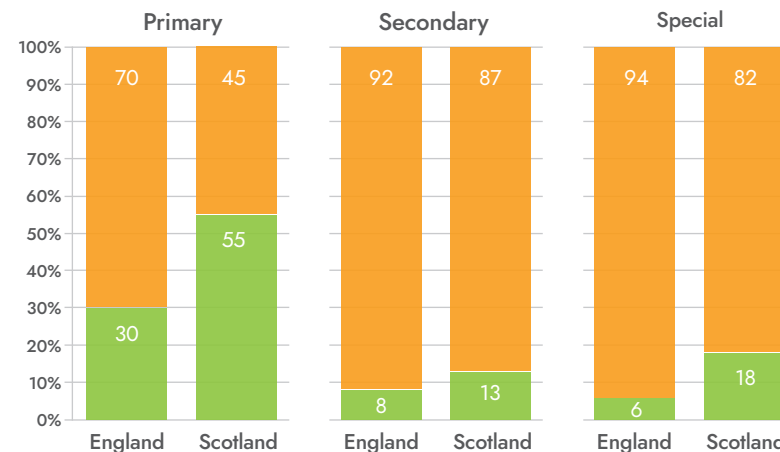


Proportion of state schools accredited by 'Food for Life Served Here' in 2020/21



Proportion of state schools accredited by 'Food for Life Served Here' in 2020/21 by school type

■ Accredited
■ Not accredited



Source: Soil Association

WHAT'S HAPPENING?

Mandatory legal standards are in place across the UK nations to ensure that schools are serving food of adequate nutritional quality to support children's health and learning. However, transparent data on compliance levels are not currently available.

In the absence of transparent government monitoring, schools can demonstrate their compliance with the standards (as well as other positive aspects of their school food offer) by taking part in voluntary schemes. The largest of these is the Soil Association's *Food for Life Served Here* scheme, which accredits at Bronze, Silver and Gold levels, based on annual inspections. At all accreditation levels, compliance with the legal school food nutritional standards is part of the basic minimum requirements. 25% of state schools in England and 47% of state schools in Scotland are currently accredited by *Food for Life Served Here*, with levels of take-up much higher in primary than in secondary schools. The scheme is not currently taken up by any schools in Wales or Northern Ireland.

The higher rates of *Food for Life Served Here* accreditation in Scotland than in England are likely due to the existence of some independent

school food monitoring in Scotland, and the fact that the Scottish Government provides funding to the Food for Life Scotland programme, which offers bespoke support to local authorities to achieve the FFLSH award, including on menu and supply chain development, data analysis of costs and showcasing success.

A study from 2019^x within two boroughs in London found that 60% of secondary schools were not meeting standards, with anecdotal evidence suggesting that compliance across the country is equally patchy. Only in Scotland does the Government undertake any form of independent monitoring of compliance, but this data is not made publicly available.

If schools choose not to engage with voluntary schemes such as *Food for Life Served Here*, their compliance with the School Food Standards remains unknown. Given the importance of school meals in providing children with nutritious food (particularly for children on Free School Meals), it is essential that there is proper monitoring to ensure consistent quality of school food across the UK.

WHAT NEEDS TO HAPPEN:

Monitor compliance with school food requirements to ensure that all children can access a nutritious school lunch.

IS POLICY SUPPORTING PROGRESS?



Though mandatory school food nutritional standards exist in all four nations, independent monitoring of compliance with those standards only takes place in Scotland. In Scotland, Health and Nutrition Inspectors visit a sample of schools each year and their findings are made available to the school and to the Government, but are not transparently available to the public. In England, the Government announced in February 2022 that schools will now be asked to publish statements on the arrangements for their 'whole school approach' to school food — initially voluntarily, and then becoming mandatory. The Food Standards Agency also announced in February 2022 that they will be conducting a pilot with the Department for Education to design and test a new assurance system for School Food Standards. These are welcome steps forward, but gaps remain. The independent National Food Strategy published in 2021 recommended that schools in England be required by Government to join an accreditation scheme such as *Food for Life Served Here* but this recommendation has not yet been taken forward. There are not currently any mechanisms for assessing school food quality in Wales or Northern Ireland, though the Northern Ireland Government consulted in early 2020 on updates to their school food nutritional standards guidance and the introduction of a system for independent monitoring of compliance — a response to the consultation has not yet been published.

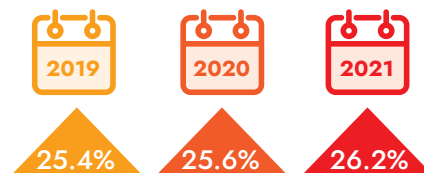
Places to buy food on the high street



More than 1 in 4 (**26%**) places to buy food are fast-food outlets.

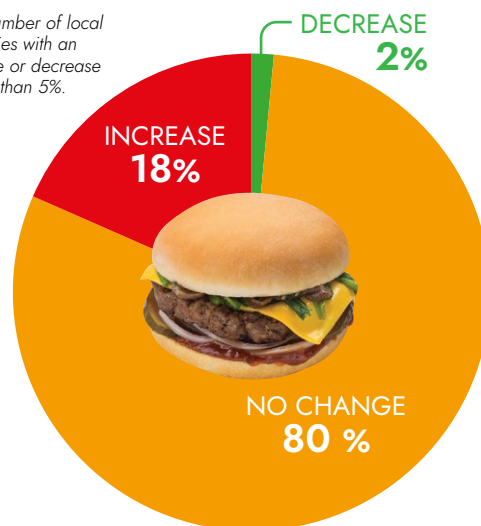


Percentage of all food outlets that are fast-food outlets

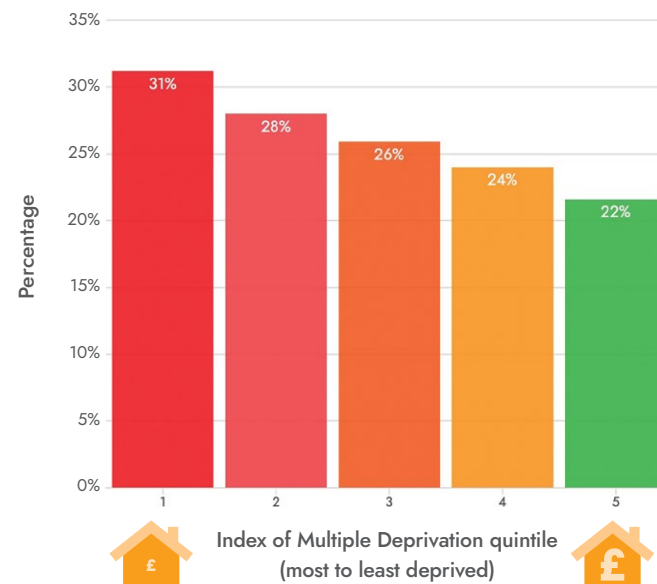


Changes in proportion of food outlets that are fast-food outlets from 2020 to 2021

*The number of local authorities with an increase or decrease greater than 5%.



Percentage of all food outlets that are fast-food outlets by deprivation group



Source: Data from the Ordnance Survey and analysed in collaboration with the MRC Epidemiology Unit at the University of Cambridge.

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WHAT'S HAPPENING?

Unhealthy, fast food continues to be readily available in many neighbourhoods and is often the most convenient option for busy families. The average density of fast-food outlets in English local authorities is continuing to creep up slowly with just over 1 in 4 (26%) of all food outlets now being fast-food outlets.



Worryingly, almost 1 in 5 local authorities have seen an increase (of over 5%) in the proportion of all food outlets that are fast-food outlets since last year. During the pandemic, the growth in takeaway delivery companies has seen it become even easier to access fast food^{xi}.

As seen in previous years, the relationship between the density of fast-food outlets and levels of deprivation is strong, with higher proportions seen in the most deprived local authorities. The least deprived fifth of local authorities have 22% of places to buy food that are defined as fast-food outlets compared with 31% in the most deprived fifth of local authorities. As fast-food consumption is closely linked with an increased risk of obesity, it is likely that this higher availability of fast food is a contributing factor to socio-economic health inequalities and should be an important target for Government to address as part of its levelling up agenda.

WHAT NEEDS TO HAPPEN:

Use local authority town planning powers to prevent further proliferation of unhealthy fast-food outlets.

IS POLICY SUPPORTING PROGRESS?



Local authorities have some powers to shape their local food environments in order to promote healthy communities, including through the planning system.

The National Planning Policy Framework, which was revised in 2021, continues to place a responsibility on local authorities to promote healthy communities, including by making planning decisions which enable and support healthy lifestyles through access to healthier food.

Additionally, the 'Healthy and safe communities' Planning Practice Guidance encourages local authorities to use their planning decisions to restrict new fast-food outlets if they are close to locations where children and young people congregate, if there are high levels of obesity or poor health in the local area, or if there is already a high concentration of outlets. Public Health England produced guidance in 2020 to share best practice and support local authorities in using the planning system in this way. Some local authorities have shown leadership on this issue, but progress has been patchy.



"The council estate my daughter and me live in is a food desert. The shop on the estate only stocks the lowest quality of produce, they have a hot dog and chicken nugget maker on the counter, and the kids who go to school on the estate queue up to get that fast food at lunchtimes. Both awareness and availability of healthier options needs to be provided for those kids who already come from some of the most disadvantaged families."

Dominic Watters, Food Foundation Ambassador @SingleDadSW

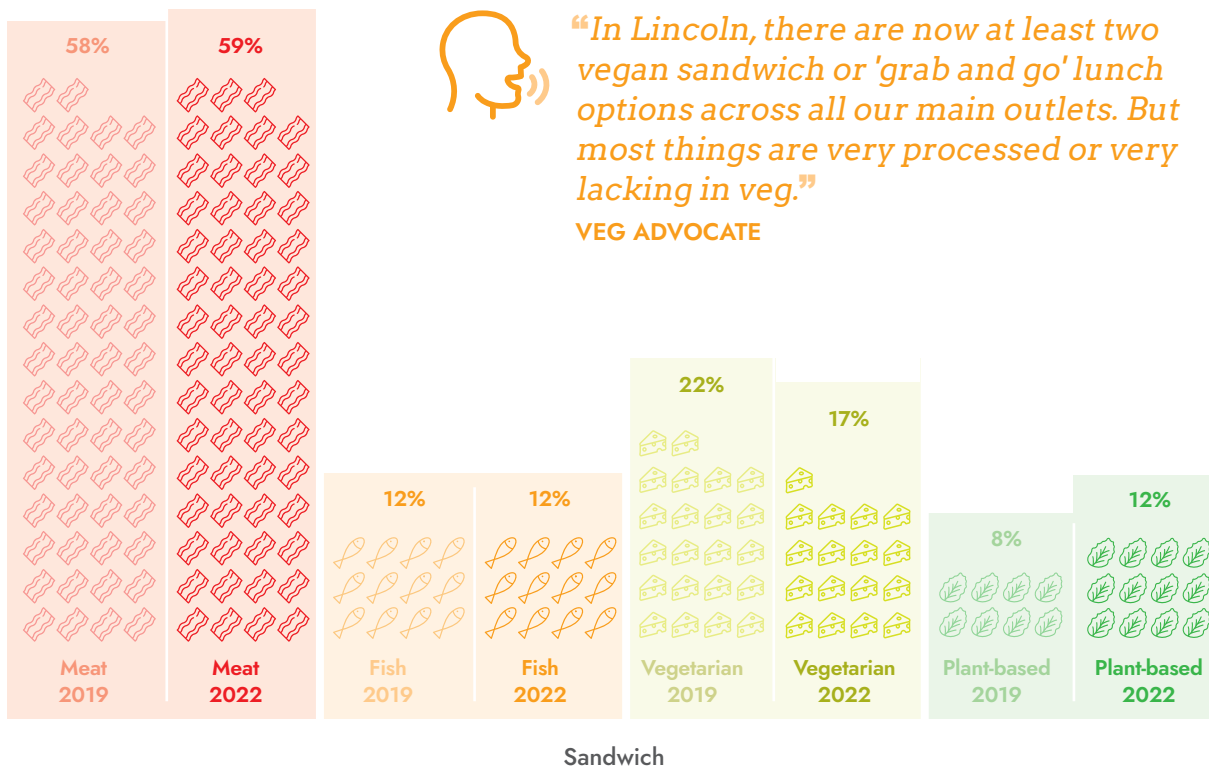
Sustainability of convenience food in high street retail settings



71% of sandwiches available from high street retailers contain meat or fish, with no significant improvement in the past three years



Percentage of sandwiches that are meat, fish, vegetarian or plant-based



“In Lincoln, there are now at least two vegan sandwich or ‘grab and go’ lunch options across all our main outlets. But most things are very processed or very lacking in veg.”

VEG ADVOCATE

Source: Sandwiches Unwrapped 2019 and 2022, Eating Better.

WHAT'S HAPPENING?

Many of the food options available on our high streets can have a high impact on the environment as well as on our health, particularly those containing meat and fish. Producing meat is a major contributor to greenhouse gas emissions and requires large areas of land (for both grazing and the production of crops as animal feed) that could be used in a more sustainable way. Additionally, red and processed meat can increase risk of cancer^{xii}. Fish can also be a concern for the environment given that global fishing levels are increasingly unsustainable: nearly 90% of marine fish stocks are fully exploited, overexploited or depleted^{xiii}.

A 2022 survey of sandwiches for sale at high street retailers by Eating Better found that 71% of sandwiches on offer contain meat or fish, with only 29% vegetarian or plant-based (vegan). What's more, two-thirds of the sandwiches containing meat include red or processed meat.

In comparison with the 2019 survey, there has been no improvement in the proportion that are meat-free and fish-free. Interestingly, there has been a decrease in the proportion of options that are vegetarian (22% down to 17%) but an increase in plant-based options (8% up to 12%).

In addition to being the least available option, plant-based options are also the most expensive (£3.25 on average). In comparison, meat sandwiches were £3.00 on average and fish £2.85. Vegetarian sandwiches were the cheapest at £2.48 on average which could help encourage people towards these options.

People are more likely to eat foods that are readily available and so for people who are buying convenience foods, there needs to be a higher proportion of sustainable options on offer to make it easier and more appealing for them to choose these foods.



WHAT NEEDS TO HAPPEN:

Make more sustainable convenience foods the more readily available option.

IS POLICY SUPPORTING PROGRESS?



Government action to date has focused on encouraging businesses to reformulate their products so they contain less salt, sugar and calories. The focus has not been on encouraging reformulation to improve sustainability – for example by reducing meat and increasing vegetable and pulse content. Our Peas Please campaign encourages businesses to increase the volume of veg that they sell, including by incorporating more vegetables into convenience products. Businesses involved in the project have reported 636 million additional portions of veg sold or served since 2018.

Business reporting on healthy and sustainable food sales



Just **one** major UK food retailer, caterer or restaurant chain currently reports publicly on sales of healthy foods, vegetables, and animal vs plant-based proteins.



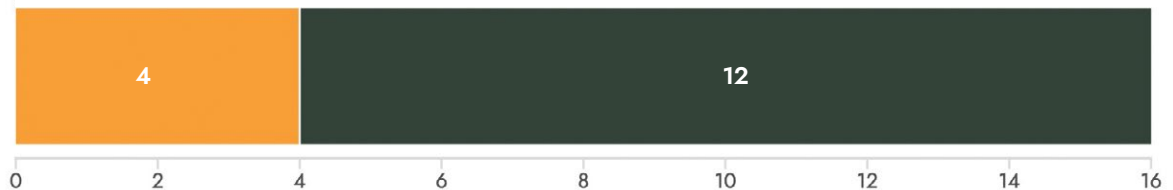
Number of major UK food retailers, caterers or restaurant chains publicly reporting on three key metrics – sales of healthy foods, vegetables, and animal vs plant-based proteins

Reporting on: ■ All 3 metrics ■ 2 metrics ■ 1 metric ■ None of the 3 metrics

Retailers



Caterers and restaurant chains



Number of businesses

Source: Analysis by The Food Foundation for *Plating Up Progress*



WHAT'S HAPPENING?

Over the past few years, food businesses have increasingly made commitments to support the transition to healthy and sustainable diets. While this is very welcome, a lack of basic transparent and publicly available data on the types of food that businesses are selling means that it is not always possible to track their progress or hold them accountable.

The Food Foundation's Plating Up Progress project assesses major UK-operating food retailers, caterers and restaurant chains against a series of metrics, gathering data on the number of businesses that are voluntarily reporting on 1) the percentage of their sales that come from healthy foods; 2) the percentage of their sales that come from vegetables; and 3) the percentage of protein sales that comes from animal vs plant-based proteins.

Of the 11 retailers and 16 out of home businesses assessed for the project, currently just 1 reports publicly on all three key metrics. An additional 8 businesses that were assessed are reporting on one or two of these metrics, while the remaining 18 businesses that were assessed are only reporting partial data or none at all.

Voluntary reporting on food sales is much more widespread among food retailers than businesses in the out of home sector. Voluntary progress in all sectors is currently hampered by a lack of consensus on reporting methodologies and definitions.



WHAT NEEDS TO HAPPEN:

Require food businesses to report publicly on the proportion of food they sell that is healthy and sustainable.

IS POLICY SUPPORTING PROGRESS?



Though there are no current requirements for food businesses to report on their sales, the Government has recently announced that it intends to encourage greater transparency by food businesses, following recommendations made by the National Food Strategy. In its recent Food Strategy, the Government launched a 'Food Data Transparency Partnership' through which businesses, NGOs, investors and other stakeholders will collaboratively design a mandatory business reporting regime against a set of health metrics to drive up the levels and consistency of reporting. The partnership will also explore a similar approach to sustainability and animal welfare metrics.

Sugar in foods marketed to children in retail settings



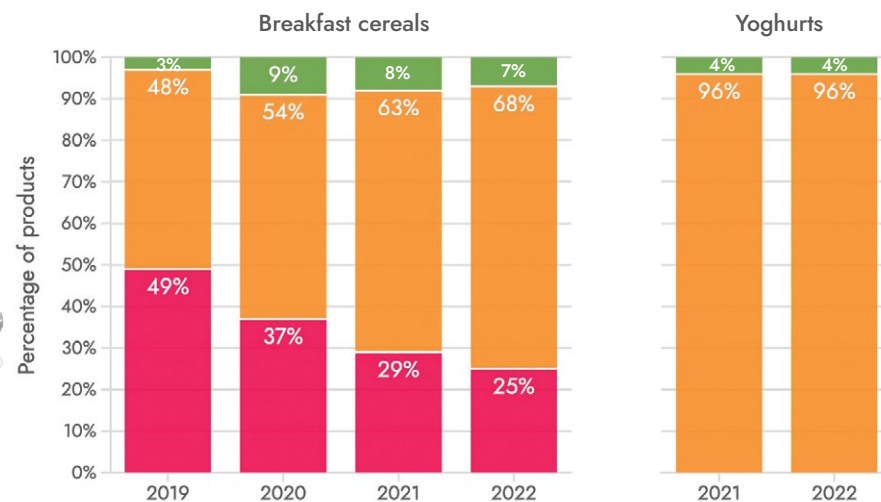
Only **7%** of breakfast cereals and **4%** of yogurts marketed to children are low in sugar.



Percentage of breakfast cereals and yogurts marketed to children categorised as **high**, **medium** and **low** in sugar



Source: Analysis by Action on Salt and Action on Sugar



CEREALS

Cereal with the highest sugar content:



Kellogg's Froot Loops Marshmallows

Grams of sugar per portion: 17.0g
Percentage contribution to a 4–6-year-old's maximum recommended intake: 89%

YOGURTS

Yogurt with the highest sugar content:



*some sugars will be naturally occurring

Nestle Smarties Vanilla Flavour Yogurt

Grams of sugar per portion: 16.5g
Percentage contribution to a 4–6-year-old's maximum recommended intake: 87%*

WHAT'S HAPPENING?

Breakfast cereals and yogurts are foods that parents are often likely to give their children in the belief that they are a relatively healthy option. Many of these products are marketed directly towards children (e.g. child friendly branding, colours and style; or children's activities and prizes included) but fall short on their nutritional credentials.

CHILDREN'S CEREALS:

There has not been significant improvement in the sugar content of breakfast cereals marketed to children in the past year. Positively, the proportion classified* as high in sugar has decreased from 29% to 25% but the proportion that are low in sugar has also decreased by one percentage point to 7% (with more moving into the medium category). Furthermore, the average sugar content per 100g has increased slightly in the past year from 18.1g in 2021 to 18.5g in 2022. To put this in context, a single portion of the cereal with the highest sugar content would contribute 89% of a 4–6-year-old's recommended daily allowance of free sugars.

There have been some improvements in salt and fibre content: the proportion of cereals that are high or medium in salt has decreased from 60% to 55%, and the proportion low in fibre has decreased from 46% to 43%.

Looking back over the past four years of *Broken Plate* reports, there has been quite substantial progress overall in the nutritional content of breakfast cereals

marketed at children. The proportion of cereals classified as high in sugar has halved since 2019; those low in salt has tripled; and those low in fibre has more than doubled. And yet despite this, the majority would still fail to obtain a green front of pack labelling rating*: 93% failing for sugar, 55% failing for salt and 86% failing for fibre.

CHILDREN'S YOGURTS:

In the past year, there has been no change in the proportions of yogurts marketed at children that are high, medium or low in sugar, with only 4% of yogurts classified as low in sugar. The yogurt with the highest sugar content per portion contains 16.5g of sugar. This is compared to the maximum recommended intake of free sugars of 19g for 4–6-year-olds (although there will be a small quantity of naturally occurring sugar in yogurt).

High sugar intake can contribute to the development of overweight and obesity, and cause dental decay^{xiv}. The stagnation in progress in reducing sugar content in foods marketed to children at a level that is still far from optimal shows a need for greater intervention to encourage industry to reformulate their products.

**High (red), medium (amber) and low (green) colour coding for salt, sugar and saturated fat are based on the Government's Front of Pack nutrition labelling guidance. High (green), medium (amber) and low (red) colour coding for fibre based on Action on Sugar's criteria.*

WHAT NEEDS TO HAPPEN:

Reformulate products with too much sugar and stop marketing unhealthy food to children



IS POLICY SUPPORTING PROGRESS?



In 2016, the Government challenged industry to voluntarily reduce sugar levels across a variety of product categories by 20% by 2020. By 2019 (the third year of the programme), an average reduction of just 3% across the relevant categories had been achieved (13% on breakfast cereals, yoghurts, fromage frais). Publication of the final report on the results of the programme has been substantially delayed. The Government indicated in their 2020 Obesity Strategy that they would continue to work with industry voluntarily but 'remain committed to further action if results are not seen'. It is also expected that when wider government policies to restrict the marketing and promotion of foods high in salt, sugar and fat come into effect, they will drive reformulation (a 9pm advertising watershed, a total online advertising ban, volume-based and location-based promotion restrictions).



Appeal

How appealing foods are is affected by many factors including advertising, promotions, packaging, sponsorship, public health campaigns and labelling.

This section looks at one metric exploring one of these aspects of the appeal of food:



P30 Advertising spend

Advertising affects our perceptions of foods and food brands. Companies would not spend millions of pounds a year on advertising campaigns in the UK if they did not work. People may not always be consciously aware of what is being advertised, but unconsciously preferences and expectations around food are being influenced. Advertising for less healthy foods is everywhere – on social media, online, on the radio, on TV, on transport, on high streets, at the cinema and at events. Moreover, children and adults from lower socio-economic groups are 50% more likely to be exposed to ads for high fat, salt and/or sugar (HFSS) foods than those from higher socio-economic groups^{xv}.

Evidence shows this advertising has a direct impact on how much food people eat. Advertising for HFSS foods is correlated with higher consumption of these foods^{xvi,xvii}. In contrast, campaigns like Veg Power and ITV's Eat Them to Defeat Them have shown that advertising healthier foods can have a positive effect on sales^{xviii}.

The Government is well-aware that advertising of unhealthy foods drives people to make less healthy food choices, and has proposed restrictions to HFSS advertising online and before 9pm on TV. These moves were strongly welcomed by the public health community, and were supported cross-party as the regulations made their way through Parliament. But this progress is being fiercely resisted by some businesses. The restrictions have been delayed by 12 months, alongside restrictions on volume-based promotions of unhealthy foods, ostensibly due to the cost-of-living crisis. It is not clear how allowing advertising of unhealthy food could help people with the cost-of-living crisis.

We need to make it easier for people to make healthier choices by addressing the current imbalance in advertising spend between healthy and less healthy foods.

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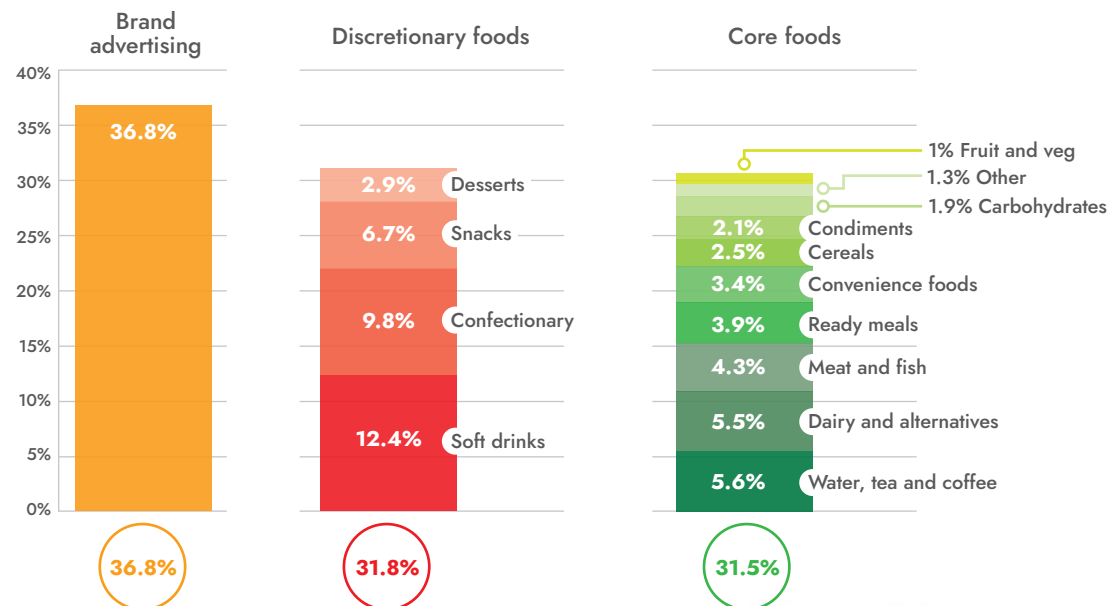
Advertising spend



Approximately a third (32%) of food and soft drink advertising spend goes towards less healthy foods, compared to just 1% for fruit and vegetables.



Proportion of advertising spend on different food categories



Source: Nielsen Ad Intel, 2021

WHAT'S HAPPENING?

If people ate according to Government recommendations as set out in the Eatwell Guide^{xix}, there would be little consumption of 'discretionary' foods and drinks like confectionary and soft drinks, which are often consumed as snacks or 'treats'. Yet currently they account for a significant proportion of the calories we consume^{xx}, negatively impacting on health.

Collectively, discretionary food and drinks (soft drinks, confectionary, snacks and desserts) account for just under a third (32%) of advertising spending on food and soft drinks. The foods that we should be eating more of, like fruit and vegetables, receive vastly less advertising attention (just 1%).

Some discretionary categories have seen fast growth in advertising spend this year. Advertising spending on soft drinks, for example, increased by 63% between 2020 and 2021, and spending on confectionary increased by 11%.

It is also notable how high the proportion of spending on brand advertising is. Brand advertising collectively accounts for 37% of total advertising spend. Advertisements affect food choices at both brand and category level, meaning that an advertisement for a soft drinks brand will not only make a person more likely to choose to buy a soft drink from that particular brand over another brand, but also to make them more likely to choose to buy a soft drink in general^{xxi}. Investment in brand advertising represents a route for brands associated with less healthy foods to continue to advertise despite growing restrictions (see 'Is policy supporting progress?' section).

Though these data only capture advertising spending in the traditional media (Cinema, Direct Mail, Door Drops, Outdoor, Press, Radio, TV), we know that digital advertising forms an increasingly significant proportion of total advertising spend. It is unlikely that the ratio of spend on healthier foods compared to less healthy foods is any different online. As a group, young people aged under 18 in Britain are exposed to an estimated 15 billion online advertising impressions for foods high in sugar, salt and/or fat every year (nearly 500 impressions per second)^{xxii}.

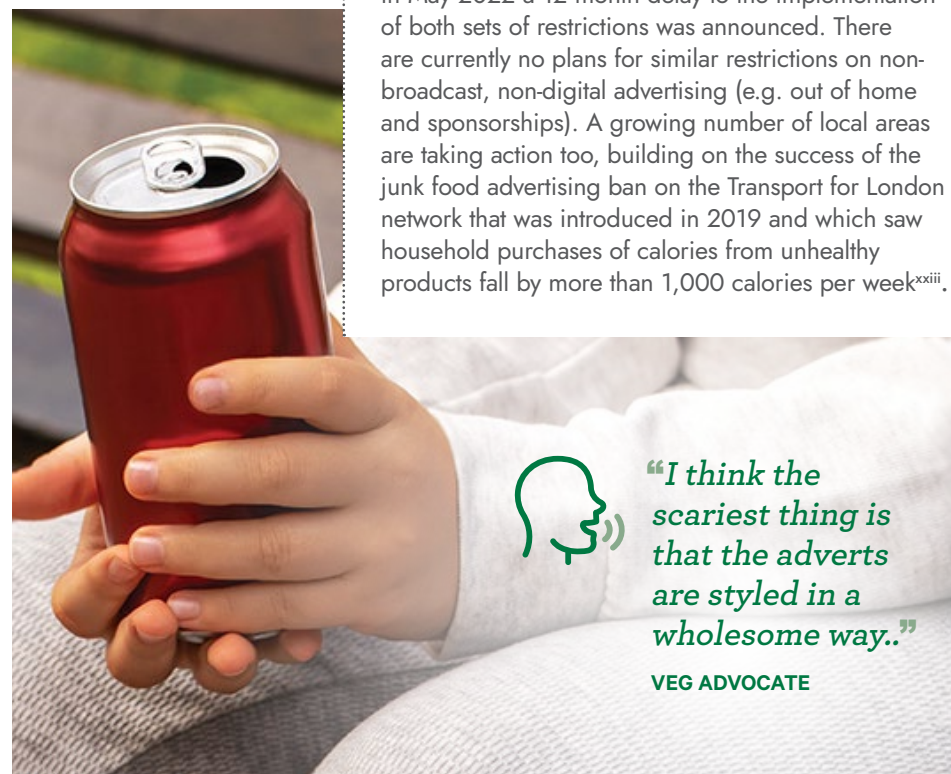
WHAT NEEDS TO HAPPEN:

Address the imbalance in advertising spend between more healthy and less healthy foods.

IS POLICY SUPPORTING PROGRESS?



In 2007, the Government limited advertising of unhealthy food on children's TV channels and during children's TV programmes. Since then, it has passed legislation to enable the implementation of a 9pm watershed on broadcast TV (in 2019) and a total online ban for junk food advertisements (in 2020). However, in May 2022 a 12 month delay to the implementation of both sets of restrictions was announced. There are currently no plans for similar restrictions on non-broadcast, non-digital advertising (e.g. out of home and sponsorships). A growing number of local areas are taking action too, building on the success of the junk food advertising ban on the Transport for London network that was introduced in 2019 and which saw household purchases of calories from unhealthy products fall by more than 1,000 calories per week^{xxiii}.



"I think the scariest thing is that the adverts are styled in a wholesome way."

VEG ADVOCATE



OUTCOME METRICS

Health and environmental outcomes

This section looks at six key metrics on outcomes of the food environment and the food system:



P34 Children's weight



P38 Healthy life expectancy



P35 Children's growth



P39 Children's health trajectory



P36 Diabetes-related amputations



P41 Climate change impact of food

The Government provides guidelines on what people should be eating as part of a healthy diet (the Eatwell Guide)^{xxiv}. However, less than 0.1% of the population currently meet the guidance^{xxv}. As a nation, we consume too much sugar, salt and saturated fat (which has a negative impact on our health), and not enough fruit and veg, fibre and oily fish (which eating more of promotes health).

When looking at the picture painted by this report's metrics on key elements of the food environment, it is hardly surprising that the average diet in the UK is not optimal – the system is paradoxically not set up to support people to eat that way. Government policy and business practice need to change to reorientate the food system to facilitate people to meet these recommendations for a healthy diet.

The food environment and its influence on diets has very real-life implications for children and adults as individuals, for wider society and for the planet. Childhood is a critical time for development. Suboptimal nutrition during this time can have

irreversible, lifelong implications. Children with obesity are more likely to grow up to have obesity and diet-related disease^{xxvi}. It can adversely affect their ability to learn in school, their self-esteem, their physical health and their mental health. No child in the sixth largest economy should be subjected to this.

As adults, complications arising from obesity and diet-related disease have a huge impact on an individual's quality of life. Furthermore, this comes at substantial cost to our healthcare system and wider economy. Excess weight costs the UK approximately £74 billion every year in lost workforce productivity, reduced life expectancy and the burden on the NHS^{xxvii}.

These health issues do not affect all demographics of the population equally. People on lower incomes are more likely to suffer from obesity and diet-related disease^{xxviii}. If the health crisis in this country is to be resolved, measures must be taken that specifically focus on improving the situation for more deprived groups and address the current inequalities in the system.





Diets need to shift to be healthier, but must also shift in a way that reduces harm to the planet. The food system is a significant contributor to climate change, generating a third of total greenhouse gas emissions^{xxix} among other impacts on the environment. A child born now will experience temperatures that are over four degrees warmer than the pre-industrial average^{xxx}. In the coming years, climate change will increasingly influence the quality and quantity of food which can be produced, and so will also have very real implications for people's health and food security.

This section of the report looks at the outcomes arising from the food environment we live in. It covers metrics on the current state of diet-related health in children and in adults, and metrics on what could happen to health and climate change potential in the future if there is a failure to change the current system.

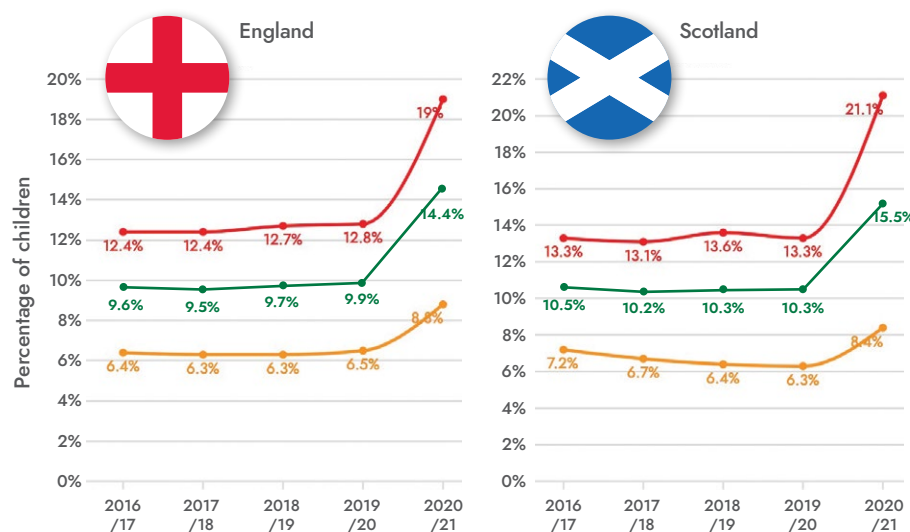
Children's weight



The percentage of children with obesity in their first year of school has risen by nearly **50%** in one year, affecting twice as many children in the most deprived fifth compared with the least deprived fifth.

Percentage of children with obesity in the most and least deprived groups

■ Most deprived quintile ■ Least deprived quintile ■ Average



Source: England – Child Measurement Programme, NHS Digital. Scotland – Primary 1 Body Mass Index statistics Scotland, Public Health Scotland.

WHAT'S HAPPENING?

The most recent data shows a very sharp spike in obesity levels (an increase of nearly 50% in one year) following the lockdowns and school closures during the pandemic. On average in their first year of school, 14.4% of children in England and 15.5% of children in Scotland have obesity now, sparking major concerns for children's health. Approximately 1 in 5 children in the most deprived fifth of the population now suffer from obesity compared with approximately 1 in 11 in the least deprived fifth. Furthermore, there has been a widening of pre-existing inequalities, with greater percentage increases in obesity levels in the most deprived fifth of children compared with the least deprived fifth.

This spike in obesity levels is likely to have been driven by several factors including lack of physical activity and high levels of food insecurity^{xxxi} due to financial pressures from the Covid crisis. This means families had to rely on lower cost food, which is often less nutritious and more energy dense, likely contributing to the increase in obesity levels.

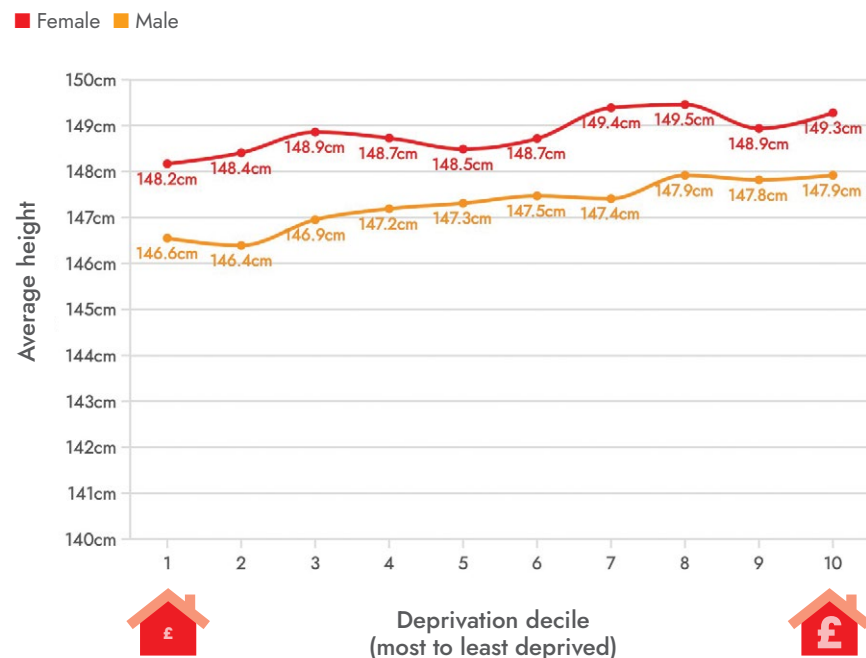
In 2018, the Government set a target to halve children's obesity levels by 2030^{xxxii}; instead, obesity levels have increased approximately 50% since they set this target. Even before this recent spike, we were not on track to meet the target. Drastic action will now be required to turn this around including with population-wide measures to reduce overall levels, and targeted measures to close the gap between children from higher and lower income groups.

Children's growth



Children in the most deprived tenth of the population are on average over **1cm shorter** than children in the least deprived tenth by Year 6 (age 10–11).

Average height of White British children age 10-11 by deprivation group 2020/21



Source: Height by deprivation decile in children aged 10 to 11, National Child Measurement Programme, Office for Health Improvement and Disparities.

WHAT'S HAPPENING?

White British children in the most deprived tenth of the population are on average over 1cm shorter than their peers in the least deprived tenth. This pattern is seen in both boys and girls and is a consistent pattern with previous years. It is not possible to directly compare to previous years due to disruption in child measurement programmes resulting from the Covid-19 pandemic and so whether this has deteriorated cannot be assessed. The same pattern is not seen in other ethnic groups and further assessment is required to understand this.

The data raise questions about the nutritional quality of food that children are able to access, in addition to wider socio-economic forces that shape the conditions for the optimal growth of young children during their first few years. While this metric only looks at linear growth, it is likely representative of broader development of the child. Furthermore, studies comparing average height of children at age 5 between different countries reveals that children in the UK are on average shorter than those in nearly all other high income western countries^{xxiii}.

For all children to grow up healthy and reach their full potential, it is essential they have access to a diet that provides all the essential nutrients.



Diabetes-related amputations

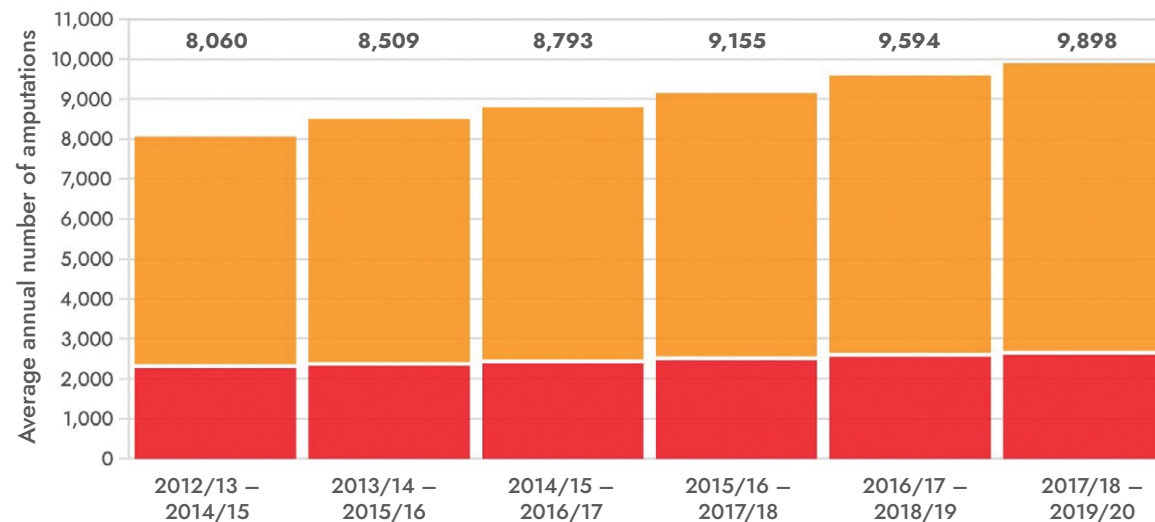


Nearly **10,000** diabetes-related amputations are carried out on average per year, an increase of **23%** in five years.



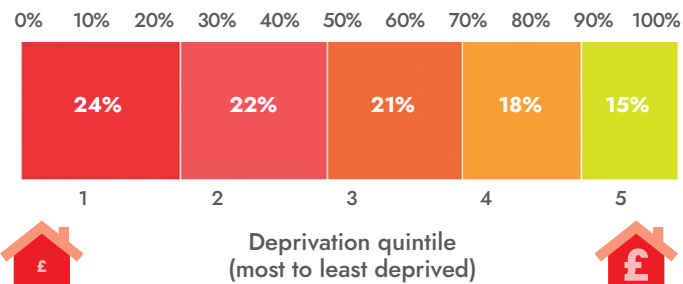
Average annual number of diabetes-related amputations

■ Major amputations ■ Minor amputations



Source: Diabetes Foot Care Profiles, Office for Health Improvement and Disparities.

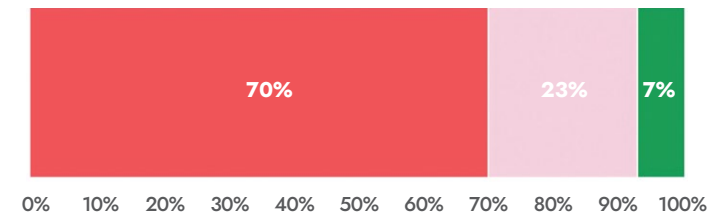
Proportion of all people with type 2 diabetes by each deprivation group



Source: National Diabetes Audit 2021–22, NHS Digital.

Proportion of all people with type 2 diabetes by each ethnicity group

■ White ethnicity
■ Minority ethnicity
■ Unknown ethnicity



WHAT'S HAPPENING?

Amputations can be required for people with diabetes when the condition is uncontrolled leading to high blood sugar levels that damages the nerves and circulation in the arms and legs. This can have a debilitating impact on people's quality of life and is a huge burden on the NHS.

The total number of diabetes-related amputations in England has steadily increased in recent years, reaching an average of 9,898 per year. On average over a five year period, this has climbed by 23%. The number of amputations reported here are reflective of people with type 1 and type 2 diabetes.

Looking at the prevalence of type 2 diabetes in England and Wales, there are inequalities in who is affected with a proportionally higher prevalence of type 2 diabetes in lower income groups and ethnic minority groups. Of all people with type 2 diabetes, 24% are in the poorest fifth of the population compared with 15% in the richest fifth. 70% of all people with type 2 diabetes are of white ethnicity compared to the population spread of 85% of the population of England and Wales who are of white ethnicity^{xxxiv} indicating that minority ethnic groups are also disproportionately affected by this disease.

Type 2 diabetes comprises the majority of diabetes cases in the UK (90%)^{xxxv} and is strongly associated with diet: obesity greatly increases the risk of developing type 2 diabetes and diet is important for managing the condition. A study published this year suggests that childhood obesity increases the risk of developing type 1 diabetes and the growing prevalence of childhood obesity has led to an increase in the number of people being diagnosed with type 1 diabetes^{xxxvi}.

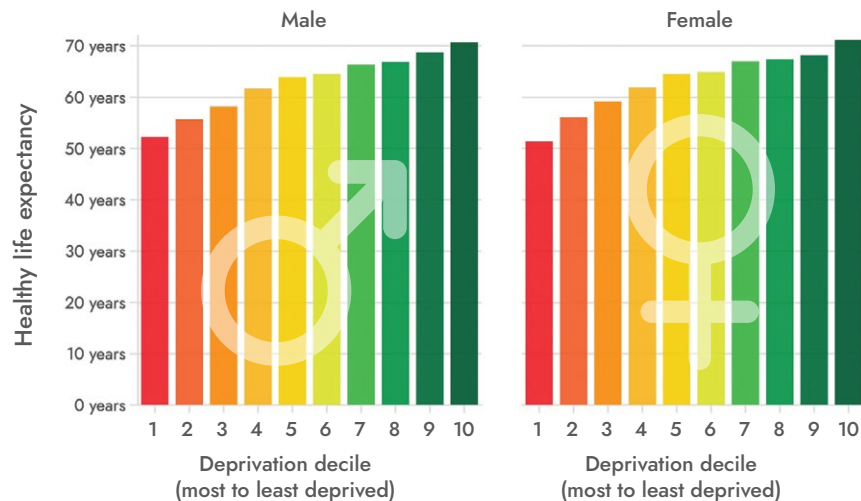
Therefore, to reduce the number of diabetes-related amputations, the food system needs to support adults and children to be a healthy weight and be protected from the complications that obesity can lead to.



Healthy life expectancy



Healthy life expectancy in the most deprived tenth of the population is **20** years less for women and **18** years less for men than in the least deprived tenth.



Source: Health state life expectancies by national deprivation deciles, England: 2017 to 2019, Office for National Statistics.

WHAT'S HAPPENING?

Healthy life expectancy at birth is an estimate of the average number of years babies born this year would live in a state of 'good' general health if mortality levels at each age and the level of good health at each age remain constant in the future^{xxxvii}. Healthy life expectancy is closely related to diet quality. In fact, four of the top five risk factors for ill health in England are related to diet: high systolic blood pressure, dietary risks, high fasting blood sugar and high BMI (the fifth factor is tobacco)^{xxxviii}.

There are considerable inequalities in healthy life expectancy in the UK. The healthy life expectancy on average is 51.4 years for women in the least well off tenth of the population and 71.2 years for the most well off. Similarly, for men the average healthy life expectancy is 52.3 years in the least well off tenth compared to 70.7 years in the most well off tenth. This is a staggering difference of 20 years less life spent living in good health for women and 18 years less for men.

The Government's Levelling Up White Paper has set improving healthy life expectancy by five years as one of their 12 missions to achieve their levelling up agenda. They will be fundamentally unable to achieve this mission if they don't look at policy change to shift towards healthier diets and reduce dietary inequalities.



Children's health trajectory



If current trends continue then, amongst children born this year, **1 in 4** will suffer overweight or obesity by the time they start school, rising to **3 in 4** by age 65.

WHAT'S HAPPENING?

This metric looks at the projected health implications of diets for children born in 2022. The trajectories are modelled based on current trends, showing us what the rates of overweight, obesity and diet-related disease will be for these children if things continue along the same path. These diseases are not exclusively related to diet, but the risk of developing them is strongly associated with diet quality.

This gives an indication of the fate of children born this year if the Government and businesses do not act now to ensure that everybody is able to secure nutritious food. If things continue as they are, by the time children born this year are in their first year of school, 1 in 4 will be living with overweight or obesity. By the time they reach age 65, three quarters will suffer with overweight and obesity, 1 in 3 will have diabetes, and 1 in 5 will have cardiovascular disease. Children from the most deprived groups and from some ethnic minority groups are more likely to develop overweight and obesity, and are therefore likely to be at higher risk of developing diet-related disease.

These figures give a disturbing glimpse into what the future could hold if we continue to neglect to fix our food system and address the related inequalities.



Health trajectory for children born in 2022

Trajectory for 100 children born in 2022 at **age 11** by **deprivation**

Overweight Obesity Healthy/underweight



Trajectory for 100 children born in 2022 at **age 11** by **ethnic group**



Trajectory for 100 children born in 2022

Overweight Moderate obesity Severe obesity
Healthy/underweight Deceased

Forecast at age 5



Forecast at age 11



Forecast at age 21



Forecast at age 65



Diet-related disease* at **age 65** for 100 children born in 2022

Has disease Without disease Dead

Osteoporosis



Cancer**



Cardiovascular disease



Diabetes (type 1 and 2)



*Some individuals will have multiple comorbidities and could be living with more than one of these conditions at the same time.

**A third of cancers are now estimated to be a result of poor diets and low levels of physical activity, with 13 forms of cancer associated with obesity^{xxxx}.

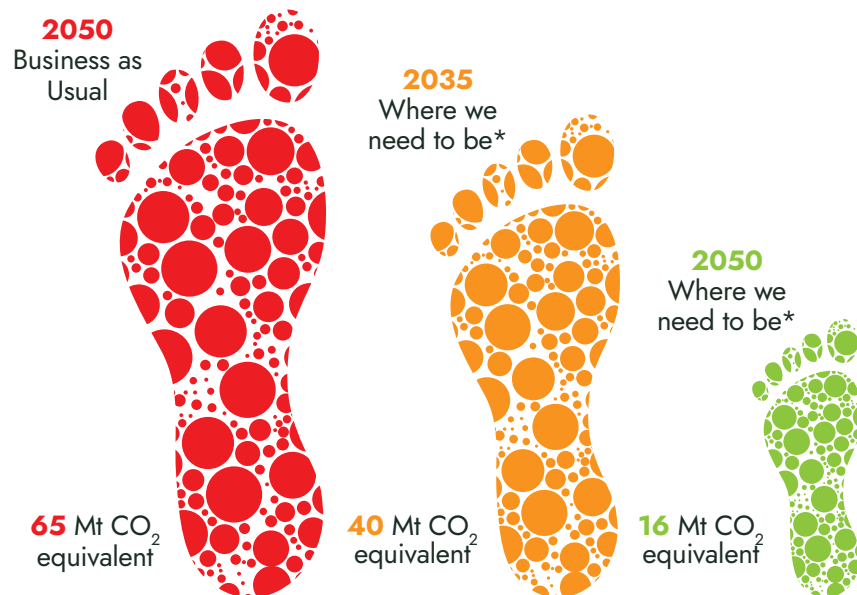
Source: Analysis by London School of Hygiene & Tropical Medicine

Climate change impact of food



If things continue as they are, by 2050 emissions from the food system will be **four times** higher than the level that is needed if the UK is to meet its net zero target

Dietary carbon reduction needed by 2050



*includes 20% less meat consumption by 2035, 35% less meat by 2050, 60% less waste by 2050, and farmers using low-carbon practices.

Source: UK Climate Change Committee, Sixth Carbon Budget, 2020

WHAT'S HAPPENING?

Currently the global food system produces around a third of greenhouse gas emissions¹. If things continue as they are, by 2050 emissions from the food system in the UK will be four times higher than the level that is needed if the UK is to meet its net zero target, as set out by the UK Climate Change Committee in their 'balanced pathway' projections (65 megatonnes of carbon dioxide vs the target of 16 megatonnes).

To reach the target, we need to change the way we produce food, drastically cut food waste and, crucially, change what we eat. This will require a significant reduction in meat consumption (at least 35% less by 2050 according to the UK Climate Change Committee), alongside a reduction in food waste and loss across the supply chain, a shift to low-carbon farming and putting an end to land use conversion such as deforestation.

Please note: Food and agriculture have wider environmental impacts beyond climate change, such as biodiversity loss and water sustainability, but looking at climate change illustrates how much change is needed across the food system when environmental issues are considered.



Conclusion

The metrics in this report tell a grim story: healthy and sustainable foods are rarely the most affordable, accessible or advertised foods, and in many cases the situation is deteriorating not improving.

But this is solvable. The public health crisis arising from obesity and diet-related disease and the contribution of the food system to the climate crisis are both entirely preventable. There are countless examples of people in the food system doing amazing work and showing that a better food system is achievable.

However, we need the political and business leaders in this country to take these issues seriously, understand the scale of the problem and recognise that they must play a critical role in the solution and implementing change. There are several key opportunities in the coming months for Government and businesses to take action to ensure that everyone can benefit from healthy and sustainable diets.



The Levelling Up White Paper published in February 2022 set out 12 missions to ensure equal opportunity across the UK. It recognised the significance of affordable and accessible healthy diets, but a much greater policy focus on improving the food system will be needed if the Government is to successfully achieve the goals that it has set itself on levelling up.

The Food Strategy White Paper published in June was a key opportunity to address many of these challenges, but it failed to live up to the potential. This has created an even greater need for the upcoming Health Disparities White Paper to significantly raise the bar, to truly capitalise on the ambition of last year's National Food Strategy, and to deliver the long-term food system transformation that is so urgently needed for the success of the levelling up agenda, and for our health and the health of the planet.

Critically, the cost-of-living crisis and soaring levels of food insecurity have further highlighted the essential need to address inequalities in the food system and ensure that people on the lowest incomes are not unfairly subjected to worse diets and health. In addition to socio-economic inequalities, it is vital to address wider dietary inequalities experienced by people with disabilities, across ethnic groups and across geographical regions to ensure equal access to healthy and sustainable diets.

Ultimately, we need systemic change which reorientates the entire food system, and this can only be achieved by bold Government action and business leadership. This is our fourth consecutive year of publishing our *Broken Plate* report highlighting the need for radical change – how many more children need to be suffering with obesity, how many more people have to endure having amputations of limbs due to diet-related disease, how many more people need to be suffering from food insecurity before we see the change that is needed in the system?

APPENDIX: METHODS EXPLANATION IN SHORT

This section provides a brief overview of the methods. Further detail and more information on the sources, data and methodologies used to calculate *Broken Plate*'s metrics can be found in our *Broken Plate Technical Report*, available from The Food Foundation's website.

AFFORDABILITY OF A HEALTHY DIET

The estimated cost of the Eatwell Guide (£6.82 per day) was based on optimisation modelling undertaken by researchers at the University of Oxford from online supermarket price data collected in October 2019. Optimisation was undertaken in order to minimise deviation from current dietary patterns. This cost was then adjusted for inflation since October 2019 (giving an updated cost of the Eatwell Guide for April 2022 of £7.34) and based on household composition. Data on household income from the Family Resources Survey for 2020/21 were used to calculate the proportion of disposable income (after housing costs were removed) that would be used up by the recommended diet, in line with previous methodology^{xi}. Data were analysed by income quintiles. This year the methodology for this metric has been updated so the findings are not directly comparable to previous years.

WAGES IN THE FOOD SYSTEM

Using 2021 data from the Annual Survey of Hours and Earnings (ASHE) dataset from the Office of National Statistics (the largest survey of employees in the UK), the Resolution Foundation

analysed the pay of people in the UK's food sector and wider economy. The general picture for the sector overall, as well as pay for different industries, including agriculture and fishing, waiting staff, food retail, kitchen staff, catering, food manufacturing and food wholesale was analysed. Figures for 2020 and 2021 include furloughed workers (in line with the ONS's approach with these data). This makes it quite challenging to interpret the 2020 and 2021 data: pay data are affected by some furloughed workers not having pay topped up, but also by a greater proportion of low paid workers losing their jobs and therefore dropping out of the dataset. It is therefore difficult to confidently identify trends as we do not yet know which of those factors is dominating.

COST OF HEALTHY FOOD

The MRC Epidemiology Unit at the University of Cambridge built on food price research first conducted in 2014^{xii} and matched price data for the 107 food and drink items that have been continuously tracked by the Office for National Statistics' Consumer Price Index (CPI) between 2012 and 2022 to food and nutrient data from the National Diet and Nutrition Survey from Year 1-9.

Price per 1,000kcal in each quarter of each year was calculated for each item and mean price across each quarter in each year



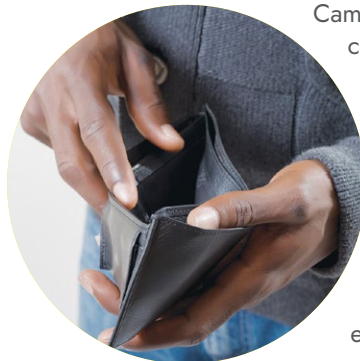
calculated. Using price per kilocalories is a helpful way to understand the relative prices of foods which make up diets and meals, rather than comparing individual products within specific food categories.

Each item was categorised as either 'more healthy' or 'less healthy' using the nutrient profiling model developed by the Food Standards Agency. Each food was also assigned to one of the five Eatwell Guide food groups. Mean price per 1,000kcal was then calculated per year for more and less healthy items; and for items in each of the five Eatwell Guide food groups.

The methodology for this metric has been updated this year from previous *Broken Plate* reports and so previous years have been re-analysed to reflect the changes to the methodology and allow comparison over time of a consistent set of products.

COST OF SUSTAINABLE ALTERNATIVES

The price and nutritional information of all dairy milk and almond, oat, rice and soya alternative milks sold online from Aldi, Tesco and Waitrose was collected. Average price per litre was then calculated. Price for dairy milk reported is per litre based on the average cost of dairy milk sold in 2 pints. The average nutritional content was calculated in the same way. Data were collected in May 2022. Data on environmental impact were based on data presented in an academic paper^{xliii}.



MONITORING OF FOOD IN SCHOOLS

The Soil Association provided data on the schools that are accredited under the *Food for Life Served Here* scheme, the level of their accreditation, and their postcode. Data on the total number of state primary, state secondary, and state special schools across the UK were collected from relevant government publications – in England, the Department of Education's 'Schools, Pupils and their Characteristics publication' (2020/21), and in Scotland, 'Summary Statistics For Schools In Scotland 2021'. The proportion of schools in each part of the UK that have *Food for Life Served Here* accreditation was then calculated.

PLACES TO BUY FOOD ON THE HIGH STREET

Data on the proportion of fast-food outlets out of total food outlets for each local authority were obtained by the MRC Epidemiology Unit at the University of Cambridge from Ordnance Survey's Points of Interest (POI) dataset for June 2021. The average proportion of fast-food outlets out of all food outlets within all local authorities in England was calculated. The data have been compared to data from previous *Broken Plate* reports to assess changes over time.

All local authorities were numbered according to their IMD ranking and divided into quintiles in equal proportions. The average density of fast-food outlets for each quintile of deprivation was then calculated.



SUSTAINABILITY OF CONVENIENCE FOOD IN HIGH STREET RETAIL SETTINGS

Eating Better surveyed 430 sandwiches available to buy in 14 UK high street retailers (see the technical report for the list of businesses) in February 2022. The ingredients text for each product were used to classify it into one of four categories: 'meat', 'fish', 'vegetarian', or 'plant-based'. The results were then compared to Eating Better's 2019 survey.

BUSINESS REPORTING ON HEALTHY AND SUSTAINABLE FOOD SALES

27 major UK-operating retailers and out of home businesses (see the technical report for the list) were assessed by The Food Foundation in 2022 against whether they were achieving 3 metrics: 1) reporting on the percentage of their sales that come from healthy foods; 2) reporting on the percentage of their sales that come from vegetables; and 3) reporting on the percentage of their protein sales that come from animal vs plant-based proteins. They were scored on the basis of data collected from publicly accessible sources (e.g. company website and annual reports). As there are no centrally mandated definitions for these three food categories and a variety of methodologies are used across the industry, we did not require

businesses to have adopted a particular definition (for example of 'healthy food'). Businesses were considered to be reporting against a metric if they 1) used a transparent and recognised approach to define which sales would count towards the relevant category; 2) released data on their sales in that category publicly; and 3) reported on sales across the whole category (and not just a sub-set of it). Businesses that collect and share data privately, but do not publish it, were not considered to be reporting publicly.

SUGAR IN CHILDREN'S FOOD IN RETAIL SETTINGS

Between March and May 2022, Action on Salt and Action on Sugar collected data from nine major supermarkets (Aldi, Asda, the Co-operative, Lidl, Ocado (including Marks and Spencer), Morrisons, Sainsbury's, Tesco, and Waitrose) to assess the nutritional content of breakfast cereals and yogurts with packaging marketed to children. Information was mostly collected online via retailer websites – Aldi and Lidl were collected in store due to lack of online information. Data from 137 breakfast cereals were captured (up from 126 in 2021), and 90 yogurts (down from 100 in 2021). Products were then assessed against Government's Front of Pack nutrition labelling guidance. The data have been compared to data from previous *Broken Plate* reports to assess changes over time.

ADVERTISING SPEND

Data from Nielsen on advertising spend in the UK for food and soft drinks were analysed, covering cinema,



direct mail, door drops, outdoor, press, radio and TV. The percentage of advertising spend on different categories of food and drink, and on brand advertising was then calculated – also comparing ad spend for some categories with spend in 2020. This year, the proportion of advertising spend on a wider range of food categories have been compared, and for the first time also includes brand advertising.

CHILDREN'S WEIGHT

We gathered data collected by the child measurement programmes in Reception in England and in Primary 1 in Scotland (age 4-6 years). In both England and Scotland the Covid-19 pandemic caused some disruption to data collection this year but detailed checks have been carried out and weighting applied where required to ensure that the datasets are representative. Both governments state that valid estimates of obesity prevalence have been gathered, and that these can be compared to data from previous years. The most deprived quintile has been compared with the least deprived quintile. Northern Ireland uses a different definition of obesity and we were therefore unable to compare it to the other nations. Due to pandemic restrictions, the child measurement programme for Wales was only able to collect data in two health boards.

CHILDREN'S GROWTH

Working with Office for Health Improvement and Disparities, data from the National Child Measurement Programme from the 2020/21 academic year were analysed to calculate the average height of children in Year 6 (aged 10–11 years) by deprivation group using the Income Deprivation Affecting Children Index (IDACI). The data were analysed by ethnic group, as



there are some natural differences in average height by the time children reach puberty across ethnic groups. Only the data for White British ethnicities have been presented but further assessment of other ethnicities is required. Data from 2020/21 are not comparable to previous years as disruption from the pandemic led to the data being collected later in the year and so the average height is taller.

DIABETES-RELATED AMPUTATIONS

Data from Public Health England's Diabetes Foot Care Profiles (which are based on data from Hospital Episode Statistics, the National Diabetes Audit, and the Quality and Outcomes Framework) were analysed. These data are reported for three-year periods, from which we took a yearly average. Amputations due to both type 1 and type 2 diabetes are included within these data.

Data on amputations are not available broken down by deprivation group. Instead, we used data from the

National Diabetes Audit on the proportion of individuals registered with type 2 diabetes (and other types of diabetes excluding type 1) in each quintile of deprivation as defined by the Index of Multiple Deprivation and in ethnic groups.

HEALTHY LIFE EXPECTANCY

Data from the Office of National Statistics on Healthy Life Expectancy at birth for 2017–19 were used. Healthy life expectancy at birth is an estimate of the average number of years babies born this year would live in a state of 'good' general health if mortality levels at each age and the level of good health at each age remain constant in the future. Data are reported for men and women per decile of deprivation based on the Index of Multiple Deprivation 2019.

CHILDREN'S HEALTH TRAJECTORY

The trajectories were modelled by the London School of Hygiene & Tropical Medicine using projected figures based on current trends, showing what the rates of overweight and obesity will be for these children if trends continue as they have. The projected levels of overweight and obesity for children compare the most and least deprived decile of the population, and compare children from different ethnic groups. Finally, the predicted levels of some diseases which are closely related to diet are projected. Some individuals will have multiple comorbidities, living with several of the conditions on our trajectory showing the future health outcomes for 2022's birth cohort.

CLIMATE CHANGE IMPACT OF FOOD

The data presented are from estimates and targets from the UK Climate Change Committee.

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