The Broken Plate 2022: Technical Report

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Metric 1: Affordability of a healthy diet

Data source(s)

Department for Work and Pensions, Households below average income: for financial years ending 1995 to 2021 - part of the Family Resources Survey (FRS).

Dr Asha Kaur and Prof Peter Scarborough (2022), 'The cost of achieving the Eatwell Guide diet update: report' (in press and soon to be published on the Oxford Research Archive).

Methodology

The 2020/21 HBAI dataset was used in conjunction with an estimate of the daily cost of adhering to Eatwell Guide to calculate the average proportion of unequivalised household disposable income (after housing costs) that would be used up by the estimated household Eatwell cost, by income quintile.

New estimates for the cost of achieving the Eatwell Guide were utilised for this year's Broken Plate report – meaning that the findings reported in this year's report are not directly comparable to the figures provided in Broken Plate 2019, Broken Plate 2020 and Broken Plate 2021. Previous editions of Broken Plate used an estimated Eatwell guide cost of £5.99 per adult per day, based on modelling published by Scarborough et al., 2016. This year an updated and improved figure from the same team at the University of Oxford was used. This relies on a more comprehensive database of food items and prices (13,912 food and drink items vs. 7,575 items which were used in the 2016 modelling). The cost of the Eatwell Guide is now estimated to be £6.82 per adult per day, based on food price data from October 2019. Given the current rapid food price inflation which the UK is experiencing, it was also felt important to account for food price inflation since October 2019. The £6.82 figure was therefore adjusted based on the headline CPI inflation figure for 'food and non-alcoholic beverages'. Inflation from October 2019 to April 2022 was 7.64%, taking the Eatwell Guide cost to £7.34.

A secondary analysis of the FRS was then conducted, in which the estimated cost of an 'Eatwell' diet was considered in relation to UK household disposable income, building on the methodology set out in The Food Foundation's 2018 report, 'The Affordability of the Eatwell Guide'.

Weekly Eatwell cost per household was determined based on household composition. To consider different dietary intakes of children under 19 years, as well as economies of scale that would likely affect the overall Eatwell cost for a household, the McClement's equivalence scale was used to adjust the per-person cost. Although a crude method, the McClement's scale was chosen over alternative equivalisation scales (e.g. OECD) because it better captures age group differences. This approach was also chosen over adjusting the adult cost based on recommended energy requirements (EAR) by age group/sex because it considers economies of scale with increasing numbers of household members, which an EAR approach would not.

Disposable income was defined as the amount of money available for spending and saving after direct taxes (such as income tax, national insurance and council tax) and after housing costs (AHC) are removed. It includes income from earnings and employment, private pensions and investments, and cash benefits provided by the state. Disposable income in the HBAI also includes the value of Free School Meals. Housing costs removed from disposable income included: rent; water rates, community water charges and council water charges; mortgage interest payments; structural insurance premiums; and ground rent and service charges.

Statement on analysis in Broken Plate 2019, 2020 and 2021 reports:

During the process of conducting the affordability analysis for this year's Broken Plate report, it was noticed that the McClement's Equivalence Scale ratios had not been accurately sourced for the analysis that appeared in Broken Plate 2019, 2020 and 2021, such that the analysis for those reports was conducted using 'before housing cost' (BHC) ratios. The Food Foundation would like to apologise for this error, and encourages researchers and other stakeholders to get in touch with any queries regarding the analysis that appeared in previous Broken Plate reports.

Metric 2: Wages in the food system

Data source(s)

Office for National Statistics. (2021). Annual Survey of Hours and Earnings, 1997-2021: Secure Access. 16th Edition. UK Data Service. SN: 6689. DOI: 10.5255/UKDA-SN-6689-16.

Data for the years 2012 through to 2021 were analysed by the Resolution Foundation.

Methodology

The following filters and definitions were applied:

- GB only
- Low paid = paid less than 2/3 of overall median hourly pay
- Minimum wage or less = paid less than age-relevant minimum wage plus 1%.
- RLW = real living wage (the London or Rest of UK rates are applied, depending on location of worker)
- Covers employees only (i.e. not self-employed)

Relevant food industry sectors were then searched using the following codes:

- Industry groups (codes are all SIC 2007):
  - *Agriculture and fishing:* SIC code 1 (Agriculture, forestry & fishing) excluding 1.7 (Hunting).
  - *Food retail:* SIC codes 47.2 (Retail of food, beverages, and tobacco in specialised stores) excluding 47.26 (Retail of tobacco in specialised stores), plus 47.11 (Retail sale in non-specialised stores with food, beverages or tobacco predominating) and 47.81 (Retail sale via stalls and markets of food, beverages, and tobacco products).
  - *Food wholesale:* SIC codes 46.3 (Wholesale of food, beverages, and tobacco) excluding 46.35 (Wholesale of tobacco products), and 46.17 (Agents involves in the sale of food, beverages and tobacco).
  - *Catering (bars and kitchens):* SIC code 56 (Food and beverage service activities).
- Occupation groups (codes are all SOC 2010):
  - *Kitchen staff:* SOC codes 5434 (Chefs), 5435 (Cooks), 9272 (Kitchen and catering assistants).
  - *Waiters & waitresses:* SOC code 9273.
- Whole food sector: any of the above.

The percentage of workers within the whole economy, the whole food sector, and each food industry sector earning the minimum wage or the RLW in 2021 was assessed. For the whole economy and the whole food sector the percentage of workers defined as paid at or below the minimum wage, and the percentage earning below the RLW, was also assessed for each year from 2012 to 2021.

Comments

The ONS regularly revise and update their datasets. As a result this means that there are some slight discrepancies between the percentages reported in this year's Broken Plate for 2020's ASHE data and last year's report.

As for last year, *the numbers include furloughed workers* – following ONS's approach. This means it is quite hard 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 entirely. It is therefore difficult to confidently identify trends as we do not yet know which of those factors is dominating. For example, the low pay threshold is relative to the median, the median itself will have fallen due to compositional effects (i.e. which means the low pay threshold falls), whereas the minimum wage is a fixed number, so it's not affected in the same way. As a result, data back to 2012 is provided to provide some context in terms of longer-term trends.

Metric 3: Cost of healthy food

Data source(s)

The Office for National Statistics (ONS) Consumer Price Index (CPI) continuous dataset; National Diet and Nutrition Survey (NDNS) waves 9-11.

Methodology

Food price

The MRC Epidemiology unit at the University of Cambridge built on food price research first conducted in this 2014 paper.

The CPI dataset provides monthly data on the price of a number of food and drinks products. Food and drink products are selected for inclusion in the CPI based on economic rationale and the list of items is updated each year to reflect the content of an average UK shopping basket. Health considerations are not taken into account. As a result, items drop in and out of the basket every year, and the basket does not necessarily reflect diets recommended in the Eatwell Guide. In order to track price trends over the course of a decade, only the 107 food and drink items that were consistently included in the CPI over 2012-2022 were included in the analysis for this year's report.

For a number of products, prices were not collected across all quarters. In these cases, missing price data was imputed using the price of the quarter before (i.e. last value carried forward).

Price per 1000 kilocalorie in each quarter of each year was calculated for each item and mean price across each quarter in each year calculated. These prices were then converted to price per kilocalorie, which is a helpful way to understand the relative prices of foods that make up diets and meals, rather than comparing individual products within specific food categories.

Food weights and nutritional content

Updated price data calculated as above was linked to data calculated for the 2014 paper on average purchase weight and nutritional content.

Purchase weight was either as stated in the CPI (e.g. potatoes-new-per-kg); the weight of nearest match products from an online supermarket aggregator for items described in units (e.g. individual pizza); or weights provided in the USDA National Nutrient database for loose items (e.g. single fruits).

Nutritional content per 100g was obtained from the UK Nutrient Databank. Some products in the CPI (e.g. tinned fruit) represent broader product groups than in the Nutrient Databank (e.g. tinned peaches, tinned pears). In these cases the mean nutritional content of all products within the group, weighted by consumption frequency from the National Diet & Nutrition Survey (NDNS) years 9-11 was calculated.

Food price data relates to food items as purchased (e.g. 100g of raw chicken breast) whereas nutritional data relates to food as consumed (e.g. 100g grilled chicken breast). To adjust for differences in weight and nutritional composition food yields were used from the US Department of Agriculture handbook 102: Food yields.

Categorisation

Each item was categorised as either 'more healthy' or 'less healthy' using the nutrient profiling model developed by the Food Standards Agency (FSA).

Foods were also categorised into the groups in the Eatwell Guide using the process described on p55 here.

We plotted trends in mean price per 1000kcal per year for more and less healthy items; and for items in each of the five Eatwell Guide food groups.

Changes this year

This year's method has been updated from previous Broken Plate reports.

The food price data published in this report may vary somewhat from 2020 and 2021. In 2020 and 2021, food items that had dropped out of the CPI basket since the previous analysis were excluded (e.g. donuts and baking potatoes), but food items newly included in the CPI basket were not added to the 10 year analysis (e.g. quiche, fish fingers and double cream). This year we have refreshed the whole analysis and all food items included in the CPI basket over the last 10 years were included. This resulted in a larger list of food items (107 items instead of for example 79 items in the 2021 analysis).

This year NDNS data from waves 9-11 has been analysed instead of waves 1-3 as in previous years.

Metric 4: Cost of sustainable alternatives

Data source(s)

The price (per litre) and nutritional content (per 100ml) of all almond, oat, rice and soya plant-based milk alternatives (PBMAs) sold online from Aldi, Tesco and Waitrose were collected in May 2022. The per-litre price of semi-skimmed cows' milk sold in 2-pint bottles was also collected from these retailers. This bottle size was chosen because it is closest to the container size in which PBMAs are often sold (1 litre).

The nutritional content of cows' milk was obtained from the McCance and Widdowson's 'composition of integrated foods dataset'. This provides the nutrient content of the UK food supply.

Data on the environmental impact of dairy milk and each plant-based alternative was sourced from the peer-reviewed publication "Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. Science" – which can be found here.

Methodology

A database containing cows' milk and PBMAs (almond, oat, rice and soya) from each retailer was created. Information included: type of milk/plant-based alternative, retailer, brand/own brand, price (£/litre), sweetened/unsweetened, fortified/unfortified, organic/inorganic, fresh/UHT. Nutritional information collected included: energy (kcal), fat (g), saturated fat (g), sugar (g), fibre (g), protein (g), salt (g), vitamin D (µg), vitamin B12 (µg), vitamin B2 (µg), calcium (mg), iron (mg), iodine (µg), zinc (mg) and potassium (mg).

Where the same product was sold across more than one retailer, the average price was calculated and recorded in the final database. Retailers were selected to represent a range of price points in the UK supermarket sector - Aldi as the cheapest, Waitrose as the most expensive, and Tesco which falls in the middle but is the supermarket with the largest market share (June, 2022).

From the final database, the average price of each type of milk/PBMA (cow, almond, oat, rice and soya) was then calculated per litre, and the average nutrient content of each type of PBMA was calculated per 100ml.

Metric 5:Quality of food in schools

Data source(s)

Soil Association

Methodology

The Soil Association provided data on the schools that are accredited under the *Food for Life Served Here* scheme in England and Scotland, 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 was 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 state schools that have *Food for Life Served Here* accreditation was then calculated for England as a whole and Scotland as a whole, as well as a breakdown for primary, secondary and special schools for each country.

Metric 6: Places to buy food on the high street

Data source(s)

Data from the Ordnance Survey and analysed with the MRC Epidemiology Unit at the University of Cambridge. This product includes data licensed from PointX © Database Right/Copyright 2022 and OS © Crown Copyright 2022. All rights reserved.

Methodology

Data on the proportion of fast-food outlets out of total food outlets for each local authority were obtained from Ordnance Survey's Points of Interest (OS POI) dataset. OS POI data for June 2021 contains information from over 170 suppliers and is one of the most complete sources of food outlet locations available in England. Data were extracted for the locations of cafes, convenience stores, restaurants, supermarkets, specialty and takeaway food ('fast-food') outlets (Ordnance survey, 2018b). OS POI classes 'fast food and takeaway outlets', 'fast food delivery services', 'fish and chip shops' and 'bakeries' were combined as fast-food food outlets.

Fast-food outlets as a proportion of all food outlets (%) within local authorities was then calculated. This method is consistent with the method that has been used in previous Broken Plate reports and the data have been compared to data from previous Broken Plate reports to assess changes over time.

To assess the proportion of local authorities that have seen an increase or decrease, percentage change in proportion of fast-food outlets since June 2020 for each local authority was calculated. Percentage change was classified as an increase or decrease if it was 5% or greater.

Local authority deprivation scores were from the Index of Multiple Deprivation 2015. 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.

Metric 7: Sustainability of convenience foods in high street retail settings

Data source(s)

Sandwiches Unwrapped 2019 and 2022, Eating Better.

Methodology

Eating Better's 2022 survey includes 430 sandwiches available to buy in 14 UK high street retailers in February 2022.

Data for M&S, Caffe Nero, Boots and Greggs was collected through in-store fieldwork. Two large outlets in London were visited for each retailer, and each store was visited on two separate dates. Data for Costa, Subway and Pret a Manger was collected manually from company websites. Each store's website was visited on two separate dates. Data for Aldi, Tesco, Morrisons, Asda, Waitrose, Co-op and Sainsbury's are from foodDB, a comprehensive, real-time database of food and drink products available online in the UK, developed at the Nuffield Department of Population Health, University of Oxford. With a focus on products available to buy online in all major UK supermarkets, foodDB currently collects information on over 120,000 food and drink products every week. It uses big data techniques for collection, processing, storage and analysis of available products, making it a powerful tool to track and evaluate changes in the marketplace.

Ocado, Iceland and Lidl are out of scope as they did not find any sandwiches for sale.

Ready-to-eat sandwiches, baguettes, wraps, sub rolls, focaccia, baps or toast were all included. Products that require heating were excluded.

The ingredients text for each product were used to classify it into one of four categories: 'meat', 'fish', 'vegetarian', or 'plant-based'. Vegetarian products may contain eggs or dairy products, but no meat, fish or seafood. Plant-based products as those either labelled as suitable for vegans or which did not appear to contain animal products on the label.

Metric 8: Business reporting on healthy and sustainable food sales

Data source(s)

Plating Up Progress dashboard, The Food Foundation.

Methodology

The Food Foundation's Plating Up Progress project assesses the performance of 29 major UK-operating food companies in supporting a transition towards a more healthy, just and sustainable food system on an annual basis: 11 food retailers, 5 caterers, 5 casual dining and 6 quick service restaurant chains, as well as 2 wholesalers. For Broken Plate, the 2 wholesalers were excluded, as they are not directly consumer-facing businesses. The Broken Plate analysis is therefore based on 27 companies.

The full Plating Up Progress analysis uses 24 metrics to assess food businesses' reporting and targets across a range of food-related health, environmental and social issues. The data is taken from publicly available sources including corporate reports, company websites and other reporting mechanisms and industry benchmarks. Only data that is publicly available at the time of writing is considered.

For Broken Plate, the 3 Plating Up Progress metrics relevant to healthy and sustainable food sales were assessed – whether companies were reporting on 1) the percentage of their sales that come from healthy food; 2) the percentage of their sales that come from vegetables (taken from the original Plating Up Progress metrics on sales of fruit and vegetables and from The Food Foundation's Peas Please project); and, 3) the percentage of their protein sales that come from animal-based proteins vs plant-based proteins. The Broken Plate analysis did not consider whether companies were setting targets, but simply whether they were reporting on sales data in each of these three areas. Cases where companies were only reporting on partial data (such as sales of vegetables only for certain food categories, or only reporting on product ranges rather than sales) were not scored for the Broken Plate metric.

The full analysis from Plating Up Progress and accompanying methodology can be found here.

Metric 9: Sugar in children's food in retail settings

Data source(s)

Action on Salt and Action on Sugar

Methodology

Action on Sugar and Salt collected full nutritional data of breakfast cereals and yogurts, following strict inclusion and exclusion criteria (Figure 1) for what would be deemed 'child friendly packaging' based on previous surveys for the Broken Plate. Most of the data was obtained online via retailer websites, with the exception of Aldi and Lidl which were collected in-store due to lack of online information. Data was collected between March and May 2022 and a total of 9 major supermarkets were included: Aldi, ASDA, Lidl, Ocado (which covers Marks & Spencer's), Morrisons, Sainsbury's, Tesco, The Co-operative and Waitrose & Partners.

Inclusion and Exclusion Criteria

Inclusion:

A. Child friendly imagery (such as cartoon characters)
B. Child friendly style (such as bright colours, animated)
C. Child friendly brand character (such as Tony the Tiger)
D. Child friendly font (such as balloon letters and child friendly fronts)
E. Child friendly media partnerships (such as Disney)
F. Child friendly offers (such as a free game)
G. Child themed language (such as 'made for kids')
H. Child friendly activities (such as word searches on the back of pack)

Exclusion:

A. Animations that are part of company logos
B. Non-child themed lifelike drawings (such as pencil like drawings or sketches)
C. Duplicates of the same product, in but in different packaging sizes

Products that met the inclusion criteria were assessed against the Government's Front of Pack Nutrition Labelling Guidance[i] to note how many products were high, medium, or low in sugar, salt (breakfast cereals only), and saturated fat (yogurts only). In addition to this, a scoring system was created for fibre (breakfast cereals only) based on previous reports[ii] (Table 1).

Nutrition information for brands was gathered from the retailer's websites, rather than the manufacturer's, to determine if they were available for sale at time of data collection, and to look at information that was available to consumers at point of purchase. Portion size was based on the on-pack suggestion and does not reflect 'real' servings.

Table 1 – Nutrition labelling criteria for 100g of food (The scoring system was created for fibre by Action on Sugar and Salt in Broken Plate 2019)

	Low	Medium	High
Colour Code	**Green**	**Amber**	**Red**
Saturates	≤1.5g/100g	>1.5g to ≤5.0g/100g	>5.0g/100g
(Total) Sugars	≤5.0/100g	>5.0g to ≤22.5g/100g	>22.5g/100g
Salt	≤0.3g/100g	>0.3g to ≤1.5g/100g	>1.5g/100g
Fibre	≥10g/100g	≥5g to <10g/100g	<5g/100g

A total of 137 breakfast cereals met the inclusion criteria (up from 126 in 2021) and 90 yogurts met the inclusion criteria (down from 100 in 2021). The difference in the total number of products surveyed each year is likely a result of; new product development, a change in product packaging which falls in or out of scope of the inclusion criteria, and availability in-store and online at the time of data collection.

Metric 10: Advertising spend

Data source(s)

Nielsen Ad Intel

Methodology

Nielsen measures advertising expenditure across all traditional media channels. Nielsen's advertising expenditure is used by advertisers and networks to shape the buying and selling of advertising. Digital advertising is monitored but due to the complexities of buying this medium Nielsen have decided not to include.

Nielsen ran a report for use in Broken Plate for the calendar year 01 January 2021 to 31 December 2021 on Friday 13th May 2022 at 13:13. This included data on advertising spend across seven different media channels (cinema, direct mail, door drops, outdoor, press, radio and TV) for the 222 minor product categories which are included within the 'food' and 'drink' major product categories.

There is a significant amount of volatility year on year in terms of where ad spend goes. As a result, each year some minor product categories drop off the list and new ones come in, with spend per minor category fluctuating a fair amount.

Minor product categories were allocated to one of the following groups (with the exception of a small number of excluded categories – see below):

- Brand advertising
- Desserts
- Snacks
- Confectionary
- Soft drinks
- Fruit and vegetables
- Carbohydrates
- Condiments
- Cereals
- Convenience foods
- Ready meals
- Meat and fish
- Dairy and alternatives
- Water, tea and coffee
- Other

This approach differs to previous years, when minor categories were only analysed if they related to four selected food groups – soft drinks, confectionery, sweet and savoury snacks or fruit and vegetables.

This year the only minor categories which were excluded from the analysis were those relating to alcoholic drinks and baby foods.

The total advertising spend in sterling and percentage (%) spend was then calculated per grouping.

Metric 11: Children's weight

Data source(s)

England: National Child Measurement Programme, NHS Digital.
Scotland: Primary 1 Body Mass Index (BMI) statistics Scotland, Public Health Scotland.

Methodology

The Child Measurement Programmes in both nations are annual surveillance programmes that measure the height and weight of children.

For England, the data reported is for children in Reception (age 4-5). Due to disruptions caused by Covid-19, fewer children than usual were measured in 2020/21. Statistical weighting was therefore applied to data collected to produce estimates of the prevalence of underweight, healthy weight, overweight, obese and severely obese children at national level that can be compared to data from previous years. Deprivation is measured by the Index of Multiple Deprivation (IMD) and is based on postcode of the school.

For Scotland, the data are for children in Primary 1 (age 4.5-6.25). Similarly, Covid-19 disruption means that fewer children than usual were measured 2020/21, and there was also variability in coverage within and between areas. In view of this, detailed analysis was carried out to check whether the data submitted was comparable to previous years, and at a national level, these analyses indicate that they are sufficiently comparable to earlier years to provide meaningful trend data. Deprivation was measured by the Scottish Index of Multiple Deprivation (SIMD). Data definitions are based on epidemiological categories which defines obesity as a BMI greater than or equal to 95th centile.

Due to pandemic restrictions, the child measurement programme for Wales was only able to collect data in two health boards and therefore has not been included in this years report. Northern Ireland report on children's weight using international definitions of overweight and obesity rather than the definitions used by the other three nations in the UK and therefore hasn't been included as it is not comparable to the other countries.

Metric 12: Children's growth

Data source(s)

Office for Health Improvement and Disparities (OHID), Height by deprivation decile in children aged 10 to 11.

Methodology

The data show average height in centimetres for children aged 10 to 11 years (Year 6) measured in the National Child Measurement Programme (NCMP) in the academic year 2020-2021 by deprivation decile and sex. The data shown are for White British children in England only. The NCMP is an annual surveillance programme that measures the height and weight of children attending state-maintained primary schools in England. Deprivation was measured using the 2019 Income Deprivation Affecting Children Index (IDACI) which measures the proportion of children under the age of 16 living in low-income households. Deprivation groups have been shown as deciles.

The start of the 2020 to 2021 NCMP was delayed due to the COVID-19 pandemic. The 2020 to 2021 NCMP collection achieved around 25% of a usual full measurement year. The average height in centimetres for children measured in the 2020 to 2021 NCMP will be higher than previous year's as the majority of measurements were taken towards the end of the academic year; the average age of children measured will be higher and children will be taller compared to the beginning of the academic year. Therefore, average height measurements are not comparable to data from previous years.

Metric 13: Diabetes-related amputations

Data source(s)

NHS Digital, National Diabetes Audit.

Methodology

The Diabetic Footcare Profile presents information on people with diabetes from England who were admitted to hospital for foot disease. The information in the profile is compiled from Hospital Episode Statistics (HES). Data are provided number of admissions for major and minor amputations over three-year periods. A major lower-limb amputation refers to above the ankle. We took an average to work out the average per year over that three-year period.

Data on proportion of people with type 2 diabetes by deprivation group and ethnic group is from data on registrations from the National Diabetes Audit in England 2021. Data is for Type 2 and other diabetes (excluding Type 1). Quintile of deprivation is based on the Index of Multiple Deprivation.

Metric 14: Healthy life expectancy

Data source(s)

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

Methodology

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.

Metric 15: Children's health trajectory

Data source(s)

The following data sources were used to model projections for the prevalence of nutrition-related chronic diseases per 100 children for 2022's birth cohort. Projected data was estimated based on trends for several years. The most recent reports in the time trend series used for the various health outcomes spotlighted have been cited below.

Mortality rates
Marshall L, David Finch D, Cairncross E, Bibby J. Mortality and life expectancy trends in the UK: Stalling progress. Health Foundation 2019 (Projection for cohort born 2005).

Obesity and overweight
Child Overweight and Obesity: National Child Measurement Programme, England 2020/2021. Index of Multiple Deprivation (IMD) decile based on the postcode of the child.
Adult Overweight and Obesity: Health Survey for England 2019 (age 16-24 and average of age groups 55-64 and 65-74)

Diabetes
Prevalence: Health Survey for England 2019, Adults Health (age 21 and average of age groups 45-64 and 65+)

Cardiovascular disease (CVD)
CVD prevalence: British Heart Foundation, Heart and Circulatory Disease Statistics 2019 (age group 16-34 and average of age groups 55-64 and 65-74)

Cancer
J Maddams et al, Projections of cancer prevalence in the UK. Brit J Cancer. 2012; 107:1195-1202 (age >65)

Osteoporosis
Rates of admission for fractures of the femur: Balasegaram S, Majeed A, Fitz-Clarence H. Trends in hospital admissions for fractures of the hip and femur in England, 1989-1990 to 1997-1998. J Public Health Med. 2001 Mar;23(1):11-7 (average of men and women age groups 45-64 and 65-74)
Osteoporosis prevalence figures: Hernlund E et al. Osteoporosis in the European Union: medical management, epidemiology and economic burde : A report prepared in collaboration with the International Osteoporosis Foundation (IOF) and the European Federation of Pharmaceutical Industry Associations (EFPIA). Arch Osteoporosis. 2013;8:136.

Methodology

Published forecasts were used where these are given in the published literature cited here. Where they were not available for the age group and year needed, the Excel 'Forecast' function was used to make projections from the available published data.

It was not possible to incorporate differential outcomes for different socio-economic groups for all nutrition-related chronic diseases of interest, given that it is very difficult to predict what these will look like in the future. However, it is very likely that outcomes will be worse the poorer you are. Where it was possible to include projections for different socio-economic groups (broken down by Index of Multiple Deprivation (IMD) decile), the forecasts assumed no change in IMD group during the relevant time period.

Note that the trajectory was *not* included in 2019's Broken Plate report but was published later as part of the Food Foundation's response to the Department of Health and Social Care's Green Paper *Advancing our health: prevention in the 2020s,* outlining the government's planned approach for prevention of the major preventable health problems facing people in the UK. This will be the third year it forms part of Broken Plate.

Comments

Diet-related diseases will occur both among those with high BMI and those at a lower BMI. Cancer has been included as a diet-related disease, with around a third all cancer cases estimated to be preventable through healthy lifestyles.

Note that the projected figures based on trends indicate overweight prevalence staying the same or reducing while obesity increases, and especially morbid obesity. This is probably a consequence of the mean BMI moving up through the 'overweight' category towards the threshold for obesity.

Also note that rates of childhood obesity and severe obesity rose rapidly between the 2019/2020 Child Overweight and Obesity: National Child Measurement Programme and the most recent 2020/21 version. This coincides with periods of 'lockdown' throughout the COVID-19 pandemic, and may therefore not be representative of an average year in England. While projections consider all historical data, a large jump in the latest year may have somewhat impacted future trajectories. Additionally, severely obese IMD decile and ethnicity breakdown forecasts are only based on four years of data, and therefore projected figures should be treated with greater caution.

Metric 16: Climate change impact of food

Data source(s)

UK Climate Change Committee, 2020. The Sixth Carbon Budget Methodology Report

Methodology

The data presented are from estimates and targets from the UK Climate Change Committee. The scenarios compare trajectories consistent with meeting the Net Zero target, with a projection of baseline emissions where measures to reduce emissions are largely absent. Baseline emissions for agriculture are based on the BEIS Updated Energy and Emissions Projections and the LULUCF sector is based on a projection derived for this report by the Centre for Ecology and Hydrology (CEH), which includes all sources of peatland emissions.

The Balanced Net Zero Pathway represents their central scenario for how the agriculture and land sectors will need to evolve to deliver Net Zero across the economy by 2050.

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