



Institute for Fiscal Studies

IFS Report R266

Rachel Griffith

The costs of obesity

The costs of obesity

Rachel Griffith

Institute for Fiscal Studies and University of Manchester

13 July 2023

1 Summary

Policies that aim to reduce the prevalence of obesity have been high on the policy agenda for many years – see, for example, DHSC (2020) and Dimpleby (2021). Understanding the costs associated with obesity is important for informing policy. Bell and Deyes (2022) have recently produced what are, to date, the most detailed estimates of the costs of adult obesity in the UK. This note puts those estimates in context, discusses what costs are missing from their analysis, and which of the costs included are most relevant for policymaking.

In summary, the most recent estimates of the cost of obesity are:

- Around 3% of GDP, £58 billion per year (2020)
 - GDP has risen by around 12% between 2020 and 2022 (ONS, 2023), so expressed relative to GDP in 2022 this would be £65 billion.
 - Around one-third of this is costs to the NHS, social care, lost workplace productivity, and COVID.
 - Around two-thirds is costs to individuals in reduced life expectancy and quality of life.
- This estimate would be considerably higher if:
 - it included estimates of the costs of child and adolescent obesity, since these are likely very large and long lasting. Obesity is more prevalent in children and adolescents now than it was in the past. Pearson-Stuttard et al. (2023) show that ‘overweight and obesity in adolescents is associated with the development of obesity-related complications and multimorbidity, which increased over 5 years ...’;
 - it included the likely increase in costs in future years if the prevalence of obesity continues to increase; the costs above are for one year;
 - it included the costs of other consequences of obesity – for example, broader mental health costs, increased prevalence of other diseases not included and the costs of providing informal care (see, for example, Nizalova et al. (2020)).
- The estimate would be lower if:
 - a lower value of a quality-adjusted life year (QALY) was used; Bell and Deyes (2022) use the official Green Book value (HM Treasury, 2022); however, they show in their report that if they instead used the value used by the NHS (as a threshold for treatment), which is lower, this would reduce their estimate of the cost to £28.6 billion per year;
 - individual costs were not included; not everyone agrees that the costs to individuals in reduced life expectancy and quality of life are relevant for policy; this would reduce the estimate of Bell and Deyes (2022) to £18 billion per year.
 - the savings associated with BMI-caused deaths through savings to the NHS, and in taxes, benefits and pensions, were included; Tovey (2017) estimates

these as £3.6 billion in 2016, which would bring the cost down to £54.4 billion.

2 Bell and Deyes (2022) estimates of the costs of obesity

Bell and Deyes (2022) include in their estimates the following costs of obesity:

- **individual costs**, through lower life expectancy or a reduction in the quality of life;
- **NHS costs**, including the costs of treating illness that is directly related to obesity, and the costs of antidepressant prescriptions;
- **wider costs**, including loss of productivity in the workplace and the costs of social care;
- **higher costs of COVID**, which include both NHS costs and individual costs.

Table 1: Estimates of costs of obesity from Bell and Deyes (2022, p.20)

	Costs reported in Bell and Deyes (2022) in £bn in 2020	Value in £bn in 2022, uprated by 12% growth in GDP	% of total
Individual costs – reduction in longevity and quality of life	39.8	44.6	69%
NHS costs	6.5	7.3	11%
Social care	5.8	6.5	10%
Workplace productivity	1.7	1.9	3%
COVID – higher costs to NHS and individuals	4.2	4.7	7%
Total in £bn	58.0	65.0	
Total as % of GDP	3%	3%	

In each case, the cost of obesity is obtained by comparing the cost for a healthy-weight individual with the cost for an obese person. All costs are for adults only.

Compared with OECD (2019) and Dobbs et al. (2014), the Bell and Deyes (2022) estimates are more up-to-date, include a wider set of costs, and focus on the UK only (meaning that more parameters in their calculations are based on UK evidence or policy documents). OECD (2019) estimates the costs of both overweight and obese individuals, while Bell and Deyes (2022) consider only obesity. Dobbs et al. (2014) use estimates of direct healthcare costs from World Health Organization, not UK-based, estimates.

The estimates produced in OECD (2019) and Dobbs et al. (2014) are therefore not directly comparable to those in Bell and Deyes (2022). However, the overall estimates as a share of GDP are similar, with OECD (2019) suggesting a total cost of 3.4% of GDP and Dobbs et al. (2014) 3.0% of GDP.

Bell and Deyes (2022) consider the sensitivity of their estimates to a number of key assumptions. The most important of these is the monetary valuation of a quality-adjusted life year (QALY) used to calculate the individual costs, because these costs make up a substantial portion of the total costs.

3 Social costs are what matter for policy

Social costs are the costs that matter when making decisions over the level and direction of policy. What are social costs? With reference to food-related outcomes, ‘social costs’ are costs that are not accounted for by the individual when making a decision over what foods to eat and how much to consume. Social costs can include costs that fall on other people (called externalities) or costs that fall on the person themselves in the future but that they do not know about or do not consider at the time of consumption (called internalities). What distinguishes social costs from private costs is that the person taking the decision does not account for the costs at the time of taking the decision to consume.

Why are social costs relevant for policy?

If a person making a decision over what foods to eat and how much to consume takes account of all of the costs of consumption, then the market (individual buyers and sellers interacting to exchange goods) will yield the most efficient allocation of resources. Government policies cannot increase well-being through changing people’s consumption choices.

However, if the individual making the choice does not have information on, or does not account for, all of the costs, then government can potentially improve well-being (social efficiency) through policies that result in people behaving in ways that reflect the full costs. If the person taking the consumption decision does not account for all of the costs at the time of taking the decision to consume, this means that the standard market mechanisms that lead to people only consuming goods when the benefits are higher than the costs are not at play.

In order to design and implement these policies, it is important for government to know the scale and distribution of social costs.

With regards to food

- private costs are the costs that are anticipated and fully internalised by the person making the consumption decision. These include the market price paid by the consumer, and health risks that the consumer fully pays for and that they knowingly take because they enjoy consuming the food and that pleasure outweighs the health risks for them;
- social costs include those costs that are not paid for by the person making the consumption decision, but are paid for by others. These include a higher cost to the NHS of treating a person with obesity, and increased absences from work that affect the productivity of other workers in the firm (and that are not reflected in the person’s wages);
- social costs also include costs that will be paid for by the person themselves, but are not fully anticipated or not fully internalised when making the consumption decision. These include health risks that do not enter into the consumer’s decision making (for example, because they are not aware of the risk, or they were not able to process the

information about the risk at the time of making the decision – for example, because they are distracted by advertising or are very young).

In many cases, it is difficult to measure the magnitude of social costs, and to distinguish them from private costs, particularly social costs that fall on the person themselves in the future.

Consumers may face problems of self-control and time-inconsistency and thus might underweight the future health costs of consumption of unhealthy foods relative to how they would like, in the future, to have weighted those costs. There are different points of view on whether policymakers should respect consumers' 'long-run' or 'short-run' preferences (see, for example, discussion in Bernheim and Rangel (2009) and Bernheim and Taubinsky (2018)). A social planner who uses the long-run criterion for welfare analysis might want to help people implement their long-run preferences by reducing consumption of unhealthy foods.

Governments can also improve well-being (social welfare) in situations where the market results in a distribution of resources that is not what society prefers. For example, if the government places a high value on providing children with equality of opportunity, if education is seen as an important part of that, and if poverty is a driver of poor school performance through poor nutrition and rising obesity, then there are also equity reasons for policy intervention, which are separate from social cost concerns.

References

- Bell, M. and Deyes, K. (2022), 'Estimating the full costs of obesity: a report for Novo Nordisk', *Frontier Economics Report*, 26 January 2022. <https://www.frontier-economics.com/uk/en/news-and-articles/articles/article-i9130-the-annual-social-cost-of-obesity-in-the-uk/#>
- Bernheim, B. D. and Rangel, A. (2009), 'Beyond revealed preference: choice-theoretic foundations for behavioral welfare economics', *Quarterly Journal of Economics*, 124(1), 51–104. <https://doi.org/10.1162/qjec.2009.124.1.51>
- Bernheim, B. D. and Taubinsky, D. (2018), 'Behavioral public economics', NBER Working Paper 24828. <https://ideas.repec.org/p/nbr/nberwo/24828.html>
- DHSC (2020), 'Tackling obesity: government strategy', Department of Health and Social Care, 27 July. <https://www.gov.uk/government/publications/tackling-obesity-government-strategy>
- Dimbleby, H. (2021), 'The National Food Strategy: an independent review for the government'. <https://www.nationalfoodstrategy.org/>
- Dobbs, R., Sawers, C., Thompson, F., Manyika, J., Woetzel, J., Child, P., McKenna, S. and Spatharou, A. (2014), 'Overcoming obesity: an initial economic analysis', McKinsey Global Institute Discussion Paper, November. https://www.mckinsey.com/~media/mckinsey/business%20functions/economic%20studies%20temp/our%20insights/how%20the%20world%20could%20better%20fight%20obesity/mgi_overcoming_obesity_full_report.ashx
- HM Treasury (2022), 'The Green Book: central government guidance on appraisal and evaluation'.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1063330/Green_Book_2022.pdf

Nizalova, O., Gousia, K. and Forder, J. (2020), 'Effect of body mass on future long-term care use', *BMC Geriatrics*, 20, 293. <https://doi.org/10.1186/s12877-020-01688-4>

OECD (2019), 'The heavy burden of obesity: the economics of prevention'. <https://www.oecd.org/health/the-heavy-burden-of-obesity-67450d67-en.htm>

ONS (2023), 'Gross domestic product: chained volume measures: seasonally adjusted £m', Office for National Statistics, 12 May. <https://www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/abmi/pn2>

Pearson-Stuttard, J., Holloway, S., Sommer Matthiessen, K., Thompson, A. and Capucci, S. (2023), 'Burden of obesity-related complications in adolescents living with overweight and obesity: a retrospective open cohort study in a UK real-world population', in *Obesity Facts*, 16(suppl. 1), 1–351. <https://doi.org/10.1159/000530456>

Tovey, M. (2017) 'Obesity and the public purse: weighing up the true cost to the taxpayer', IEA Discussion Paper 80. <https://iea.org.uk/wp-content/uploads/2017/01/Obesity-and-the-Public-Purse-PDF.pdf>