What role should the commercial food system play in promoting health through better diet?

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<td>Complete List of Authors:</td>
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What role should the commercial food system play in promoting health through better diet?

The commercial food system has the potential to show leadership and support for dietary public health, but systemic change is needed first and this is likely to require governmental action.

Authors:

Martin White*, Professor of Population Health Research, Centre for Diet & Activity Research, MRC Epidemiology Unit, Box 285, Institute of Metabolic Sciences, University of Cambridge, UK. martin.white@mrc-epid.cam.ac.uk

Emilie Aguirre, Earl B. Dickerson Fellow, University of Chicago Law School, and PhD Candidate, Harvard Business School, 700 Soldiers Field Road, Boston, MA, 02163, USA. eaquirre@hbs.edu

Diane T. Finegood, Professor and Fellow, Morris J. Wosk Centre for Dialogue, Simon Fraser University, Harbour Centre 3300, 515 West Hastings Street, Vancouver, BC, Canada, V6B 5K3. finegood@sfu.ca

Chris Holmes, Independent Consultant. 15 Cargate Grove, Aldershot, Surrey, GU11 3EN. chris@cholmes.net

Gary Sacks, Associate Professor. Global Obesity Centre, Deakin University, Geelong, Australia, 221 Burwood Highway, Burwood, VIC 3125, Australia. gary.sacks@deakin.edu.au

Richard Smith, Professor of Health Economics and Deputy Pro-Vice Chancellor, College of Medicine & Health, University of Exeter, Medical School Building, St Luke’s Campus, Magdalen Road, Exeter, EX1 2LU, UK. rich.smith@exeter.ac.uk

* Corresponding author
Key messages

- Populations, especially in high- and middle-income countries, and increasingly in low-income countries, are highly dependent on commercial food systems for daily nourishment.

- Commercial food systems currently rely heavily on high volume sales of foods high in unhealthful ingredients (e.g. salt, refined carbohydrates, added sugar and energy derived from fats), and with insufficient healthful ingredients (e.g. fruits, vegetables, legumes, nuts, seeds, minimally processed whole grains and seafood) to generate profits and short-term shareholder value, which can undermine efforts to prevent non-communicable diseases.

- While the commercial food system is economically important, a healthy population is equally, if not more important to economies worldwide, but widely undervalued.

- A fundamental deficit of the current commercial food system is that it does not adequately take account of the high adverse (external) costs of its activities in relation to societies, health or the environment.

- There is the potential for profit to be made from a healthier and more sustainable food system, in ways that are consistent with NCD prevention efforts, but whole system change will be needed to realise the large-scale shifts required.

- Food companies should explore opportunities to profit from healthier and more sustainable food products, enabling closer alignment of the economic goals of the commercial food system with societal, public health, and sustainability goals. Where these goals remain in conflict, governmental measures that require companies to account for their external costs will be necessary to help achieve a healthier and more sustainable food system.

- Food companies could make greater contributions to health and sustainability if they demonstrated leadership in recognising and addressing these challenges. A shift in political, public and corporate perceptions towards a multi-dimensional valuation of companies beyond short-term profit would support such efforts.

- Governments need to step up their efforts to catalyse rapid change in commercial food systems, using the full range of instruments at their disposal, including fiscal and regulatory policies, and the development of metrics to measure the health, environmental and social impacts of food companies.
Introduction

The commercial food system is of increasing concern to those responsible for improving population health. The global nutrition transition is rapidly changing agricultural practices and food cultures, and increasing the consumption of nutritionally-poor processed foods, which are associated with increases in non-communicable diseases (NCDs) in high-, middle- and low-income countries. The growth of childhood obesity in particular continues largely unchecked, risking enormous burdens of future disease, health system costs and intergenerational inequalities.

A number of aspects of nutritionally-poor processed foods, especially ultra-processed foods (e.g. excess salt or sugar), are unhealthy; however, the reasons why processed foods in general are associated with poor health outcomes remain largely unknown. Processed foods have advantages, in terms of shelf-life and convenience, and may not inherently need to be unhealthy, but how to achieve healthier processed foods remains unclear. Food processing and associated marketing adds value to raw ingredients, helping to generate profits, and acting as a key driver of the commercial food system. Large, and especially publicly listed, food companies operate in an economic environment that demands continual profit growth, typically measured quarterly. This system generates a range of behaviours, including the manipulation of demand through aggressive marketing, substantial asymmetry of access to information between manufacturers and consumers, the deployment of tactics (including powerful lobbying of governments) to avoid regulation that may impede profit growth, and the failure to incorporate significant external costs (health, social and environmental) associated with the high-volume sales of processed foods. These behaviours amplify the direct adverse impacts of processed foods and result in poor goal alignment between commercial food production, environmental sustainability, societal wellbeing and population health. This imbalance is unsustainable and needs urgent attention – the syndemic crises of climate change and global obesity need to be treated as emergencies now to avoid catastrophic costs and consequences for future generations.

In high-, middle-, and increasingly low-income, countries populations are highly dependent on commercial food systems for daily nourishment; it is therefore inescapable that businesses will need to play a leading role in bringing about the production, distribution and consumption of healthier and more sustainable foods, whether through their own efforts or through changes to
the regulatory systems in which they operate. In this article, we address two questions – How can the priority accorded to social, public health and sustainability goals achieve greater parity with the priority accorded to profit generation in the commercial food system? And, what leadership is needed to support this challenge globally?

Although we briefly discuss the commercial food system as a whole, given the breadth, scale and complexity of the system, our main focus is on the elements most proximal to consumers (i.e. manufacturing, retailing and food service). Agricultural and trade policies (e.g. Common Agricultural Policy, General Agreement on Trades and Tariffs, U.S. Farm Bill) create production and distribution structures that reinforce the proliferation of cheaper, unhealthier foods, particularly by subsidising production of unhealthier commodities (e.g. sugar and corn), and by facilitating expansion of free trade. However, the roles of agriculture and international trade have been discussed in detail by others, so we say little more about them here.

Why are commercial food systems important for diet and health?

Dietary risks, such as high energy, salt or added sugar intake, and low fruit, vegetable, legume, nut, seed and whole grain intake, are among the greatest predictors of disease burden globally, adversely influencing incidence and mortality from NCDs. Commercial food systems must, therefore, be considered one of the most important influences on population health globally.

Commercial food systems encompass huge, complex and interdependent networks of entities involved in agriculture and fisheries, food processing and production, storage and distribution, wholesaling and retailing, and preparation and marketing of raw, processed and ready-to-eat foods. They are underpinned by global and national logistics, finance, trade agreements and regulatory frameworks, and interact with governmental, inter-governmental and non-governmental actors and the public. The commercial food system as a whole can also be defined by numerous sub-systems, each of which operates within its own boundaries, but influences other components of the whole.

Humans need food to sustain health, reproduction and longevity, and our tastes and desires for foods represent preferences that are both physiologically driven and culturally embedded within societies. The commercial food system delivers largely affordable food to whole populations, and has become increasingly vital to national economies, bringing significant
employment and export trade. Global agricultural trade is valued at around US$1tn (GB£0.78tn, €0.88tn) and food retail sales at around US$4tn (GB£3.15tn, €3.52tn) annually.

Overall, the commercial food system produces enough food to adequately nourish the current global population of ~7.5 billion. However, the system fails to do so in two key respects. First, global output from the commercial food system is heavily skewed towards processed foods, which deliver the greatest profits but are nutritionally inadequate and potentially harmful.

Second, there is uneven distribution of food products resulting in substantial inequalities in physical and economic access to healthy and nutritious foods. Thus, in many parts of the world people remain under-nourished, yet, often in the same countries, people overeat affordable, energy dense foods and suffer associated chronic NCDs, leading to a ‘double burden’ of malnutrition. The drive to increase production of food calories to feed the world’s growing population over the last 70 years (‘calorie fundamentalism’) has been criticised; globally we increasingly produce enough food energy, but insufficient essential nutrients to ensure healthy diets. This challenge will be compounded by predicted global population growth over the next 50 years; it simply will not be viable (in terms of the costs to environment and health) to expand production based on dietary energy requirements alone.

All parts of commercial food systems are interconnected – both through supply and value chains, trade, and via horizontal and vertical integration within large, often multi-national, companies (MNCs). Many MNCs have broad portfolios, including both relatively healthful and unhealthful foods, but the overall balance is increasingly in favour of highly processed foods, the distribution of which is growing especially rapidly in low- and middle-income countries.

Although MNCs command large market shares for specific foods, or in particular sectors (e.g. grocery retailing), the much larger numbers of smaller enterprises are also critically important in food provision, driving industry innovation and growth. For example, although the largest fast-food chain in the UK commands a significant market share, it has just 1,200 outlets, compared with, for example, 10,500 independent fish-and-chip shops and a total of around 64,000 independent takeaways across the UK.

Multi-national food companies have been increasingly criticised for their focus on maximising short-term profits from less healthy food products, their negative impacts on health and the environment, and their tactics to manipulate markets and unduly influence consumers, which together importantly shape policy and public opinion in relation to NCD prevention.
Within the commercial food system – as is common across the other ‘harmful commodity industries’ (e.g. tobacco, alcohol and gambling) – a common pattern of ‘corporate political activities’ aimed at influencing policy and public opinion has emerged. These include: framing information to suit corporate objectives (including manipulation of science); lobbying and financially incentivising policy makers; building pro-industry constituency amongst policy makers, community groups and health organisations; deploying legal strategies to oppose public health measures; extensive use of voluntary industry codes of practice to avoid government regulation; and efforts to fragment and destabilise groups likely to counter industry arguments. High profile examples include industry efforts to change food labelling regulations in Europe, and to repeal health-related food taxes (e.g. the soda tax in Cook County (Chicago), Illinois, USA and the Danish fat tax). This range of corporate political activities presents huge challenges for public health and represents significant barriers to progress in realising a healthier, more sustainable and equitable food system.

Commercial food systems: complex, adaptive and growing

To understand the commercial food system and its relationships, it is helpful to view it as a set of interrelated complex adaptive systems – systems that are unpredictable, self-organising and display behaviours and patterns that emerge from the interactions of the whole system but are not necessarily predictable by the behaviour of component entities. Such systems respond to external stimuli, such as new regulations, but readily adapt and achieve a new equilibrium, developing new structures, rules and behaviours.

Complex adaptive systems tend to be governed by simple ‘rules’ that lead to emergent properties. For example, supermarkets generally abide by an implicit, self-imposed simple rule – that shelves must be plentifully stocked because consumers make a high proportion of purchasing decisions in front of shelves. This rule maintains customers and drives sales, but also creates logistic challenges that can result in over-stocking and the emergent property of unwanted waste, especially for fresh produce. An example of system adaptation is the commercial response to the UK’s Soft Drinks Industry Levy (SDIL). The SDIL applies a graded tax structure to soft drinks with three tiers according to sugar levels – higher tier (£0.24/L for drinks with >8g of sugar/100ml), lower (£0.18p/L for drinks with 5-8g/100ml) and no levy (for drinks with <5g/100ml). Manufacturers of higher-sugar drinks can: choose not to change their drinks...
and absorb the cost or pass it on to customers by increasing prices; reduce sugar content to
avoid the levy; or make other changes, such as diversifying their product ranges and the mix of
product volumes and prices. Most of these responses have been seen in the early phases since
the announcement of the levy, yet the pattern of reactions was not predictable in advance. Furthermore, change is continuing, accompanied by extensive marketing, indicating that the
industry is continually testing out multiple strategies in a quest to find the 'sweet spot', a new
equilibrium where they maintain profits, comply with the law, and satisfy customers, albeit with
different commercial offer.

The commercial food system has achieved continual economic growth through a range of
actions: increased agricultural productivity reducing the cost of inputs; increased processing
that simultaneously reduces the costs of production and distribution, lowers prices and
increases palatability and convenience of foods to consumers; intensive and targeted
marketing of foods with the greatest added value from processing; and increased economies
of scale, consolidation, and extension of markets across nations (through acquisitions, mergers,
vertical and horizontal integration across the supply chain, proliferation of MNCs, and
capitalizing on low-wage economies) (see Figure 1 and Table 1). Highly processed foods
are inherently highly palatable and satisfy human taste preferences, such as for salty and sweet
foods. However, despite their convenience, palatability, longer shelf-life, improved food safety,
endless choice and affordability for consumers, highly processed foods are widely criticised for
their shortcomings in terms of contributions to a healthy diet. The aggressive marketing of
such foods, often accompanied by health and nutrition claims that can obscure potential harms
(e.g. 'high in vitamins'), both drives and distorts consumer demand. Processed foods thus
present a central dilemma for the public health, food policy and consumer choice.

Recent sales growth of processed food products in low- and middle-income countries,
especially soft-drink retail sales, has been extraordinarily rapid. In many countries, a relatively
small number of food companies and retailers hold substantial economic power, due to their
size and the collective efforts of their trade associations, which translates into significant
political influence at national and international levels. Where the profitability of such
companies is reliant on high-volume sales of processed foods, their influence is often in direct
conflict with NCD prevention and sustainability efforts. In such circumstances, commercial
profits are usually privileged above other considerations, resulting in food governance and
public health policy that does not adequately balance public and commercial interests.\textsuperscript{35}

Critically, as a result, the current model in the commercial food system does not adequately account for external costs, such as the environmental impacts of intensive farming and food processing, the social costs of relying on low-wage economies, and the health impacts of overconsumption of foods high in unhealthful ingredients and low in healthful ingredients (Figure 1 & Table 1).\textsuperscript{53} In many contexts, food prices are therefore artificially low, particularly for less healthy foods and those that have greater cost to the environment.\textsuperscript{54}
### Table 1: Key attributes of the commercial food system, actions to address challenges to population health and unanswered research questions

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<th>Key unanswered research questions</th>
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<td><strong>Year on year growth</strong></td>
<td>This results in a strong focus on short-termism compared to achieving long-term value and sustainability. It also results in a lack of attention to costly externalities generated. Expectations of unsustainable growth also drive a relentless focus on adding value by unhealthy processing, aggressive marketing, and push-back on regulation.</td>
<td>Continual growth that is unsustainable on economic, environmental or health grounds requires a radical reset of the current business model to ensure the incorporation of external costs. Shift toward a multi-dimensional valuation of companies, new accounting methods, and development of metrics to measure social impact are imperative. There may also be room for alternative models, driven by ‘triple bottom line’ and ‘circular economy’ principles currently being discussed by major international organisations and financial institutions.</td>
<td>What are the regulatory mechanisms that could enable a shift toward long-term sustainable growth? How can a cultural shift be achieved toward a new conception of businesses as generating both social and economic value? What successful alternative (e.g. social) business models exist? How can policymakers and the commercial food sector be enticed to buy-in to such novel business models? How can social impact of such models be successfully measured and rewarded in the market?</td>
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<td><strong>Focus on processing</strong></td>
<td>Large numbers of highly convenient, shelf-stable, affordable food products in the market place, often nutritionally poor and associated with NCD risk. Processed foods are engineered to appeal to human taste preferences and have become the norm in many diets worldwide.</td>
<td>Increasing taxes on processed foods offers an avenue to increase the price differential between healthy and less healthy foods. VAT or specific taxes could be used. Introducing subsidies on healthier foods could maximise the value of this approach.</td>
<td>What foods could be taxed or subsidised in the interests of population health? What are the barriers and opportunities to achieving such fiscal policies? What are the views of policymakers and the food sector of such regulatory mechanisms? What impacts could such policies have? How can such fiscal policies be designed to avoid legal challenge and repeal?</td>
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<td>Manipulation of demand through marketing of processed foods</td>
<td>Marketing is increasingly pursued via multiple media and using both product and brand advertising, as well as manipulation of product, price and placement of products. Highly effective marketing of processed foods has ensured they have become normalisation in many societies. Regulation of marketing has primarily been introduced by governments, but there are examples of self-regulation (e.g. the exclusion of processed foods from checkout areas in UK supermarkets).</td>
<td>Regulation of marketing can reduce pressure on citizens to consume processed food products. Regulation of marketing can apply to placement (e.g. restriction on advertising processed foods on London’s transport system), timing, media and target audience (e.g. restrictions on advertisements for processed foods during children’s TV), content of marketing (e.g. restricting use of product endorsement by cartoon characters or celebrities), and the restriction on use of price promotions (e.g. in supermarkets or fast food takeaways).</td>
<td>What are the ways that marketing of unhealthy foods could most effectively be reduced? What are the levers to achieve such changes? What are the legal and practical barriers to achieving reductions in marketing of unhealthy foods? What are the views of policymakers and the food sector of regulatory or other mechanisms to reduce unhealthy food marketing? Would regulatory measures have the support of the public?</td>
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<td><strong>Commercial sector influence and push-back on policy development and implementation.</strong></td>
<td>'Corporate political activity' (CPA) involves a number of widely used tactics to ensure that regulation is avoided, including: framing of information to suit corporate objectives (including manipulation of science); providing financial incentives to policy makers; building constituency amongst policy makers, community groups and health organisations; adopting legal strategies to oppose public health measures; extensive use of voluntary industry codes of practice in place of government regulation; 'conversation-changing' publicity; and efforts to fragment and destabilise groups likely to counter corporate arguments.</td>
<td>Countering CPA requires efforts by researchers and authorities to expose such tactics, transparency of all activities under law, legal defence against challenges to policy development and implementation, stricter regulation in place of voluntary codes of practice, and stricter standards for governance of interactions between researchers and the commercial sector.</td>
<td>What are the emerging tactics used by the commercial food sector to influence policy on unhealthy foods? How do the public and policymakers view these tactics? What key strategies can be employed to counter such tactics and develop a more constructive dialogue between policymakers and the commercial food system? What are the barriers to reducing the use of such tactics by the food industry, and how can these be overcome?</td>
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<td><strong>Support for commercial sector CPA from think tanks, the media and politicians</strong></td>
<td>Prevailing “anti-nanny state” rhetoric concerning regulation of the commercial food sector. Scare-mongering rhetoric in response to public debate (e.g. government policy consultations) on regulation in trade press and public media</td>
<td>Development of counter arguments to make the economic case for regulation in the public interest, as well as the social &amp; economic benefits for industry of transition to a healthier and more sustainable output. Identify the most effective channels of communication for these arguments.</td>
<td>What are the channels via which the commercial food sector seeks support for the prevailing business model? What are the levers that might help to change the conversation? What are the barriers that might lead to entrenchment? What are the key counter arguments and means of communication that can be used by public health and policy teams?</td>
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### Table: System Attributes and Consequences

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<td><strong>Market saturation and control by a small number of businesses which compete on market share</strong></td>
<td>High concentration of market ownership in the commercial food sectors, a consequence and driver of competition and unsustainable growth. Companies constantly look for opportunities to reduce costs and secure opportunities to gain market share through product innovation, increased sites on the high street and increased opportunities for marketing through diverse channels. Anti-competitive actions mean that new entrants that cannot operate efficiencies of scale struggle to survive. Lack of diversification in businesses controlling the system dampens innovation and productivity, which means that shifts to healthier and more sustainable foods are slower to arrive. Food environments are dominated by appealing, low cost, non-perishable, low nutrient, high calorie foods, which result in unhealthy choices.</td>
<td>Address anti-competitive systems in food retail, such as supermarket slotting or listing fees. Stronger governmental support for innovative start-up companies that focus on healthier food offerings, and to support scaling from small or medium to large, healthier food businesses.</td>
<td>How does the current business environment restrict competition from healthier food companies? What are the levers for change to the present system? What are the views of policy-makers and the food sector on reforming the current regulatory and business environments? What impact could such changes have?</td>
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<td><strong>Asymmetry of access to information between food system and wider society</strong></td>
<td>The lack of information about what is in food and how it is produced prevents the public, professionals investors and governments from making informed choices and using their agency to demand healthier food. Supply shapes demand more than demand shapes supply.</td>
<td>Set new government standards for information available on all foods, including origin, processing, carbon cost, and nutritional content that go beyond ‘minimum standards’. Ensure transparency and new standards of governance in the commercial food system.</td>
<td>What information is presently available to the public and professionals? What information do they want? How do they want to receive information? What levers are there to stimulate change in information asymmetry? What are the views of policymakers and the food sector about rebalancing information asymmetry? What impacts could mandated labelling have on food production, reformulation and consumption?</td>
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<td><strong>Costs can be externalised and government and the public implicitly accepts and supports this through NHS investment, farmer subsidies, benefit payments for low paid workers</strong></td>
<td>Processed foods are artificially cheap, leading to imbalances of price across the food basket. Convenient, healthy diets from sustainable food systems are more expensive. High carbon cost, biodiversity loss and poor population health.</td>
<td>Governments should require food companies to incorporate external costs of food production on a product by product basis, such that the cost of processed and less healthful foods would increase proportionately more than the cost of raw produce and more healthful foods. Subsidies that reinforce externalities should be eliminated.</td>
<td>How can the external costs of food be calculated in ways that would inform policy and drive a rebalancing of the system? What are the levers that could lead to incorporating the external costs of foods at a system level? How receptive is government and the food sector to such a scheme? How would the public view such a scheme? What impacts could such a scheme have –on health, environment, economy and dietary inequalities?</td>
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<td><strong>The food system is unpredictable, emergent and self-organizing.</strong></td>
<td>The food system adapts within its current set of ‘rules’, resulting in emergent behaviours that lead to sub-optimal performance.</td>
<td>Identify levers for change that address multiple levels for intervention including deeply held beliefs, the goals the system is trying to achieve and whole system structural components. Focus on powerful, not weak, levers for change. Disruptive innovations which lead to a period of chaos could result in the lasting and substantial change that will be needed.</td>
<td>What are the current ‘rules’ that bound complex, adaptive food systems? Who are the key actors who need to be influenced to change the food system? What are the key beliefs and structures that will need to change? What are the levers that could be used to achieve such changes? What health and other impacts might be achieved by such changes to the system? What are views of the public, policymakers and the food sector concerning disruptive innovation?</td>
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<td><strong>Poor goal alignment.</strong></td>
<td>Poor goal alignment results in all of the challenges above, and is a consequence of their continuation in a vicious cycle. Companies are evaluated on a unidimensional scale (short-term profit), rather than multidimensionally (profit and social, environmental and health impact).</td>
<td>Closer goal alignment would make achieving economic, health and sustainability goals easier. This requires a substantial paradigm shift. However, voluntary or regulatory measures could help to shift the food system towards a better balance.</td>
<td>How do the goals of different elements of the commercial food system differ? How closely are they aligned with health, sustainability and equity goals? What are the levers that could be used to bring about closer goal alignment? What are public, policymaker and industry views of the challenge of achieving closer goal alignment?</td>
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What hope is there for the emergence of healthier, more sustainable, yet commercially viable food systems?

Where a market generates artificially low prices that do not account for environmental, social, and health externalities, governmental intervention is necessary. Furthermore, while markets continue to primarily reward – and food companies continue primarily to pursue – short-term profit through sales of unhealthful foods, it can be expected that companies will maintain efforts to ensure that the regulatory environment favours the status quo. In this case, governments will need to do more to limit the influence of such companies on health policy, for example through trade agreements, regulation of advertising, fiscal policies (e.g. levies on unhealthful, and subsidies for healthful foods or ingredients), mandating nutrition labelling and transparency on food ingredients, and potentially use of competition laws. Advocacy groups, health professionals, and consumers will need to do more to recognize and counter unacceptable commercial tactics and encourage greater transparency of policy-making processes and decisions (see Table 1).

Alternatively, commercial food companies could voluntarily shift their focus towards expanding the market for healthier (and more sustainable) foods, while reducing availability of less healthy foods. Doing so would help create greater coherence of efforts to promote dietary (and planetary) health across the public and private sectors. This shift would require a significant will to change, as well as technical advances and business model innovations to achieve closer alignment of commercial goals with social, health and sustainability goals within commercial food systems (figure 2). The challenges of incorporating a larger proportion of healthful ingredients into shelf-stable foods are not insignificant. Those companies that can successfully innovate along two dimensions – both technically and in their business models – should attain significant competitive advantage.

Although the predominant economic model of the commercial food system is currently poorly aligned with social, health and environmental goals, there is emerging recognition of this challenge and appetite for change. Much of this movement remains on the margins of companies, such as the development of corporate social responsibility (CSR) initiatives, rather than changes in core business models. There are also relatively small but growing movements, such as impact investing and the emergence of alternative ‘social’ business models. Some of these alternative models embrace full cost accounting based on the ‘triple bottom line’, which
proportionately or equally weights profit, people (social good) and planet (environment). They also include community interest companies and ‘B-Corporation’ certification, which requires companies to pursue public benefit alongside profit.\textsuperscript{56-58} It is notable that the drive for such social purpose generally focuses on pursuit of social (e.g. workers' rights) or environmental causes (e.g. carbon reduction) – but rarely on health as an objective. Thus certified B-Corporations, for example, include companies that are fêted for their environmental and social credentials but market unhealthy food products.\textsuperscript{56} Accounting for health externalities in B-Corporation certification criteria would offer a new lever for change.

Much of this pro-social commercial activity has been dismissed by critics as unenforceable, as green- or health-washing, or as simply failing to demonstrate a meaningful commitment on the part of industry to reduce its untenably high external costs.\textsuperscript{59,60} As things stand, trends are in the wrong direction, with highest profits globally coming from unhealthy, processed food.\textsuperscript{61} However, there is increasing evidence that companies that focus more on pro-social goals can outperform competitors over the long term,\textsuperscript{62} and that healthier foods are now driving sector innovation and growth. Indeed, there is some evidence for the commercial potential of a healthier consumer food offer, both in grocery retailing and ready-to-eat takeaway or ‘fast’ food (See Boxes 1 and 2), which provides initial ‘proof of principle’ to underpin future change, albeit often on a small scale. Whether this will also translate more widely into improved healthiness of the food offer and associated sales remains to be seen.
**Box 1: The potential for healthier grocery retailing**

Supermarkets range from small, local stores with thousands of product lines to mega-stores with tens of thousands of products. The nature of the business and the types of changes that can be made at these different scales vary considerably. Much of the food available in supermarkets is highly processed and of poor nutritional quality. But, is all processed food bad? And, what evidence is there that manufacturers and supermarkets can produce and promote healthier alternatives? Although overall trends are worrying, they conceal a range of nutritional values; not all packaged foods are of poor nutritional quality. For example, 83% of ‘convenience foods’ in Australia and New Zealand were eligible to carry health claims according to their nutrient profile. And in a study in the UK, while the profile was poor overall, one-fifth of ready meals available in supermarkets were low in fat, saturated fat, salt and sugar, and two-thirds of these were labelled as ‘healthier’ ready meals.

In response to consumer and government pressures, supermarkets have demonstrated their ability to introduce policies to restrict less healthy, and promote healthier food sales, such as those limiting ‘junk foods’ at checkouts. Supermarket retailers in the USA have also indicated some interest in healthier food retailing – but their willingness is constrained by perceived consumer demand, product availability and price points, and the complex, competitive arrangements whereby strategic placement of products in supermarkets is governed by ‘listing’ or ‘slotting’ fees, and dominated by industry ‘category captains’.

The Food Foundation is an independent UK think tank aiming to stimulate a healthier food system. Its flagship initiative, ‘Peas Please’, aims to reverse the decline in vegetable consumption in the UK by seeking company pledges to achieve goals that could increase vegetable consumption. Historically, compliance of food companies with voluntary pledges has been poor (e.g. in the UK government’s Public Health Responsibility Deal), except in the case of salt reduction during the early 2000s, which was a concerted effort by NGOs and government, and seems likely to have resulted in health benefits. Voluntary actions by commercial food companies offer valuable publicity and CSR opportunities, but further evaluation is needed to understand better why some voluntary pledges lead to impacts on population diet, while others fail to deliver meaningful change.
Box 2: The potential of healthier out-of-home eating

Out-of-home eating has increased considerably over recent decades. Food prepared out-of-home tends to be less healthful than food prepared at home and its consumption has been associated with higher energy, saturated fat and salt intakes and excess body mass. In the UK, more than a quarter of adults and one-fifth of children eat out more than once per week, and one-fifth of both adults and children eat takeaway meals at home once or more per week. With the advent of online ordering platforms and continued expansion of the sector, these trends seem unlikely to reverse in the short term. So, what scope is there for improving the nutritional quality of out-of-home food?

Research has focused mainly on the calorie content of out-of-home food. Recent papers in the BMJ have illustrated this focus in the UK and six other middle- and high-income countries. A range of interventions has been proposed and evaluated. Foremost among these have been interventions that mandate calorie labelling on menus and/or at point of sale. An obvious mechanism of such interventions is to help consumers make informed choices. A potentially more powerful mode of action with wider population impacts is to stimulate reformulation within the sector. Structural interventions, such as the promotion of smaller portion sizes using packaging or tableware, adaptations to universal food dispensers (such as salt shakers that deliver less salt) in takeaways and levies on the price of less healthy foods in restaurants have also been shown to have the potential to promote healthier purchases, consumption or diets. A growing number of companies now combine the convenience of home delivery with all of the ingredients needed to prepare healthier meals in 'recipe boxes', which, while presently limited in their reach and profitability, may be scalable for greater population health impact, although the environmental impacts will need to be carefully assessed. All of these classes of intervention could, without significant practical challenges, be led by industry without external regulation – or, in the absence of action, could be subject to legislative measures.

Accompanying this emerging market for healthier food products, the financing and incentivizing of healthy food ventures is also increasing. For example, venture capital investment in early-stage healthier start-up companies is significantly increasing, MNCs are creating their own in-house venture capital arms to deploy early-stage investments, and MNCs
are also significantly engaging in later-stage acquisitions of healthier food companies, relying on the acquisitions to generate greater innovation and growth. These trends may potentially expand the market for healthier food, although there is no guarantee that brands will maintain their 'healthy' credentials once acquired.\textsuperscript{92} Bolstered by shifting millennial consumer preferences toward healthier foods, in particular in higher income groups,\textsuperscript{61,74,93} MNCs could continue to expand further into healthier offerings, leveraging their commercial expertise, economies of scale, robust supply chains, and distribution channels to ensure profitability.

Whether and how these trends are harnessed to improve diet, especially for lower income consumers, may have significant implications for the global food supply and population health. To effect meaningful population-level dietary change, structural and system-wide action is needed. Some food company executives have stated they prefer regulation to voluntary change as it creates a level playing field among competitors.\textsuperscript{94} Regulation in conjunction with commercial innovation and appropriate tax and incentive structures for unhealthful and healthful foods respectively, supported by voluntary actions, could enable the commercial food system to more rapidly move towards becoming profitable in healthful foods.\textsuperscript{95} Such a change is likely to require a cultural shift towards companies placing similar weight on profits, and social, health and environmental goals.

**Implications for policy, practice and research**

Initiating and accelerating change will depend on many factors, including wider economic conditions, regulatory and political environments, shifting public attitudes, and corporate buy-in. Normalising the pursuit of social, health and environmental goals alongside economic goals will also require broader cultural and organisational change within companies.\textsuperscript{96} Viewing the commercial food sector as a complex adaptive system helps us to understand better how it may be shaped in the interests of population health and provide potential ways to intervene.\textsuperscript{45} Potential interventions exist along a spectrum that ranges from achieving paradigm shift (most difficult and most impactful) to changing system sub-structures (relatively easier but less individually impactful).\textsuperscript{97} The kinds of interventions proposed in the UK’s Childhood Obesity Plan (e.g. mandating calorie labelling and restricting price promotions for unhealthy foods)\textsuperscript{98} represent policies seeking leverage at the sub-structural level and, as such, represent relatively weak levers for system change, although together they may act synergistically and be more
powerful. Evaluation of the combined impacts of multiple, synergistic actions across the food system will add vital new evidence.

Achieving change will require governments to play both catalyst and regulatory roles in their interactions with the commercial food system. Catalytic activities can include information brokerage, coordination and mobilisation of resources. These need to be supported by accountability systems to better promote multi-dimensional company valuation beyond just profit, which in turn will require changes in accounting practices and improved metrics for measuring social, health and environmental impacts, which are currently being explored. Governments can both help develop such metrics and incentivize or mandate their use, for example through securities or corporate law. Examples of accountability systems include those developed by the Access to Nutrition Foundation, which assesses the progress of major food companies towards healthier and more transparent product portfolios, and the INFORMAS initiative (International Network for Food and Obesity / Non-communicable Diseases Research, Monitoring and Action Support), which offers tools for governments and civil society to benchmark food environments globally. Such tools could also be supported a global ‘framework convention on healthy and sustainable food systems’ (using the model of WHO’s Framework Convention On Tobacco Control), with which national governments would be required to comply, and would provide a legal basis to drive action by all sectors.

Regular and constructive dialogue is the first step towards catalysing change. Achieving closer alignment between seemingly disparate paradigms (such as business and public health) is likely to require a major cultural shift, as well as structural, technical, political and social support. Co-producing solutions carries many risks and benefits. ‘Safe’ spaces in which to negotiate will be needed. Success will also require a common language for dialogue, agreeing on and setting clear expectations, building authentic trust and identifying opportunities for mutual learning and the use of strong governance frameworks. All of the relevant stakeholders need to be involved to achieve a shared understanding of complex systems. They also need to be present to build trust and enable meaningful negotiation of mutually agreeable outcomes. One stepping stone to this goal would be to develop a shared understanding of what a healthy, vibrant and sustainable commercial food system looks like—namely, one that balances and optimises the interests of planet, people and profit.
dialogue initiated to generate UK Government’s forthcoming National Food Strategy, which will involve citizen assemblies, could provide such a template. To achieve this outcome will require strong leadership from governments and international organisations. It will also require some bravery, humility, and willingness to change, from public health and commercial stakeholders alike. Progress is likely to be limited whilst the relationship between public health and the commercial food system, and processed food companies in particular, remains adversarial and hugely imbalanced in terms of power. Governments need urgently to recognise this imbalance of influence on the policy process, and address the mismatch to ensure a more appropriate balance of public and commercial interests in policymaking that impacts on health. They then need to recognise and commit to driving urgent change towards healthier commercial food systems in the interests of reversing current costly global trends in NCDs and their disastrous consequences for intergenerational inequalities in diet and health. To achieve the pace of food system change needed to address syndemic climate and obesity emergencies will require commitment of the commercial food system to a new business model in which unsustainable growth is replaced by commitments to long-term value, people, health and environment. Interdisciplinary research should play a pivotal role in setting the agenda for transforming commercial food systems. Research is urgently needed to understand more comprehensively the potential of food systems to achieve change that aligns with population health and sustainability goals. Important unanswered questions are set out in table 1 alongside the key challenges of the commercial food system. The commercial food system needs to contribute constructively to such efforts, but it will be vital to ensure that, in doing so, conflicts of interest arising from its potential for commercial gain are managed. Frameworks to guide governance of interactions between researchers and commercial organisations are being developed.
Contributors and sources:

MW conceived the idea for the article. All authors contributed to developing the arguments, researched the literature, helped to draft the manuscript, and approved the final version. MW is the guarantor. The article is based on our collective professional experience and a review of published material in the public domain. MW is grateful to Anna Taylor, Chief Executive of The Food Foundation, for extensive and insightful discussions about food system challenges and solutions.

MW leads publicly funded research on food systems and public health at the University of Cambridge. Trained in Medicine and Public Health, he has worked in academia since 1990, undertaking epidemiological, observational and evaluative research to generate evidence for public health policy, with a particular focus on food, diet and health.

EA holds a degree in sociology from Princeton and degrees in law from Harvard and Cambridge. She is presently a doctoral candidate in Health Policy and Management at Harvard Business School and Harvard Graduate School of Arts and Sciences, and an Earl B. Dickerson Fellow at the University of Chicago Law School. Her scholarship examines how for-profit companies pursue social and economic goals simultaneously, drawing from management, corporate law, and economics, and focussing on companies in the healthy food sector in both the US and Europe.

DTF is a professor and fellow in the Morris J. Wosk Centre for Dialogue. She holds degrees in chemical and biomedical engineering, physiology and biophysics. Through her various leadership roles, including as inaugural scientific director of the Canadian Institutes of Health Research’s Institute of Nutrition, Metabolism and Diabetes (2000-2008), she has developed an academic interest in public-private partnerships and systems approaches to complex problems.

Following a 15-year commercial career in the food industry, CH has worked to apply behavioural science to social issues with a focus on public health. Until 2018, CH headed Shift Design’s Healthy Food programme, harnessing the competitive dynamics of consumer markets to deliver pro-social outcomes, such as developing products and services that catalyse changes in existing food categories leading to better diets. He now works as an independent consultant.

During 2019, he has worked on projects to promote healthier nutrition with the Global Alliance for improved Nutrition (GAIN), Guy’s and St Thomas’ Charity, Big Society Capital, and the London Borough of Southwark.
With degrees in economics, information systems, health informatics and public health, GS undertakes research on policies for the prevention of obesity and related non-communicable diseases. GS co-founded INFORMAS, a global network of public-interest non-government organisations and researchers that aims to monitor, evaluate and support public and private sector actions to improve food environments and reduce obesity and NCDs. Prior to entering the field of public health, GS worked as a management consultant, providing strategic business advice to multi-national companies and governments in Australia.

RS trained in Economics in York and worked in Sydney, Cambridge, Bristol, Melbourne, Norwich and LSHTM, before joining Exeter University. His research has spanned the monetary value of health, macro-economic modelling of health, and the political-economy of trade and trade agreements. A significant programme of work in recent years has involved links between agriculture, the environment and health, and public health economics in the UK and globally.

**Competing Interests**

We have read and understood BMJ policy on declaration of interests and declare the following interests:

MW is funded as a scientist in the Centre for Diet and Activity Research (CEDAR), MRC Epidemiology Unit, University of Cambridge. CEDAR is a UK Clinical Research Collaboration, Public Health Research Centre of Excellence, with funding from the British Heart Foundation, Cancer Research UK, Economic and Social Research Council, Medical Research Council (MRC), National Institute of Health Research (NIHR) and Wellcome Trust. MW is also funded by NIHR as Director of its Public Health Research Funding Programme. MW, with RS, holds a research grant from NIHR to evaluate the UK Soft Drinks Industry Levy; a grant from the Canadian Institutes of Health Research to fund the International Food Policy Study; and has held a grant from MRC to develop consensus on the governance of relationships between public health scientists and the food industry. MW is an Expert Adviser to The Food Foundation; an Expert Adviser to the House of Lords Committee on Food, Poverty Health and the Environment; and a member of the Obesity Health Alliance Independent Obesity Strategy working group.

Between 2008 and 2011, DTF received funds from government, non-profits and the private sector to organize three meetings on building trust to address the epidemic of obesity. Ideas exchanged at these meetings have influenced my perspective on the topic of the manuscript.
CH receives no income from the commercial sector. In the period 1990-2005, CH was employed, with Nestle and Mondelez, in various commercial roles in the UK and mainland Europe. Since 2005, CH has been working to address childhood obesity in various positions across government and the charitable sector.

GS reports grants from the Australian Research Council, the National Heart Foundation of Australia and National Health and Medical Research Council (Australia), during the conduct of the study; and GS recently conducted a study to benchmark the nutrition-related policies of major food and beverage companies in Australia. GS is a researcher involved in a NHMRC-funded trial of healthy supermarket interventions in partnership with IGA (supermarket retailer), City of Greater Bendigo and VicHealth.

EG has nothing to disclose.

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Figure 1: The commercial processed food system, influences on human health and external costs to society
Figure 2: Goals, actions and alignment of the commercial food system and public health

**Commercial food system - primary goal = short-term profit**

*Current actions:*
- High processed food production
- Unhealthy fast food
- Aggressive marketing of unhealthy foods
- Defensive and offensive challenges to public interest and overall welfare

**Public health policy - primary goal = population health**

*Current actions:*
- Regulation – taxation, advertising restrictions
- Mandatory nutritional back-of-pack labelling
- Advisory front-of-pack labelling
- Education – social marketing

**Potential for closer alignment**
- More profitable retailing of fruits, vegetables, legumes, nuts, seeds minimally processed whole grains, seafood; reduced reliance on marketing of and profit from highly processed foods
- Takeaways and restaurants selling more food high in fruits, vegetables, legumes, nuts, seeds minimally processed whole grains, seafood; reduced reliance on marketing of and profit from highly processed foods
- Voluntary policies promoting healthier food sales/restricting unhealthy food sales
- Supportive public health regulation, advice and infrastructure to help industry achieve these goals, including a Framework Convention on Healthy & Sustainable Food Systems.\(^{11}\)