What role should the commercial food system play in promoting health through better diet?
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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 pioneer and support the promotion of population health, but systemic change will be needed to ensure it does

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Key messages

- Human populations, especially in high income countries, are highly dependent on the commercial food system for daily nourishment
- The commercial food system relies heavily on high volume sales of foods high in salt, unhealthy fats and sugar, which undermines efforts to prevent non-communicable diseases
- There is the potential for profit to be made from healthier products, in ways that are consistent with NCD prevention efforts, but systemic change will be needed to realise them
- The commercial food system is economically important to governments worldwide; so is a healthy population
- Closer alignment of economic goals with public health goals will be needed to achieve a healthier food system
- Governments need to show leadership in recognising and addressing these challenges

Introduction

The commercial food system has become a focus of concern for those involved with the prevention of chronic non-communicable diseases (NCDs). Consumption of processed foods continues to grow in many high-, and particularly in low- and middle-income countries, and is widely implicated in the growing burden of NCDs. Although nutritionally poor processed foods have been the target of health campaigns, processed foods do not inherently need to be unhealthy. Furthermore, healthier foods can be profitable, and the commercial food system can be successfully regulated in the interests of population health. And, while a thriving commercial food system is central to governmental objectives, so are a healthy and productive population and an
environmentally and economically sustainable food system. So, how can we bring about
greater coherence between public health, sustainability and economic goals in the
interests of achieving a healthier food system? And what leadership is needed to
support this challenge globally?

Why are commercial food systems important for diet and health?

Humans need food to sustain health, reproduction and longevity, and our tastes and
desires for foods represent fundamental evolutionary drives that are culturally
embedded within societies. Human populations, especially in high income countries,
are highly dependent on the commercial food sector for their daily nourishment.

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, preparation and marketing. 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 delivers affordable food to whole populations in high- and
many middle-income countries, and has become vital to national economies, bringing
significant employment and export trade. Global agricultural trade is valued at around
US$1tn and food retail sales at US$4tn annually. Overall, the commercial food system
produces enough food to adequately nourish the current global population of ~7.5
billion, but fails to do so because output is heavily skewed towards highly profitable
ultra-processed foods. Unequal distribution, in terms of products, logistics and access,
results substantial inequalities in physical and economic access to healthy and
nutritious foods. Thus, in many parts of the world people are under-nourished, yet,
often in the same countries, people overeat and suffer associated chronic NCDs,
leading to the so-called ‘double burden’ of malnutrition.
Dietary risks, such as high salt or sugar intake, and low fruit, vegetable 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.

In this article, we discuss commercial food systems, which we define as systems primarily driven by a profit motive. We consider in particular those elements most proximal to the public: food manufacturing and processing, food retailing, food service, and food marketing. We focus primarily on high-income countries but, with rapid expansion of commercial food systems in low- and middle-income countries, our analysis applies globally.

Comparisons are often made between large trans-national food corporations (TNCs) (sometimes referred to as ‘big food’) and tobacco companies (also known as ‘big tobacco’). But food is not the same as tobacco; we all need food to survive. And food is complex and varied – some is healthier and some less so – thus all foods lie on a spectrum. Trans-national food corporations have been increasingly criticised for their focus on maximising profits from less healthy food products, their negative impacts on health, and their use of common tactics to improve sales and reputation. They also shape government policy and public opinion in relation to NCD prevention. While these ‘corporate political activities’ have been classified in various ways, a common pattern has emerged of corporate tactics employed across the ‘unhealthy commodity industries’ (tobacco, alcohol, gambling and processed foods). Within the commercial food system, these common strategies include: 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, amongst others; adopting legal strategies to oppose public health measures; extensive use of voluntary industry codes in substitution for government regulation; ‘conversation-changing’ publicity; highly targeted marketing, especially focusing on children as the future market for ultra-processed foods; and
efforts to fragment and destabilise groups likely to counter corporate arguments.\textsuperscript{21-23}

Of the latter, there are several high profile examples internationally, such as corporate

efforts to change food labelling regulations in Europe\textsuperscript{24} and to achieve the repeal of

health-related food taxes (e.g. the soda tax in Cook County (Chicago), Illinois, USA and

the Danish fat tax).\textsuperscript{25-28}

While this range of actions presents huge and immediate challenges for population

health, the commercial food system also has significant potential for greater social

benefit. Shifting the balance of the harm and good caused by the food industry will

require major system change, and the commercial sector will need to play a crucial role

in this. In this article we have attempted a critical, forward thinking and constructive

analysis of the potential role of commercial food systems in determining the future

healthiness of human diets.

\textbf{Commercial food systems: complex, adaptive and growing}

Commercial food systems display many of the properties of complex adaptive systems,

such as heterogeneity, self-organisation and emergence.\textsuperscript{29,30} Over the last 100 years,

commercial food systems have adapted to prevailing social and economic

circumstances, embracing technological change and shifts in public needs and

preferences. They have also contributed to the formation of preferences and demand

through innovation and marketing.\textsuperscript{11} For example, the development of digital

technologies since the early 1990s has revolutionized many aspects of commercial food

systems. Loyalty card data and electronic point of sale (EPOS) and stock control systems

contribute to maximizing efficiency of delivery and marketing, and help to reduce

waste. Manufacturers and retailers also use their data to identify emerging trends,

which in turn helps drive innovations in products and marketing.\textsuperscript{31} The last twenty years

have seen the introduction of self-service checkouts and customer barcode scanning in

supermarkets, and online grocery and takeaway food ordering for collection or delivery,

all of which had added to industry efficiency and consumer convenience.\textsuperscript{32}
A key emergent property of the commercial food system in the last 70 years has been continual growth. Growth has been achieved by increased agricultural productivity; adding value to foodstuffs via processing (e.g. developing an increasing variety of more highly processed convenience foods); aggressive marketing of these foods with the greatest added value; business expansion (acquisitions, mergers and vertical integration of retailing, wholesaling, logistics and production); and extension of markets across nations (creation of trans-national corporations and taking advantage of low-wage economies). Processing not only adds value (processed foods generally offer to the consumer a lower price per food calorie than raw foods), but also extends shelf-life and thus efficiency and flexibility in manufacturing and logistics, thereby generating greater profits. \(^1\) ‘Branding’ processed products differentiates them from generic offerings (e.g. an independent brand-leader versus a supermarket cola), commanding higher prices, with demand driven by brand value generated by marketing.\(^{34}\) The market dominance of highly processed foods offers incredible convenience and choice, and high levels of food safety,\(^{35}\) but is widely criticised for its shortcomings in terms of its contributions to a healthy diet.\(^{13,20,36}\) A key dilemma is that such foods are inherently highly palatable and satisfy evolutionarily driven taste preferences for salty, sweet or fatty foods.\(^5\) The aggressive marketing of such foods, often accompanied by health claims that can obscure potential harms (e.g. sugary cereals that are high in vitamins and low in fat), both drives and distorts consumer demand.\(^{37}\)

Growth in sales of processed food products in low- and middle-income countries, especially soft-drink retail sales, has been extraordinarily rapid.\(^{20,36}\) In many countries, market concentration in the packaged food sector is high.\(^{36}\) This has meant that, coupled with their collective efforts as members of trade associations, a relatively small number of food companies hold very substantial economic power.\(^{38}\) Such economic power translates into significant influence at national and international levels.\(^1\) Where the profitability of such companies is reliant on high volume sales of foods high in salt, sugar and saturated fat, their political influence is often in direct conflict with NCD prevention efforts. Thus, there is a heightened risk that corporate profits are privileged
above other considerations, resulting in food governance and public health policy that
does not adequately balance public and commercial interests.\textsuperscript{13}

Upstream in food systems, favourable fiscal and trade policies (e.g. Common
Agricultural Policy, General Agreement on Trades and Tariffs, U.S. Farm Bill) have
encouraged growth and expansion of free trade, and subsidised production of
unhealthier commodities, contributing to lower food prices and greater abundance of
unhealthier products.\textsuperscript{39} Critically, the economic model within which the commercial
food system operates does not naturally encompass external costs, such as the
environmental impacts of intensive farming and concentrated food processing, the
social costs of relying on low wage economies, and the health impacts of
overconsumption of foods high in salt, saturated fats, sugar or energy, and/or low in
fibre and micro-nutrients.\textsuperscript{38} This means that, coupled with often significant government
subsidies, in many contexts, food prices are artificially low.

\textbf{How can we influence the emergence of healthier, more sustainable, yet
commercially viable food systems?}

The commercial food system is constantly changing, adapting and reacting to new
circumstances. Some trends represent potential threats to the production and
consumption of healthier foods, while others represent opportunities.

As long as the commercial food system continues to be driven by corporations
maximising profits through high volume sales of foods high in salt, sugar and unhealthy
fats, it can be expected that it will continue its efforts to ensure that the regulatory
environment favours that approach.\textsuperscript{1, 11, 12, 16, 20} In this case, governments will need to do
more to limit the influence of these corporations on health policy; and the public,
advocacy groups and health professionals will need to do more to expose and counter
corporate tactics and encourage greater transparency of policy-making processes and
decisions. However, if the commercial food system can shift its focus towards
expanding the market for healthier foods, while reducing availability of less healthy
foods, then the potential for greater coherence of efforts to promote dietary health across all sectors may become a possibility.

Although the predominant economic model of the commercial food system is currently poorly aligned with health goals, there has been growing recognition of this challenge, for example through corporate social responsibility (CSR) activities, and social and alternative business models. Much of this activity has been dismissed by critics as ‘green-washing’ or ‘health-washing’, or simply failing to demonstrate a convincing commitment on behalf of the industry, but there is emerging evidence that corporations that focus more on these issues can outperform competitors over the long term, both in terms of stock market and accounting performance. This trend may grow stronger as consumer preferences continue their shift toward healthier consumption.

the recent rapid growth of a range of food companies suggests that healthier food can be profitable and is desirable to consumers. Healthier take-away outlets are emerging; healthier food products are increasingly appearing on the shelves in grocery stores; demand for an increasing variety of year-round fresh produce is growing; and a range of companies now combine the convenience of home delivery with all the ingredients needed to prepare healthy meals in ‘recipe boxes’. Although these innovations are predominantly targeted at and appeal to more affluent consumers, there is evidence of appeal to a broader range of consumers. For example, farmers’ markets are increasingly popular outside major metropolitan areas and in locations of varying socioeconomic status, and new commercial models digitizing the farmers’ market economy are further widening reach.

Accompanying this emerging market for healthier food products, the financing of healthy food is also shifting, presenting opportunities for scaling up healthy foods. For example, TNCs are increasingly acquiring smaller entrepreneurial healthy food companies and are also creating in-house venture capital arms to invest in healthier start-ups at earlier stages, creating a more robust market for healthier food start-up companies. Bolstered by shifting millennial consumer preferences toward healthier
foods, TNCs are likely to continue to expand further into healthier offerings, leveraging their commercial expertise to ensure profitability. How this trend is harnessed to improve diet for lower income consumers may have significant implications for the global food supply and population health.

Historically, compliance of food companies with voluntary pledges has been poor (e.g. in the UK government’s Public Health Responsibility Deal). However, industry-led initiatives have seen some success: for example, most UK supermarket chains have now implemented policies excluding confectionery and other high-fat, -salt or -sugar foods from checkouts to help reduce their impulse purchases. But to effect meaningful population-level change, structural, system-wide action will be necessary. Privately, and in some cases publicly, some commercial food corporation executives have stated they prefer regulation to voluntary change as it creates a level playing field among competitors. Food company executives have expressed a desire for thoughtful regulation that does not impinge on what their companies do best, suggesting that regulation that focuses on helping companies achieve desired societal outcomes without over-managing the process could enjoy industry buy-in and see greater success in terms of diet and public health. The UK’s graduated Soft Drinks Industry Levy, aimed at encouraging reformulation to reduce sugar content, is an example of this principle in action; the outcome of evaluations is eagerly awaited.

Neither governmental regulation nor industry self-regulation alone will lead to a rapid or sufficient change in the healthfulness of commercial food offerings. However, through thoughtful outcome-oriented regulation, in conjunction with commercial innovation and appropriate incentive structures, supported by additional voluntary action, the commercial food system could become as profitable in healthy foods as it has been with unhealthy highly processed foods. In doing so, it can help make healthy food more physically and economically accessible to whole populations—not just the affluent—and therefore help address rather than exacerbate inequalities in diet and health.
The pace of change will depend on many factors, including the wider economy, the regulatory and political environment, shifting public attitudes, and corporate buy-in. Viewing the commercial food sector as a complex adaptive system may allow us to understand better how it may be shaped in the interests of population health.\(^\text{29}\)

Successfully initiating constructive dialogue between stakeholder constituencies is a key challenge to better aligning the goals of public health and commerce. Achieving closer alignment between seemingly disparate paradigms (such as business and public health) is likely to require a major cultural shift,\(^\text{51-52}\) as well as structural, technical and social support.\(^\text{52-54}\) Co-producing solutions carries many risks and benefits. ‘Safe’ spaces in which to negotiate will be vital. Success will also require a common language for dialogue, agreeing on and setting clear expectations, building authentic trust and identifying opportunities for mutual learning,\(^\text{55}\) and the use of strong governance frameworks for such public-private partnerships.\(^\text{56}\) All of the relevant stakeholders need to be involved to achieve a shared understanding of complex systems.\(^\text{57}\) They also need to be present to build trust and enable meaningful negotiation of mutually agreeable outcomes.\(^\text{58}\) 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.\(^\text{59}\)

But 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 corporations 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 population health, and address this to create a more level playing field. They then need to recognise and commit to driving change towards healthier commercial food systems in the interests of reversing current costly global trends in NCDs.
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 leads a programme of 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 trained in sociology at Princeton, and in law at Harvard and Cambridge, and is presently a doctoral student at the Harvard Business School. Her scholarship focusses on governance strategies in the food system, the effects of policy and law on health in both the U.S. and Europe, and innovation in the food sector in relation to health.

DTF is an internationally recognised research leader, strategic and systems thinker. She holds degrees in chemical and biomedical engineering, and physiology and biophysics. She served as President & CEO of the Michael Smith Foundation for Health Research (2012–2016) and as inaugural scientific director of the Canadian Institutes of Health Research’s Institute of Nutrition, Metabolism and Diabetes (2000–2008).

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. CH presently heads 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.

With degrees in 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-
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reduce obesity and NCDs. Prior to entering the field of public health, Gary worked as a
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corporations and governments in Australia.

RS trained in Economics in York and worked in Sydney, Cambridge, Bristol, Melbourne
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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
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UK Soft Drinks Industry Levy; and a grant from MRC to develop consensus on the
governance of relationships between public health scientists and the food industry.

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 reports grants from Just Eat Ltd, outside the submitted work; and in the period 1990-2005, CH was employed, with Nestle and Mondelez, in various commercial roles in the UK and mainland Europe. Since 2005, Mr Holmes has been working to address childhood obesity in various positions across government and the charitable sector.

GS reports grants from Australian Research Council, and National Health and Medical Research Council (Australia), during the conduct of the study; and GF is currently conducting 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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