Dear Prof. White

Thank you for sending us this paper and giving us the chance to consider your work.

We sent it out for external peer review and discussed it at the Analysis manuscript committee meeting (present: Paul Simpson, Navjoyt Ladher, Robert Redelmeier and Cat Chatfield).

Unfortunately we do not consider it suitable for publication in its present form. However if you are able to amend it in the light of our and/or reviewers' comments, we would be happy to consider it again.

The reviewers' and editors' comments are at the end of this letter.

We hope that you will be willing to revise your manuscript and submit it within 4-6 weeks. When submitting your revised manuscript please provide a point by point response to our comments and those of any reviewers. We also ask that you keep the revised manuscript close to the word count of 2500 words.

Please note that resubmitting your manuscript does not guarantee eventual acceptance, and that your resubmission may be sent again for review.

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If accepted, your article will be published online at bmj.com, the canonical form of the journal. Please note that only a proportion of accepted analysis articles will also be published in print.

I hope you will find the comments useful. Please don’t hesitate to contact me if you wish to discuss this further.

Yours sincerely

Paul Simpson
psimpson@bmj.com

**IMPORTANT INFORMATION TO INCLUDE IN A RESUBMISSION**

Key messages
This is a box at the end of the article containing 2-4 single sentence bullet points summing up the main conclusions.

Instead of returning a signed licence or competing interest form, we require all authors to insert the following statements into the text version of their manuscript:

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Editors’ Comments:

-The brief was to set out what we know and what we don’t know about the role of industry, and to set out a way forward/future research agenda. We think the article achieves this, but some of it is a bit buried. For example, could the authors pull out future research questions and priority actions? Could you outline more clearly the areas of consensus and controversy?

- It would be good to include some figures, boxes, and tables to help with readability and to include more examples. For example, in Prof. White’s presentation at the recent nutrition conference there was a nice slide about the alignment of industry and public health interests.

- Is it possible to include some examples with a health focus? Are there examples from shift design or elsewhere that could be referenced?

- When discussing commercial food systems this is mostly discussing big corporations, but technically encompasses smaller enterprises - it may be helpful to distinguish them further particularly when talking about ability to be influential.

-Thorny issues like industry funding of research and industry involvement in policy making are sort of covered but would be helpful to address in a more direct fashion.

- “governments will need to do more to limit the influence of these corporations on health policy”, “But to effect meaningful population-level change, structural, system-wide action will be necessary” Making high-level phrases like this more explicit would be helpful.

Reviewer(s)’ Comments to Author:

Reviewer: 1

Recommendation:
Comments:
Thanks for the opportunity to review this manuscript on this important and timely topic.

The first half of the article provides a very good overview of how commercial food actors—particularly transnational corporations—produce, distribute and market ‘less healthy’ processed foods, and the various strategies and tactics used to do so. The focus is on the production of profitable, cheap, palatable packaged and take away foods and beverages. This includes the ways trans-national food corporations use their market and economic power to engage in corporate political activities, such as through lobbying, sponsorships, funding research, etc. A picture is painted of a very powerful corporate sector that has employed market and political strategies to increase and maintain sales of poor quality foods. All of this material is well summarised and is based on a substantial body of literature that is referenced on these strategies and activities.

I find the use of the term ‘commercial food systems’ throughout the article rather confusing. The article begins by defining it very broadly so as to include any and every business or organisation involved in the production and distribution and preparation of agricultural and processed foods (48-50). This is followed by the statement that the “output (of the commercial sector) is heavily skewed towards highly profitable ultra-processed foods” (59), but this is only true if referring to the outputs of large manufacturing and food service companies. The authors then state they will focus only on the food manufacturing, service, retail and marketing sectors (70-73). Yet even such a slightly narrower definition doesn’t distinguish between different types or sizes of companies within these sectors, nor the types of foods produced, and their relative power. In practice it becomes clear the article is mainly discussing large trans-national food corporations, as if this was synonymous with the commercial food sector – so why not just define it in this way, or just refer to food corporations throughout?

Regarding the use of the concept of ‘complex adaptive systems’ (108-109), I’m sceptical of what this framing concept adds to the description or analysis of the commercial food sector, especially if we understand the latter to refer to trans-national food corporations. When used in the banal sense that the commercial food sector (ie. corporations) is ‘constantly changing, adapting and reacting’, this is in some ways obvious and doesn’t require a ‘complex system’ concept to understand. On the contrary, this concept appears to conceal and obfuscate some important structural characteristics of this commercial food sector (ie. food corporations), and the ways different actors and entities are changing and reacting. For example, to say that the commercial food sector has ‘adapted’ to prevailing social circumstances (110-111), or that ‘continual growth’ is an ‘emergent property’ of the system, tends to conceal or naturalise the fact that specific powerful actors (eg corporations) and specific policy settings (eg. neoliberal economic policies, corporate governance frameworks, shareholder interests) have been instrumental in constituting these trends in particular periods and geographical settings. The authors later acknowledge the power of these corporations to shape these processes, but that just seems to undermine the systems metaphor. As with the definition of commercial food sector discussed above, the notion that there is just one, essentially unified, adaptive system seems to obscure the role of specific social actors, even of different corporations, and of different types of policies and production systems.

The term ‘unhealthy processed foods’ hasn’t been defined, other than occasional references to these foods being high is sugar, salt and saturated fat. There is one reference to the term ‘ultra-processed foods’ (60) – a term which does have a specific definition - but this is not defined in the article either. Giving a sense of
these definitions is important if an argument is being made – as it is in the last section - that the industry is already producing ‘healthier processed foods’ (but which similarly have not been defined or identified). Does that just mean foods with reduced salt, sugar, fat? If so, some experts are critical of such reformulation initiatives, which may produce less harmful foods, but not necessarily nutritious foods. But there are no examples to illustrate the claim that food companies are now moving towards selling ‘healthy’ processed foods.

Having identified the enormous power of food corporations to produce tasty and desirable products, to market and distribute their products, and to influence the scientific and political process, the last section dealing with how the commercial food sector (ie these large corporations) can create healthier food systems seems to me to be less convincing and not well supported by evidence or analysis.

At the start of the article it is noted that ‘shifting the balance of the harm and good caused by the food industry will require major system change’ (101-102), and for the need to ‘limit the influence of these corporations on health policy’. Yet the article goes on to argue that food corporations not only could, but are already moving towards healthier foods, largely through their own market-driven initiatives. There are no suggestions for addressing the market power of these corporations. On the contrary, the article endorses the current and growing size of these corporations, including their current strategy of buying out smaller start-up companies that produce ‘healthier’ products through the use of financial instruments (205).

The claim that healthier options are emerging (191-201), that they can be more profitable, and are being embraced by consumers, is not supported by evidence, nor are any examples of healthy processed foods provided (this also relates to the lack of a definition mentioned earlier). Instead references are made to increasing fresh food sales and farmers markets, neither of which relate to the types of prepared foods produced by these food corporations. Healthier take away outlets are also mentioned without examples. Food companies do have diverse portfolios of both relatively good quality and poor-quality foods, and there is growing demand for better quality, premium and often more expensive prepared foods that food corporations are responding to. Small start-up companies are leading the way with this trend, as the article acknowledges. But these trends are occurring alongside the continued – and in some cases growing – consumption of poor quality foods and beverages. This is particularly the case in low and middle-income countries, where consumption of ultra-processed foods is rapidly rising and continuing to displace traditional wholefood eating patterns. It should be acknowledged that the vast majority of foods produced by these companies are little more than junk food (see for example the ATNI 2018 report product analysis). The relationship between these contrary market trends and dynamics is not explored. For example, is Big Food simply appropriating these new trends as another line in its product and market diversification strategies? Is the minor reformulation of existing products and the production of fortified and functional foods being used to legitimise and prevent the further regulation of the products and practices of these corporations? The article acknowledges the ‘health washing’ arguments of critics (185) but does little to allay those concerns. The article also begins by stating that the analysis presented is equally applicable to high, medium and low-income countries (73-75), yet the very different issues and stages of these dietary transitions faced by LMICs are not acknowledged or addressed.

In terms of what kinds of policies are required, while ‘voluntary pledges’ are acknowledged as having been ineffective, ‘industry-led initiatives’ (213) are said to hold promise, with the only example offered being that UK supermarkets have removed confectionary from checkouts. It is claimed (without evidence) that government regulation and self-regulation alone won’t work, so the solution – at
least those favoured by industry - is ‘thoughtful regulation that does not impinge’ on companies or ‘over-manage’ the process, with an acknowledgement that corporations would prefer ‘not too onerous’ government regulations. The UK graduated soft drinks levy is cited as an example of such policies, though as a mandatory government tax on all sugar sweetened beverages, it is unclear why this fits the description. There is otherwise no mention of the range of government policies or regulations that are currently being implemented around the world, or any explanation as to why they are inadequate. We are arguably at the very early stages of seeing governments finally begin to implement mandatory regulation of the practices and products of these corporations, so it seems premature to write off this approach.

The article also calls for the ‘closer alignment between seemingly disparate paradigms’ of business and public health (242). Alignment sounds nice, but there is no explanation as to what this would look like, or who really needs to compromise. The authors state that ‘humility and willingness to change’ are required by both ‘public health and commercial stakeholders alike’, yet while the problems with the commercial stakeholders have been clearly identified, no limitations of the public health sector’s approach have been identified with respect to their approach to these issues – so why and how do they need to change?

One small point. The statement that it is because “people overeat” (63) — overeat what? — that is a primary cause of NCDs is questionable, or at least very simplistic, in terms of what we know of the dietary causes of NCDs.

Additional Questions:
Please enter your name: Dr Gyorgy Scrinis
Job Title: Senior Lecturer in Food Politics and Policy
Institution: University of Melbourne
Reimbursement for attending a symposium?: No
A fee for speaking?: No
A fee for organising education?: No
Funds for research?: No
Funds for a member of staff?: No
Fees for consulting?: No
Have you in the past five years been employed by an organisation that may in any way gain or lose financially from the publication of this paper?: No
Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this paper?: No
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Reviewer: 2

Recommendation:

Comments:
This is an interesting analysis highlighting a few perspectives on the role that food companies should play to promote healthier diets among consumers in order to decrease the burden of non-communicable diseases. Overall, this paper touches most relevant issues on this topic. There are a few minor suggestions:

Line 30: “Consumption of processed foods ..., that phrase needs a reference which shows the increase in processed foods consumption and their effects on health. I feel like the authors are rather talking about specific foods for which we have a good level of evidence that they contribute to disease e.g. SSBs, fast foods, energy-dense (high fat/sugar) foods. I think the term "processed foods" is rather vague and can mean many things. For example, wholemeal bread or plain yogurt are processed foods, yet there is no evidence that they increase risk of NCDs. So in general I would be more specific or use terms such as “nutritionally poor processed foods”.

Line 54: This phrase about commercial food systems that deliver affordable food only to high-income countries and most middle-income countries, I find it a bit odd and confusing. What happens to lower income countries?

Line 59-60: second part of that phrase needs a reference showing that the output is skewed towards highly profitable processed foods.

Line 63: I would specify people overeat energy dense foods which are more affordable

Line 65: Dietary risks should also include saturated fats (from which we have new evidence from SACN)

Lines 188-190: Is there any evidence that consumer preferences are shifting towards healthier consumption? Perhaps the latest trends observed in NDNS can be used here to support this

Lines 191 onwards: the term “healthier” is used here although it is a bit unclear what is meant here. I think a definition of what they mean by healthier is required at some point.

Additional Questions:
Please enter your name: Carmen Piernas

Job Title: Senior Researcher

Institution: University of Oxford

Reimbursement for attending a symposium?: No

A fee for speaking?: No

A fee for organising education?:

Funds for research?: Yes

Funds for a member of staff?: No
Fees for consulting?: No

Have you in the past five years been employed by an organisation that may in any way gain or lose financially from the publication of this paper?: No

Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this paper?: No

If you have any competing interests please declare them here:

Reviewer: 3

Recommendation:

Comments:
Review: Role of Industry

General comments:

I enjoyed reading this well-written, comprehensive article on the role of food industry. Several key changes are needed to further improve this manuscript.

Major comments:

1. Key Messages: current bullets are oversimplified and do not match the important text in several sections of the manuscript. Specifically:
   - Second bullet is oversimplified – see major comment #2, below.
   - Add the major role of historical science in promoting low-fat, high starch, inexpensive foods (see separate BMJ article in this series on history of modern nutrition science); the major role of consumer demand (see major comment #5, below); and the major role of technologic advances in agriculture and food processing. (lines 110-113)
   - Add the major potential role of research/innovation
   - Add that processed foods do not inherently need to be unhealthy, that processed foods lie on a complex and varied spectrum (line 34, lines 79-80)
   - Add key message on lines 157-160: true external/societal costs not incorporated; AND that this is a role for industry to ASK for society to incorporate these costs and benefits, helping them to create and promote healthier products.

2. The manuscript throughout relies on a "pop culture" shorthand for unhealthy foods as being high in salt, saturated fat, and sugar. This is grossly oversimplified and misleading. The major limitations of commercial foods are excess starch, sugar, and salt (not fats; or even saturated fat, the major sources of which are dairy foods and meats) AND insufficient healthful ingredients from fruits, veggies, legumes, nuts, seeds, minimally processed whole grains, and seafood. This accurate list is undoubtedly longer than more complex than the grossly oversimplified "fat, sugar, and salt", yet crucial to state correctly. The manuscript (and key messages) should clearly describe this list at the outset and in the key messages (i.e., "processed foods are generally high in inexpensive, shelf-stable, unhealthful ingredients such as refined starch, added sugar, and salt, and low in more expensive, more perishable, beneficial ingredients such as fruits, veggies (other than potatoes), legumes, nuts, seeds, minimally processed whole grains, and seafood."); and then throughout the
rest of the manuscript, use a shorthand such as "high in unhealthful and low in beneficial ingredients." All shorthand usages of "salt, unhealthy fats, sugar" etc. should be replaced.

3. Lines 45, 137-139: the "evolutionary drive for taste" argument has sold lots of books and benefited pop culture careers, but is highly theoretical and not supported by considerable empirical evidence, including huge differences in dietary preferences across and within cultures, and huge changes in dietary preferences within both populations and individuals over time. Clarify that this is a theory, but remains to be substantiated and is not supported by the facts above.

4. Subsections are needed to clarify and highlight the key points. These could start, for example, at line 76 (Big Food vs. Big Tobacco); line 122 (Growth); line 130 (Processing); line 145 (Market Concentration); line 157 (True Societal Costs); etc.

5. The major role of consumer demand is missing, and should be added in a new subsection, e.g., between lines 180 and 181. e.g., While consumer demand is powerfully shaped by marketing, many large multinational companies have tried to introduce healthier versions of products, but with spectacular failure. Cite examples of this, and how rather than offering healthier products, stealth approaches to altering the main product (e.g., Subway and Campbell's slowly and stealthily reducing sodium, PepsiCo's 7-UP slowly and stealthily reducing sugar) may provide the best solution. Also discuss the role of govt in supporting changes in consumer demand.

6. Some key statements are oversimplified and require significant modification to reflect the true complexity. Lines 59-60: failure to nourish the global population is driven by numerous factors beyond "highly profitable ultraprocessed foods", including challenges in food waste, access, cost, transport, historical priorities (mention our BMJ paper in this series on history of modern nutrition science), etc. Line 63: "overeating" is grossly oversimplified and places blame on the individual. The problem is poor diet quality, or true "mal"nutrition including excess availability and marketing of unhealthful ingredients and insufficient availability and marketing of healthy foods. Line 173: not really: whatever the commercial food system produces (even healthier products), any industry of any kind will generally oppose govt regulation on first principles alone. They key is to make these govt regulations win-win for industry, e.g., combining sticks with carrots.

7. Line 101: Need more details to add here concrete examples of how the food system has shown it can successfully play a role for greater societal benefit while maintaining profitability. This can include discussion and citations relating to food system trends and successes in (a) sustainability, (b) diversification of portfolios, (c) shifts to reduce TFA, (d) shifts to increase fiber and whole grains, etc.

8. Line 113: Need to add more details here, going back earlier than 1990s to discuss how scientific trends and societal needs from 1920-1950 drove the current system. Can summarize and cite our BMJ paper in this series on history of modern nutrition science.

9. Lines 157-160: crucial section on true societal costs. Expand this into a larger subsection, and include in Key Messages.

Page 7-8: A new subsection is needed on the major technological challenges in including healthful ingredients in processed, inexpensive foods at scale, which are generally far more perishable and variable than starchy staples. This also ties in with expanding a new subsection on the need for research and innovation, PPP,
government support and incentives for such research, etc.; which could be placed near line 200.

10. Line 181-190: Add challenge of the great majority of multinational companies now being public and being driven by short-term profits and stock prices. Also add concrete examples of solutions here, including: (a) Danone-Wave in the US incorporating as now the largest "B corporation" in the US (can take into consideration societal issues, not just shareholder profits); (b) examples of many food companies successfully prioritizing sustainability as a model without losing money; and (c) major new trends in consumer demand not just for health, but for trust and transparency (especially among millennials) as key profit motivators.

11. Lines 227-235: This is the crux of the manuscript – not a description of the history, problems, and challenges, which the rest of the manuscript discusses, but the actual ROLE of industry. This section needs considerable expansion, with a new Box summarizing the key, specific actions that industry can and should take. e.g. much of lines 240-254 could be moved to such a Box.

12. The current manuscript focus is largely on issues related to food manufacturers. New Subsections and discussion are needed on the potential role for agribusiness and farming, as well as restaurant chains and major cafeteria vendors

Other comments:

Key Messages, first bullet: edit to "...especially in high and middle income countries, and increasingly in low income countries..."

Key Messages, last bullet: Govts and the commercial food system need to show leadership

Lines 46-53: excellent – move to the very start of the manuscript (Intro)

Lines 48-50: add independent and large chain restaurants, cafeteria vendors. Line 72: define "food service" more clearly.

Lines 84-93: excellent

Line 131-132: and processing has increased access and increased food safety related to foodborne infection.

Line 207: not just healthier, but also more trusted and transparent

Line 217: can cite and discuss our BMJ paper in this series on the role of govt. Lines 255-264 are highly general and can be deleted or greatly shortened, instead referring to this other paper. Conclusions should focus on role of industry, not govt.

Dariush Mozaffarian, MD DrPH

Additional Questions:
Please enter your name: Dariush Mozaffarian

Job Title: Dean

Institution: Tufts Friedman School of Nutrition Science & Policy
Reimbursement for attending a symposium?: Yes

A fee for speaking?: Yes

A fee for organising education?: No

Funds for research?: No

Funds for a member of staff?: No

Fees for consulting?: Yes

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**Date Sent:** 27-Jul-2018