
Industry-sponsored science is clouding the picture of how food systems impact health

How scientific research is structured, framed and financed has a major bearing on our understanding of the challenges facing society – and none more so than the burgeoning health risks generated by our food and farming systems, argues **IPES-Food**.

In many countries and many sectors, the commitment of governments to fund research as a public good, or even to make data and research results available as a public good, has been increasingly compromised (e.g. New, 2017). In the past few years, many governments have reduced their support to all forms of public research, including national surveys, as well as international research organisations (Dalrymple, 2008). Public sector agricultural research has been dramatically scaled back over recent decades on the back of government funding cuts to higher education institutions (King *et al.*, 2012; Muscio *et al.*, 2013).

These cutbacks have generated a void that is increasingly being filled by private interests, creating several problems. Firstly, some issues of high public interest may not attract funding from private investors. For example, the gradual privatisation of agricultural research funding has come alongside an increasing focus on those commodities for which there is a large enough market to secure a significant return on investment (Piesse and Thirtle, 2010). In this context, minor species and traditional crop varieties have been neglected (Rahman, 2009), despite their nutritional benefits.

Meanwhile, holistic analysis of food systems – and the social-ecological interactions that generate human health

risks – is falling through the cracks. This is reflected in the lack of interaction between different disciplines in many agricultural colleges (O'Brien *et al.*, 2013) the lack of attention to the complex interactions between the natural environment and human society (Francis *et al.*, 2003), and the high proportion of doctoral and post-doctoral research topics in highly specialised fields of biotechnology as compared to research on agroecology (Francis, 2004).

Second, the privatisation of research has implications for the validity of the research that does emerge. While private funding can produce – and often has produced – important contributions to the evidence base, industry-funded research has in a variety of contexts and sectors been found to disproportionately favour outcomes aligned with industry interests (Bhandari *et al.*, 2004; Lexchin *et al.*, 2003; Perlis *et al.*, 2005; Scollo *et al.*, 2003). This can occur through conscious or unconscious influence on the definition of research questions (Bero, 2005; Lesser *et al.*, 2007; Scollo *et al.*, 2003), the experimental design (Djulfbegovic *et al.*, 2000; Lexchin *et al.*, 2003), the implementation of statistical analyses (Lesser *et al.*, 2007), the interpretation of statistical results (Alasbali *et al.*, 2009; Golder and Loke, 2008), the extent or quality of peer review (Barnes and Bero,

1996; Scollo *et al.*, 2003), and industry-related delays, suppression, or dissuasion regarding the publication of specific results (Bero, 2005; Lexchin *et al.*, 2003; Okike *et al.*, 2008).

Influence over the framing of the research agenda and the terms of the broader scientific debate has also been identified through a range of additional practices, e.g. employing individual researchers as consultants or inviting them to sit on company boards in order to signal objectivity and legitimacy; funding professional and academic associations; publically critiquing established but “inconvenient” evidence and sowing doubt about its validity, often through the use of front groups; and using corporate social responsibility programmes as marketing campaigns (e.g. to shift the focus from obesogenic diets onto the importance of active lifestyles by sponsoring sporting events).

The empirical evidence on the influence of industry-backed studies in shaping understandings – and ultimately policy – is largest for the medical, pharmaceutical, and tobacco sectors. However, emerging research supports the hypothesis that some corporations in the agri-food industry operate in a similar fashion and have meaningfully impacted debates around nutrition (Brownell and Warner, 2009; Nestle, 2016;

The PLoS Medicine Editors, 2012). Lesser *et al.* (2007) show in a review of nutrition research on soft drinks, juice, and milk that the funding source may have a significant impact on study conclusions, with 0% of industry-backed studies reporting an unfavourable outcome (as compared to 37% of publically funded articles).

Major discrepancies have been found between the results of industry-funded and non-industry-funded studies (including systematic reviews) on the health impacts of sugar consumption and sugar-sweetened beverages (SSBs) (Bes-Rastrollo *et al.*, 2013; Vartanian *et al.*, 2007). Explicit attempts from the 1960s onwards to divert attention from sugar to fat as a heart disease risk factor were recently uncovered, and are seen to have significantly derailed decades of medical research around sugar (Kearns *et al.*, 2016; O'Connor, 2016). Popkin and Hawkes (2016, p. 175) conclude that it is only studies funded by the sugar and beverage industries that continue to cast doubt on the substantial weight gain and cardiometabolic risks from SSBs.

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Industry funding of professional associations has also been alleged to heavily influence the framing of prominent public debates (Nestle, 2013; Simon, 2013, 2015). For example, the scientific objectivity of the American Society for Nutrition (ASN) and the Academy of Nutrition and Dietetics (AND) has been called into question on the basis of strong ties to the food and beverage industry (Simon, 2013, 2015). This has major implications since the ASN is the publisher of three widely read nutrition science journals, the American Journal of

Clinical Nutrition, the Journal of Nutrition, and Advances in Nutrition. Meanwhile, the ‘Nutrition Fact Sheets’ produced and publicised by the American Dietetic Association (ADA) have been called into question on the grounds of industry partners having paid to co-write them (Brownell and Warner, 2009).

The increasingly prominent role of private actors, and the declining role of public research, also raises questions about data availability and access. Access to data on farm-level trends, environmental conditions, disease incidence and the properties of foods is essential in order to build understanding of the various health risks in food systems. Privatisation of data production and access is already raising major issues of transparency and accountability across food systems. For example, lack of data collection by industry, or lack of access to that data, has been identified as a major obstacle to identifying the health impacts of Concentrated Animal Feeding Operations (CAFOs) on surrounding populations (National Research Council, 2015). Risk assessments for new technologies and chemicals (e.g. Endocrine Disrupting Chemicals, or EDCs) also tend to rely on data generated and controlled by major agri-business firms, while information around biotech crops is notoriously difficult to access. In 2009, 26 university crop scientists wrote to the US Environmental Protection Agency complaining that patents on engineered genes were preventing public sector scientists from researching the potential impacts of GM crops (Pollack, 2009). While most biotech companies now have agreements with universities on use of their patented technologies for research, scientists must still negotiate permission to conduct these studies from the companies themselves (Haspel, 2014; Stutz, 2010). Risk assessments for novel food additives are particularly reliant on industry data and private sector governance: under US law, it is the responsibility of manufacturers to assess whether new substances are generally regarded as safe – ‘GRAS’ – by scientific experts. Notification to public authorities is voluntary, with little scope for public scrutiny.

Recent advances in Big Data could

pave the way for major improvements in monitoring and mitigating food systems impacts, e.g. by deploying farm-level soil data to enable more targeted use of chemical inputs. However, current trends raise concerns about how that data will be used and to whom it will be available; vertical integration is continuing apace across the agri-food sector, with a handful of firms gaining an increasingly dominant position, and company information becoming ever more opaque (IPES-Food, 2017).

Research priorities, structures, and capacities therefore need to be fundamentally realigned with principles of public interest and public good, and the nature of the challenges we face, i.e. cross-cutting sustainability challenges and systemic risks.

The challenge is not simply to curb the production of research and data by private actors; these activities form a crucial part of the evidence base. Nor does public research represent a panacea. In a context of increasing privatisation, public-sector research has tended to echo the emphasis of private research agendas, e.g. mirroring the focus on increasing productivity for a small number of tradable crops via technological innovation (Jacobsen *et al.*, 2013). Moreover, without major reinvestment in public data gathering, private firms will continue to be best-placed to conduct monitoring of risks and outcomes across food systems.

A series of inter-connected steps are therefore required in order to reassert public interest across the board, and to counter the risks of industry-sponsored science.

Firstly, scientific integrity could be bolstered through changes in the rules governing scientific journals, e.g. around disclosure of conflicts of interest, and steps to make that information more visible. Some medical and nutrition journals have already taken significant steps in this direction. For example the American Journal of Clinical Nutrition policy (AJCN, n.d.) now requires that all clinical trials and observational studies (including nutrition trials) be registered in an appropriate public trials registry upon initiation of the study. Meanwhile, the Journal of the American Medical Association policy (JAMA) requires that statistical analyses be

independently conducted by researchers who are not employed by the funder, in addition to any statistical analyses performed by the sponsoring industry (Fontanarosa *et al.*, 2005).

Secondly, to address the problem at root, measures may also be required to reduce the reliance of researchers on private funding. The interaction between researchers and industry funding is highly complex, since in many instances researchers are required to attract private funding sources and voluntarily approach industry actors in search of grants. Such situations require at a minimum a careful analysis of potential conflicts of interest. Initiatives to fund and mandate independent scientific research and independent journalism on the health and environmental impacts of food systems are therefore needed.

Securing the necessary resources may require innovative funding models and the involvement of a range of public and private actors (e.g. philanthropists). Reflection is also required on the role of trade associations and industry-linked information portals and 'front groups'. These bodies may have greater capacity than public health agencies to communicate around food-related health risks, but also face key conflicts of interest and tend to blur the boundary between industry and education (Heiss, 2013).

Thirdly, a more fundamental reorientation of research agendas and modalities is required. Siloed approaches in science and policy make it possible for dominant actors to separate the problems from one another and to frame the debate around narrowly defined, one-dimensional solutions. Promoting more holistic and integrated approaches in science and policy alike - 'food systems thinking' - is therefore essential. Different forms of research involving a wider range of actors and sources of knowledge are also required to rebalance the playing field and challenge prevailing problem framings (e.g. industry-leaning approaches; a global North bias). For example, participatory research, which includes the people whose health is most affected by food systems, can help to overcome narrow research questions that exclude impacts on certain populations.

Encouraging a broader shift in research modalities requires different incentives across academia. It also requires assurances that studies of this type will not be relegated to inferior or anecdotal status, and will be considered side-by-side with other types of inquiry, forming a meaningful part of the evidence base for assessing food systems.

Fourthly, further investment should be made in large-scale data gathering by intergovernmental organisations. The

WHO-led Initiative to Estimate the Global Burden of Foodborne Diseases offers an example of collaborative data generation and capacity-building. After a decade-long effort, this initiative was able to produce an authoritative estimate of the global foodborne disease burden in 2015, while drawing considerable stakeholder attention to this problem (WHO, 2015a). Another example of a global initiative that aims to redress the imbalance in regional data availability is the mapping of poverty and likely zoonoses hotspots by the International Livestock Research Institute (ILRI *et al.*, 2012), one of the CGIAR research centres.

Together, these steps can help to redefine research for the public interest and the public good, to reassert scientific integrity, and ultimately to address the burgeoning health impacts of food systems.

This text is based on the October 2017 report from the International Panel of Experts on Sustainable Food Systems (IPES-Food): 'Unravelling the Food-Health Nexus: Addressing practices, political economy, and power relations to build healthier food systems' (Lead author: Cecilia Rocha, Editorial lead: Nick Jacobs). Available [here](#) (including references)

Fairness and food safety: a research gap

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Food safety is generally thought of as a rather dull and technical issue. Most of us take it for granted that the foods we put into our mouths do not contain dangerous pathogens or chemical substances.

The ways in which foods are marketed and retailed in industrialised countries such as the UK, do not encourage us to look back along the food chain. This is particularly true in regard to animal foods, as this might remind us of

uncomfortable truths about animal and worker welfare. It is only when a food scare, such as BSE, Horsemeat or the recent revelations about the 2 Sisters Food Group occurs, that these are exposed.

The safety of global food supplies is vital, but the current research agenda on food safety remains extremely narrow, with a focus on risk assessment and management along the food supply chain. Risks are framed primarily from a toxicological or epidemiological

framework. Consideration of fairness and ethics rarely, if ever, feature.

Now, however, with concerns about sustainability and food security high on the policy and research agendas, there is an opportunity to re-frame food safety to extend beyond concerns about consumer health, and to include potential harm to others involved in the food chain to ensure that food is fair for all, including animals and workers.