

Restoring Food to the Community: Public Policy and Food Governance

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"People are fed by a food industry which pays no attention to health and are treated by the health industry that pays no attention to food." (*Wendell Berry*).

1. Introduction

This disconnect between agricultural production and nutrition, health and environment is both startling and a significant challenge to overcome. Food visibly connects human and planetary health, yet access to food (a biological necessity) is mediated through the market. Consequently, exchange value swamps other attributes of food and has enabled 'Big Food' to capture the public realm. The agri-industrial model that we label *productivism* has achieved a remarkable grip over the public policy agenda while the erosion of national cuisine and culinary culture is undermined by corporate promotion of highly processed, low price convenience foods that undermine nutritional wellbeing and contributed to escalating levels of dietary ill-health.

"Public health must contend with Big Food, Big Soda and Big Alcohol. Obesity and other diseases of affluence are not a failure of individual will-power but a failure of political will." (*Margaret Chan, Director General, WHO, 2013*).

Malthusian-inspired projections of future food demand have served to drive agricultural productivism in developed countries in pursuit of 'feeding the world'. Yet this process has been accompanied by a transformation of consumption practices featuring higher intakes of refined foods that have resulted in undesirable dietary health outcomes, such as type II diabetes. While there has been some recent progress through the introduction of sugar taxes, not nearly enough is being done to tackle the problem. Indeed, the state continues to emphasise the need for individual behaviour change rather than reforming a food system that is responsible for such a high burden of disease.

The reconfiguration of global food system governance, including the effects of foreign direct investment, impact all parts of domestic food systems. The process of 'nutrition transition' (*Popkin, 1994*) describes changing consumption patterns around the world whereby diets become dominated by processed foods under the influence of large advertising budgets and complex social

processes. It is now clear that this process results in high intake of saturated fats, sugar and salt that give rise to increased incidence of overweight and non-communicable diseases (NCD).

Yet the first decade of the twenty-first century has witnessed a reinvigorated global debate about food security, such that it has arguably become one of the key master frames of public policy. Rising and volatile food prices and associated political instability, together with projections over future needs, have raised the stakes in formulating legitimate solutions to food security. In particular, framing the problem as one of pressing future demand emerged from the 2008 Rome Summit on World Food Security. Here, two key projections were presented that have since become central pillars of global food security discourse: (i) that food production needs to increase by 50% by 2030 to meet rising demand; and (ii) that it needs to double by 2050 to feed a world population of 9 billion (*Maye and Kirwan 2013*).

These projections have served to act as camouflage for a variety of strategies designed to tighten control by agribusiness interests over food production whether through continued leveraging of agricultural biotechnology and its associated process of corporate concentration; through scale expansion harnessing remote sensing technologies and big data analytics to corner arguments over resource efficiency and sustainable intensification and through promoting the nutritional benefits of Big Food interventions via fortification and genomic research (*ETC ,2015; Godfray, 2015; Scrinis, 2016; Clapp and Scrinis, 2016; Hawkes et al, 2012*).

Consequently, science and technology has remained the favoured solution of governments and policymakers nearly everywhere, and no more so than in those highly developed countries with established agricultural sectors. Here, farming is dominated by high-input, high-output specialist production of a narrow range of commodity crops destined for the global market. The events of 2008 and beyond consequently offered new opportunities not only to produce more for the market but to provide a moral imperative to do so in pursuit of 'feeding the world'.

This agri-industrial model that we label productivism has achieved a remarkable grip over the policy agenda surrounding food security (*Sage, 2017*). Yet the consequences have become more widely recognised and include growing concern over emissions of greenhouse gases, the drawdown of freshwater stocks, and impacts upon biological diversity, ecological services and waste sinks worldwide (*Sage, 2012*). Furthermore, industrial-scale agriculture appears increasingly vulnerable to processes of environmental

change with incidence of drought affecting key global breadbasket regions of North America, Australia, Russia and China in recent years and growing concern around the consequences of environmental tipping points for food system dynamics (*GFS, 2017*). The dominance of unsustainable production methods that deplete and undermine environmental support systems.

It is time that we began to judge the performance of the productivist agri-food system by the yardstick of whether it feeds the world well. Evidence would suggest that it does not: an estimated 850 million people are currently regarded as hungry, with a further 2 billion thought to suffer from micro-nutrient deficiencies that, in the case of children, impairs full physical and cognitive development (*Khoury et al, 2014*).

Moreover, an estimated 2 billion are regarded as 'over-nourished' including the obese and overweight, and health systems around the world are dealing with rising levels of non-communicable diseases. In our view, a system that is focussed only upon output has effectively established the massification of food that utilises bulk agri-commodities in a variety of ways to deliver an apparent cornucopia of manufactured products resulting in a process of malconsumption (*Sage, 2013*). The ubiquitous availability of energy-dense products leads to stressed human metabolic states and creates problems of overweight, obesity and dietary ill-health.

2. The Global Food Industry: 'Big Food'

The global food industry was valued at around US\$8 trillion in 2014 with the packaged foods sector worth around US\$2.5 trillion. The top 100 food and beverage firms together account for over three-quarters of all packaged food sales. It is worth noting that the Coca-Cola corporation achieved net revenues of US\$43.5 billion in 2015 largely by selling its branded sweetened beverages that delivered 13 million tonnes of sugar to its customers. Products such as cola make clear that the food system does not exist to optimise human nutrition but to generate large profits for manufacturers. Meanwhile, further upstream, global agri-business promotes its solutions to 'feed the world' through a new 'green revolution' of precision farming, big data analytics, IPR-driven control over genetically-engineered seeds, and new forms of cellular agriculture. The stakes are high which is why we have witnessed over the past decade or so a ferocious process of corporate consolidation featuring some enormous 'mega-mergers' leaving the market in the hands of effective cartels.

2.1 The battle of ideas

"The real problem of food production occurs within a complex, mutually influential relationship of soil, plants, animals, and people. A real solution to

that problem will therefore be ecologically, agriculturally, and culturally healthful ... a bad solution solves for a single purpose or goal such as increased production. And it is typical of such solutions that they achieve stupendous increases in production at exorbitant biological and social costs" (*Berry, 1980: pp 156*).

It is becoming clearer that policy makers across Europe and beyond will need to ask themselves: "What kind of food system do we want?"

- One that allows Big Food to deliver cheap food for distant markets at huge environmental costs with poor nutritional outcomes;
- or**
- A more regionalised supply chain with diversified farms providing decent livelihoods with sound environmental stewardship.

The second option has the potential to draw upon the expertise and greater accountability of local governments at city and regional levels, with their capacity to facilitate and support greater engagement by local stakeholders. Successful examples include procurement for the public plate which serves to connect regional producers to public institutions; support for urban agriculture and local markets to revitalise urban public spaces; and using local planning laws to restrict the opening of new fast food outlets close to schools.

3. EU Agricultural Policy

Agricultural policy at Member State level is almost entirely captive of the productivist model. Health and Environment Ministries have little impact on agricultural policy and few mechanisms exist to contextualise agriculture to help address health and environmental concerns. The new CAP proposals increase subsidiarity so that the Member State level will be more important than ever, while modulation means the Member State can move money into the better part of CAP if they so decide (the option of transferring an additional 15% from Pillar 1 to Pillar 2, without national co-financing).

The European level has been dominated by the productivist model; also, however there has been room in recent years for climate change and biodiversity arguments to enter the decision making process, and CAP reform has potential to change the disconnect between agricultural policy and food health and the environment. Yet the actual effect of measures so far introduced falls short of what was promised, and the current review could make this worse, despite the fact that the Environment Committee of the European Parliament has wrested some competencies from the Agri

Committee. Nevertheless the potential for policy at the European level to create great change is there. However with regard to the preparations for CAP 2020-2027 the Institute for European Environment Policy (IEEP) states that while there were some positives in the European Commission's proposals, "the gap between expressed intentions and mechanisms proposed is so large as to be alarming".

The Common Agricultural Policy (CAP) consumes over 30% of entire EU Budget (2014-2020 EUR 408.31 billion) and is designed to support farming and rural development in Europe in areas of "jobs and growth, sustainability, modernisation, innovation and quality". The new CAP 2020-2027 will have less money because of both Brexit and new priorities (e.g. border security). The coming CAP reality is there will be €365 billion less available, down 5% on the previous period.

Tassos Haniotis (Director of Strategy, Simplification and Policy Analysis at the European Commission's Directorate-General for Agriculture and Rural Development) has said: "preparing the future CAP we came to the conclusion that that the three top challenges the CAP will have to address are its targeting, its environmental and climate ambition, and the joint challenge of its simplification with modernisation."

However the Institute for European Environment Policy (IEEP) comments that: "While CAP has in recent decades somewhat balanced agricultural support and societal expectations, this new proposal suggests "that the Commission is ready to more or less abandon the public goods strand of this strategy" (*David Baldock and Allan Buckwell, IEEP*).

The bad stuff in the European Commission proposal is clear; the good stuff is vague. Some examples include:

Climate and environment are a main focus, but it is voluntary and vague; there is a small but significant increase in Horizon 2020 Capping (of payments) at €60,000 is positive (but there are concessions). The CAP review reality is a move from Research and Development to Risk Management approach (embedding bad practice). Direct payments (i.e. untargeted income support) are left as is (with a small increase in conditionality). Pillar 2 (targets) however sees the biggest cuts, the overall CAP cuts are at least 15%.

Greening is gone – but replaced by nothing specific other than a "voluntary eco-scheme" and "enhanced conditionality".

3.1 The European Court of Auditors (ECA) on greening

Greening measures are "unlikely to significantly enhance the CAP's environmental and climate performance," European Court of Auditors (ECA). Green payments had led to positive changes in farming practices on only 5% of EU farmland (and 1% in the case of crop diversification) "greening remains an income support scheme".

Positive proposals:

- Climate and environment is a core area – and ENVI Committee can make amendments to the European Commission's CAP proposals.
- "Targeting" – another of the three key areas, means the supposed increase in a results and performance focus – can 'encourage' best practice, e.g. HNV and organic farming to be adopted.
- Supposed strengthening of conditionality (aka cross compliance).
- Permanent grassland definition changed: "Permanent grassland and permanent pasture ... may include other species such as shrubs and/or trees which can be grazed and, where Member States so decide, other species such as shrubs and/or trees which produce animal feed, provided that the grasses and other herbaceous forage remain predominant." (*Omnibus as of 01/01/2018*).
- Increased Horizon Europe (formerly Horizon 2020) funding does include SMEs and can be useful for agroecology initiatives.
- The CAP has a "greening" element in its direct payments – crop diversification, permanent grassland, EFAs Amenity.

4. A Case Study: The Republic of Ireland

Ireland is a useful case study because as part of the English speaking world it is very open to influences from the UK and USA which were the early adopters of food industrialisation including embracing a public policy of cheap food for the urban masses. However, Ireland itself remained a peasant economy into the second half of the 20th century. The development of productivism in Ireland closely mirrors its membership of the European Union and the policy framework set by the Common Agricultural Policy (CAP).

Following the financial crisis of 2008 the agricultural sector was charged with leading an economic recovery, and Food Harvest 2020 was the guiding strategy through which productivism was intensified. We explore some of the social and environmental consequences emerging from this strategy, before turning attention to the food provisioning environment. A transformation of the food retail landscape in Ireland has resulted in quite significant changes in patterns

of consumption which, in turn, have had repercussions for dietary health. We trace these developments before concluding with some reflections on how this evidence appears to strongly endorse the notion of the metabolic rift.

The Republic of Ireland has taken advantage of new opportunities in global food markets to scale up production of a narrow range of agri-commodities to become a player in 'feeding the world'. This has transformed an agricultural sector that had long served as a reservoir for a reserve army of labour as much as for its production of food. Yet in the wake of the sharp downturn caused by the acute financial crisis of 2008, the agricultural sector was thrust into a central role of driving economic recovery. The development of a food industry-led strategy in 2010 (Food Harvest 2020) established a roadmap for growth with ambitious output targets. That these are on course to being met demonstrates that foot-to-the-floor productivism is possible, though not without evidence of a growing metabolic rift. For while the value of food and drink exports continue to grow, nutritional insecurity amongst a significant proportion of the Irish population has also increased. Indeed, poor diet has become Ireland's leading risk factor in the burden of disease (*IHME, 2013*), and the country has witnessed a significant growth of food banks.

Consequently, in this chapter we wish to probe the paradox of a state that has made considerable use of a 'feeding the world' narrative to justify its pursuit of an agricultural productivist strategy while at the same time domestic food consumption is increasingly dominated by cheap, energy dense, ultra-processed products made available through retail multiples, fast food franchises and other convenience outlets. Moreover, while state agencies are busily engaged in constructing a discursive formation that burnishes the green credentials of Irish agriculture, selectively utilising sustainability indicators (e.g. carbon foot printing) and claims to world-class cutting edge science (e.g. genomic improvements in cattle), it overlooks the growing demand for charitable food provisioning and rising levels of diet-related ill-health across the country.

4.1 Agricultural productivism and the rise of agri-food

The agricultural system in Ireland is characterised as grass-based with 81% of farmed land given over to intensive grass (silage, hay and pasture) with a further 9% in rough grazing, while the remaining c.9% is allocated to arable crop production. Only 1% of Irish farmland grows vegetables, the lowest level in Europe (*Finnerty, 2017*). According to the last agricultural census there were 139,600 farms (*CoA, 2013*), with the greater number (45,000) engaged in beef and a further 15,500 dedicated to dairy. There were an estimated 7.2 million cattle at the time of the June 2016 livestock survey, up 4% on the previous

year. In 2015 Ireland exported over 560,000 tonnes of beef – 85% of total production worth €1.6 billion - making it the largest net exporter of beef in the EU and fifth largest in the world. Moreover, in 2016 Ireland produced 7.5 billion litres of milk and exported €1.76 billion of dairy products. A consequence of this large ruminant population – there are also an estimated 5.2 million sheep – is that Ireland's greenhouse gas (GHG) emissions are the highest in Europe per capita but also per euro of output in the 2012-2014 period (*Burke-Kennedy, 2107*). In 2015, Irish agri-food exports accounted for 5.7% of GDP (*Teagasc, 2017*) and 5.6% of the population are employed in agriculture (*FAO, 2015*).

Yet prior to Ireland's entry into the European Union, formerly known as the European Economic Community (EEC) in 1973, Ireland was viewed as an under-developed nation and was refused entry in both 1961 and in 1963. At the time Ireland's 'protectionist' policies were seen as incompatible with the free trade philosophies of the EEC (*Hennessy and Kinsella, 2012*). Prior to joining the EU, Ireland was almost completely dependent on farming with agriculture accounting for 40% of all exports and 18% of GDP (*Hennessy and Kinsella, 2012*). Membership promised immense new opportunities for trade, with the agricultural sector being the primary beneficiary, so much so that a government white paper published in 1972 projected a doubling of income from farming by 1978. This was a much celebrated prediction for the 20% of the population which made up the farming community (250,000 farms) at the time. As expected, production increased based on the incentivized high prices and guaranteed markets assured by the Common Agricultural Policy (CAP) (*Mathews, 2002*) as did farm incomes which increased three-fold before dropping again in the 1980s (*Hennessy and Kinsella, 2012*). By the late 1970s and early 1980s, surpluses of certain farm products began to appear and the 1980s is now known as the era of 'wine lakes and Butter Mountains'. Consequently, milk quotas were introduced in 1984 at a time when the dairy industry in Ireland was becoming the fastest growing sector (*Hennessy and Kinsella, 2012*) and when Irish farmers had three times more dairy cows than beef sucklers (*Teagasc, 2014*).

However, starting in the 1980s and continuing into the late 1990s and 2000s the gap between average farm income and the average industrial wage grew, as did the number of farm households engaged in off-farm employment. By 2007 the industrial wage was 50% above average farm income with this gap growing significantly between 2007 and 2009, particularly in the non-dairy farming systems. By the time the financial crisis hit Ireland in 2008, the majority of farm households had become heavily dependent on off-farm earnings, either through the income of spouses or as secondary employment (*Hennessy and Kinsella, 2012*).

4.2 Food Harvest 2020

The financial crisis of 2008, triggered by global perturbations that led to the near-collapse of a highly indebted Irish banking system, resulted in a necessary re-evaluation of agri-food as one of Ireland's most important endogenous economic sectors. Indeed, in March 2009, the sector was charged with leading a process of economic recovery as set out in a 'roadmap': an 'industry-led', 'export-driven' ten-year strategic plan for the development of the Irish agri-food sector.

This 2010 plan, known as Food Harvest 2020 (FH2020), focussed entirely upon achieving ambitious targets with reference to a 2007-09 baseline, which included: a 50% volume increase in milk; a 20% increase in the value of beef; 50% increase in the value of pig meat production; and an overall increase of 42% in exports (DAFF, 2010). Indeed, dairy has been a central plank of the strategy given the anticipated removal of milk quotas by the European Commission in March 2015 and an understanding of pent-up demand of farmers to increase their herd numbers and output.

Indeed, since Food Harvest 2020 was released, the number of dairy cows added to Irish farms has been growing inexorably (by almost 8% 2015-16) and whereas in 2005 only 13% of dairy farmers had herds greater than 100 cows, by 2016 this proportion had increased to 47% (Kelly *et al*, 2017).

As Table 1 illustrates, the value of food exports has grown very substantially over the period 2005 to 2015, with clear evidence of the contribution made by the dairy and beef sectors but also by pigmeat which has doubled in value. Yet, the economic success portrayed by these figures (and by the volumes shown in Table 2) fails to reveal a number of other considerations such as the environmental burden of this strategy or its distributional benefits.

Table 1: Food exports by value 2005, 2010, 2015

	<i>Food Exports (Value €000)</i>			
	<i>2005</i>	<i>2010</i>	<i>2015</i>	<i>% change</i>
Animal oils and fats Total	15,067	23,274	49,265	226.96
Cereal and Cereal Preparation (Total)	249,528	216,990	401,865	61.05
Dairy Produce (Total)	1,953,107	2,528,800	3,858,846	97.57
Fruit and Vegetables	243,945	227,560	287,445	17.83
Eggs	3,949	5,596	16,469	317.08
Fish	336,187	370,523	568,009	68.96
Beef products	1,380,223	1,662,090	2,211,613	60.24
Pigmeat total	327,653	352,416	666,784	103.50
Poultry	246,935	200,214	321,575	30.23
Other meat and meat produce	26,166	29,365	54,355	107.73
Sugar, Sugar Preparation and Honey	135,511	82,643	163,624	20.75

Source: CSO, 2016: Data compiled by authors using CSO trade data received through personal communication

Table 2: Food exports by Volume 2005, 2010, 2015

	Food Exports (Tonnes)			
	<i>2005</i>	<i>2010</i>	<i>2015</i>	<i>% change</i>
Animal oils and fats Total	40,107	43,162	92,436	130.48
Cereal and Cereal Preparation (Total)	371,273	245,764	465,791	25.46
Dairy Produce (Total)	804,305	943,194	1,179,479	46.65
Fruit and Vegetables	175,321	162,736	151,954	-13.33
Eggs	1,796	3,078	5,975	232.75
Fish	182,351	221,607	252,165	38.29
Beef products	398,011	460,215	487,728	22.54
Pigmeat total	113,898	143,762	240,540	111.19
Poultry	91,184	108,084	124,366	36.39
Other meat and meat produce	7,228	51,299	70,260	872.09
Sugar, Sugar Preparation and Honey	140,404	44,726	56,503	-59.76

Source: CSO, 2016: Data compiled by authors using CSO trade data received through personal communication

4.3 Metabolic rift: unsustainable production

It might be surprising to learn that almost two-thirds of Irish farms are regarded as 'not economically viable', while 46% remain dependent on off-farm employment (*Hennessy and Moran, 2015*). The vast majority of farms are entirely reliant on direct payments from CAP which, in 2015, contributed an average of 65% of total farm income. Although this figure is down from 80% in 2010 (*Hennessy and Kinsella, 2012*), it varies significantly by system ranging from 31% in dairy systems to 109% in sheep farming and 104% on cattle farms.

Thus, in a context where beef production comprises one-third of Ireland's gross agricultural output, the average income on beef cattle rearing farms was just €12,660 in 2015 (*Hennessy and Moran, 2015*) a little below that of sheep farmers. Indeed, though generally benefitting from higher average incomes, dairy farmers too have been struggling given volatility in milk prices that saw a 20% fall over 2014-15. Consequently, it is clear that most Irish farmers could hardly survive the treadmill of commodity agriculture without the enormous public subsidy provided by CAP payments – amounting to €11.7b over the period 2007 and 2013 with a further €11b expected up to 2020 (*European Commission, 2016*). Naturally, this does not address the long-standing complaint that the CAP disproportionately benefits larger farmers (*Schucksmith et al, 2013*), a pattern evident in Ireland where almost 50% of direct payments went to 12% of farmers in 2015 (*Ford, 2017*).

The second concern arising from the continuing growth in animal – particularly ruminant – numbers is the multiple environmental consequences. While it is recognised that grazing animals on grass for the greater part of the year makes a strong case for the 'naturalness' of Irish agriculture – a claim which has been

relentlessly pursued under the Origin Green brand – there remain significant issues to be addressed. Perhaps the leading concern is that Irish agriculture now contributes one-third of national greenhouse gas emissions – compared to an EU average of 10% – and this gives Ireland a unique emissions profile within the EU, with the highest proportion of agricultural GHG emissions and the highest methane content in those emissions (*Doyle, 2014*). Moreover, paddock management practices designed to maximise pasture growth and utilisation involve significant applications of nitrate fertilisers, as well as slurry spreading, and herbicides. Milk production has a synthetic nitrogen requirement three times greater than that of beef, thus, with the continuing intensification of dairy, nitrogen use is expected to increase (*Teagasc, 2014*). Nitrate leakage has undoubtedly contributed to deterioration in water quality: a mere 21 waterways in Ireland are now classified as pristine – a steep decline from the 1980s when 500 waterways had this classification (*EPA 2017*). Agriculture remains a key threat to Ireland's biodiversity, proving immensely damaging to populations of ground-nesting birds, and to habitats where only 9% of protected habitats are in 'favourable' conditions while 50% were inadequate and 41% assessed as 'bad' (*Wall et al, 2016: 13*).

A third area of concern arising from the intensification of animal production, though one not widely discussed in Ireland, concerns veterinary use of antibiotics in food-producing livestock with consequences for anti-microbial resistance amongst those animals and the human population of consumers. The State of the World Antibiotics report (2015) outlines that antibiotics are increasingly used in animal production mostly to promote growth rather than treat disease. Indeed, "more antibiotics are used in poultry, swine and cattle to promote growth and prevent disease than are used by the entire human population" (*CDDEP, 2015: 38*). Poultry in Ireland is usually reared to contract for processors based on a prearranged price and, during 2015, more than 80 million birds were slaughtered (*DAFM, 2015: 40*). Just five processors account for over 95% of poultry production in Ireland while it has been stated that retailers, primarily the major supermarket chains, have begun to directly influence veterinary policy and practice, including antimicrobial inputs, based on corporate, as opposed to scientific, policy (*Veterinary Ireland, 2014*). Yet, it is the pig industry that has the bigger problem particularly with the overuse of premix antimicrobials (accounting for a third of national veterinary antibiotics), as well as sub-therapeutic dosing and inappropriate antimicrobial agents (*Veterinary Ireland, 2014*). Between 1990 and 2015 pig meat production increased by 76% (*EPA 2016: 199*) with over three million pigs slaughtered in 2015 (*DAFM, 2015: 39*), over 90% reared in 300 mostly indoor specialised units (*Agriaware.ie, 2017*).

In Ireland, the over- and inappropriate use of antimicrobials in animal feed, in addition to the lack of legal requirements for manufacturers or suppliers to provide data in relation to the volumes of sales, has been identified as a concern (*Veterinary Ireland, 2014*). Besides concerns over antimicrobial resistance through pork consumption, there are also issues arising from the disposal of excrement, usually through land spreading, that threaten to breach the limits on nitrate and phosphorous retention capacity in soils (*EPA, 2016: 199*). Taken together, these hidden aspects of the productivist model reveal some of the diverse manifestations of the metabolic rift. Declining farm incomes – bolstered at enormous public expense – are a consequence of falling and volatile commodity prices reflecting a dysfunctional food system increasingly dominated by large corporate players (as we argue below). The response of farmers is either to exit agriculture (shown by declining farm numbers) or to engage in scaling-up production, such as increasing herd size, in order to squeeze more value from the resource base. The attendant consequences for the environment are clear (greenhouse gas emissions, nitrate pollution of waterways, biodiversity loss) although often vociferously contested by Irish farm representatives (*Gibbons, 2017*). Yet while the depletion of environmental support systems exemplifies the first form of metabolic rift, production methods that threaten long-term public health – such as excessive use of antibiotics in animal feed that may result in antimicrobial resistance – are an illustration of the multiple ways human metabolic states are stressed.

4.4 Transforming products, adding value

These deeply problematic economic and environmental trends are troubling enough – for example Ireland is likely to miss by some distance its international obligations to cut greenhouse gas emissions by 2020 and 2030 (*Gibbons, 2017*) – but look set to be exacerbated by the successor strategy to FH2020. Food Wise 2025, which was announced in July 2015, sets new ambitious goals for the agri-food sector focussing upon increasing value, rather than sectoral volume, targets with the headline figure to increase agri-food export value by 85% over 2015. While there are also plans to create another 23,000 jobs across agri-food, it remains to be seen whether this will also see improved remuneration, for seven out of every ten employees in this sector carry the highest risk of low paid employment in Ireland (*Collins, 2016*). Alongside the need for a cheap and flexible labour market the development of these ambitious agri-food strategies rest upon continued scale expansion in Irish farming (the first farm with a one thousand strong milking herd appeared in 2016 and is likely to set the standard for others as milk prices remain low) as well as research and development in value-added products and services.

While there are a number of state and corporate entities engaged in this field, the work of Teagasc, Ireland's semi-state agency, is illustrative of the direction of agri-food Research and Development. The Teagasc Food Programme is guided by the long term aims to: (1) 'improve and develop the safety and clean green image of Irish food products'; (2) 'expand and increase dairy product research to serve the expected increase in national milk yield'; (3) 'provide technology and knowledge to the meat processing industry to serve the economic increase in the meat sector'; and (4) 'support innovation, growth and export capability in the SME sector' (*Department of Jobs, Enterprise and Innovation, 2015 42*).

This has seen particular growth in the fortified-functional food sector, with protein enriched products accounting for the majority of new products introduced and fortified – functional confectionary experiencing the fastest growth. Critically, this is a sector dominated by large corporations with Kellogg Co Ireland Ltd holding the largest share (16.3%) followed by Danone Ireland Ltd and Glanbia PLC. Here, sales of energy bars have grown by 33.2% (Euromonitor 2017) while Glanbia has established a 12% global market share in sports nutrition, utilising whey protein isolate – long regarded as a low value by-product from cheese and butter making – as its key ingredient. Ireland also hosts the manufacturing operations of three of the world's most important infant formula feed companies: Abbott Laboratories, Danone (owners of the Cow and Gate brand) and Nestlé. Sales of infant formula accounted for more than a quarter of Irish dairy exports in 2013 and look set to grow, with particular efforts being directed to expanding its share of the Chinese market (*O'Shaughnessy and Sage, 2016*). While the issues surrounding the promotion of bottle-feeding by formula sales representatives have been explored elsewhere (*Gong and Jackson, 2013*), it is worth noting that the advice of the Department of Health and Children to Irish mothers is that they exclusively breastfeed their infants until six months and "continue breastfeeding after that in combination with appropriate complementary foods (solids) up to the age of 2 years or beyond (*Department of Health and Children, 2003*).

With Research and Development programmes dedicated to fortified and functional foods, and where a great deal of public research funding is directed toward the development of new products for exploitation by private companies, the question arises: how do Ireland's agri-food strategies enhance domestic food and nutritional security? This is a vitally important matter for roughly one quarter of the Irish population are currently struggling to meet their basic needs, one of which is accessing healthy food, while poor diet is Ireland's leading risk factor in the burden of disease. Indeed, in a recent UNICEF report (2017) monitoring progress towards the Sustainable

Development Goals across 41 developed economies, Ireland ranked 31st for its performance in the 'zero hunger' category (*UNICEF, 2017*). As we argue, there remains a profound disarticulation between the highly productivist agri-export sector that we have discussed so far and the domestic food provisioning system in Ireland to which we turn next.

4.5 The food provisioning environment and dietary health

What we eat is determined by numerous economic, social, cultural and political factors (*Marmot et al, 2008, Layte et al, 2011*) and by what is made available to us in our food environment. Since the late 1990s, Ireland's food landscape ('foodscape') has changed very substantially in terms of concentration, scale, and choice. The degree of penetration of international food businesses, especially retail multiples, symbol chains and fast food franchises have had significant success in reshaping patterns of shopping and eating (*Sage, 2010*). Taking the period from 2001 to 2007, the number of retail outlets increased by 71% (from 349 to 569) while floor space dedicated to groceries increased by 77% (to over 835 thousand square metres) (*Competition Authority, 2008*). Carolan notes how retail concentration is linked to higher food prices, reduced food choices and food deserts and his analysis places Ireland in the top ten countries in terms of supermarket concentration (CR5=83) (*Carolan, 2012*). Presently, three retailers – SuperValue (Musgraves Ltd.), Tesco, and Dunnes hold 66% of retail market share (*Kantar Worldpanel, 2017*) with Musgraves' Centra convenience chain in fourth place. Discount stores were the fastest growing segment within the food retail sector in 2016 with a 20% growth in value of sales (*Euromonitor, 2017a*). At the time of writing, Aldi and Lidl hold 11.7% and 11.2%, respectively, of the total grocery market share in Ireland (*Kantar Worldpanel, 2017*).

Ireland's foodservice industry, which encompasses all food consumed outside the home, has also expanded significantly. In 2012 this industry was worth €5.3 billion, but had grown to €7.5 billion in 2016 and is projected to increase by a further €1.5 billion by 2020 (*Bordbia.ie, 2016a*). Within this sector, "quick-serve" restaurants account for one third of total revenue making it the fastest growing and, indeed, the largest segment of the food market. This sector is becoming increasingly dominated by chained foodservices operations which, since 2011, have increased by 7% while the numbers of independent food service outlets have fallen by 10%. In 2016, 63% of total sales value in fast food was held by chained operations, with McDonald's holding the largest share at 25% with reported revenue of €85million (*Euromonitor, 2017-fastfood*). Notably, Supermacs, the most popular Irish burger franchise, reported a doubling of after-tax profits of over the year to 2016 at €14 million (*FranchiseDirect, 2017*). Since 2011, the number of fast food outlets in Ireland

has increased by over 17%, transactions by 11%, and the value of sales by 22%. When broken down by category chained pizza emerged as the fastest growing by number of outlets (with a 4.5-fold increase), while chained ice-cream stores doubled in number. Besides pizza one of the fastest growing sectors during recent years has been that from convenience store fast food counters, with a 24% increase in value of sales in the year 2015-16 alone. One of the factors that have been attributed to this growth is the expansion of 'grab-to-go' food courts in petrol filling stations across the country. As one example, Topaz Energy Ltd invested over €36 million in 2015 and 2016 redesigning its network of filling stations, and a further €33 million has been earmarked for 2017 (*Euromonitor, 2017: fast food*). In short, everyone is racing for a piece of the 'food-on-the-go' pie and appears to suggest a return to the Celtic Tiger era practice of dashboard dining (*Sage, 2010*).

4.6 Food consumption: The transformation of Irish foodways

Given the increasing availability of cheaper, energy dense, ultra-processed food, it is no surprise that Ireland had the third highest increase in fast food transaction based on a study of 25 countries (*De Vogli et al, 2014*). Ireland also ranks as the fourth largest consumer of sugar per capita in the world (*Ferdman, 2015*) and is the third largest (jointly with the United Kingdom) consumer of chocolate per capita in the world (after Switzerland and Germany) (*Hennessy, 2015*). Ireland consumes just less than 97 grams of sugar per person on a daily basis – almost double the recommended 50 grams (*Euromonitor, 2015*). Interestingly, after carbonated drinks, dairy products were responsible for the second largest proportion of hidden sugar in food (*Brandy, 2015*).

Much evidence suggests 'that the overconsumption of sugar ... whether from sugar cane, sugar beets, or corn syrup, has detrimental health impacts' (*Goldman et al, 2014: p1*). And whilst there is a general consensus that the high levels of hidden sugar in processed foods is the primary source of excessive sugar consumption, to date government has been slow to adopt measures to address the problem. Rather, the responsibility has been placed on the consumer to reduce consumption (*Bordbiavantage, 2014*) and on voluntary product reformulation led by the food industry. While some improvements have been made under the 'Health Strategy' of the Food and Drink Industry Ireland (FDII), with some well-known food companies taking steps to reduce salt and saturated fats (*FDII/Crème Global, 2016*), progress towards sugar reduction has been slow (*Burke-Kennedy, 2017b*). In this respect the Irish government's implementation of a sugar tax in 2018 is a positive step given the evidence supporting 'hard' measures as opposed to the 'soft' industry led voluntary reduction efforts (*Caraher and Perry, 2017*).

Yet, there is a paradox in this. While Bord Bia, Ireland's food promotion board, in its biennial study of consumers noted that 71% of respondents actively try to avoid sugary food and confectionary (*Bord Bia, 2015*) confectionary sales have been growing by 5% per annum in value and volume terms (*Bordbiaavantage, 2015*). Moreover, Mondelez Ireland, a subsidiary of the US confectionary company and the owner of the Cadbury brand that holds one-third of the sugar confectionary sector in Ireland (*Euromonitor, 2016: sugar confectionary*) held a seat at the committee tasked with developing Ireland's Food Harvest 2020 strategy. Given Ireland's numerous diet-related health problems, which we discuss below, there is a clear conflict of interest in having a multinational confectionary company on the committee of a strategy guiding the future direction of Ireland's agri-food production (*Kenny et al, 2017*). Arguments set out by The Lancet NCD Group make clear that unhealthy commodity industries should have no role in the formation of national policy around public health (*Moody et al, 2013*). Moreover, it illustrates Dixon et al's third aspect of metabolic rift where corporate power can work to reshape domestic consumption patterns and culinary culture (*Dixon et al, 2014*) which might also be captured by the notion of 'foodways'.

Drawing together the observations outlined in this section it is clear that food retailing has huge implications for the operation of the agricultural sector. Given that supermarkets operated by corporate multiples have become the pre-eminent retailing format in Ireland over the past two decades, this had consequences for agri-food supply chains and placed the horticultural sector in particular under enormous pressure. With corporate retailers competing aggressively for market share Irish growers have come under intense pressure as they shoulder the consequences of special promotions and discounts ('buy one, get one free'). It is of little surprise that there has been a marked exodus of vegetable growers while retailers develop supply chain logistics to draw from ever cheaper though more distant sources.

Tables 3 and 4 provide details of food imports by value and volume respectively and show how the fruit and vegetables category has grown. Indeed, it is important to note that since 2000 Ireland has been a net importer of food energy and that, on balance, a greater amount of food calories in the form of cereals, sugar and vegetable oils are imported than are exported in dairy and beef (*Doyle 2014; Ball 2016*). A significant amount of food imports, especially fruit, cereals and vegetables are imported from Third Countries particularly China, Costa Rica, and South Africa (Safefood 2009). So much for feeding the world!

Table 3: Food imports by Value 2005, 2010, 2015

	Food Imports (Value €000)			
	2005	2010	2015	%change
Animal oils and fats Total	6,212	10,048	15,677	152.36
Cereal and Cereal Preparation (Total)	556,300	763,213	1,021,117	83.55
Dairy Produce (Total)	394,259	450,710	777,297	97.15
Fruit and Vegetables	694,972	911,800	1,157,602	66.57
Eggs	13,663	18,555	20,844	52.56
Fish	132,184	167,159	264,700	100.25
Beef products	77,021	137,821	120,824	56.87
Pigmeat total	192,692	209,369	306,111	58.86
Poultry	246,417	251,633	452,699	83.71
Other meat and meat produce	29,907	41,117	58,249	94.77
Sugar, Sugar Preparation and Honey	200,710	237,684	374,519	86.60

Source: CSO, 2016: Data compiled by authors using CSO trade data received through personal communication

Table 4: Food imports by Volume 2005, 2010, 2015

	Food Imports (Tonnes)			
	2005	2010	2,015	%change
Animal oils and fats Total	7,190	12,681	16,552	130.23
Cereal and Cereal Preparation (Total)	1,003,480	1,437,496	1,733,280	72.73
Dairy Produce (Total)	484,330	440,473	816,878	68.66
Fruit and Vegetables	688,893	855,829	973,857	41.37
Eggs	6,339	8,635	9,024	42.36
Fish	35,433	75,630	69,573	96.35
Beef products	30,448	40,309	26,947	-11.50
Pigmeat total	69,420	72,812	97,864	40.97
Poultry	75,936	79,755	153,691	102.40
Other meat and meat produce	11,783	13,404	18,996	61.22
Sugar, Sugar Preparation and Honey	388,845	384,360	455,427	17.12

Source: CSO, 2016: Data compiled by authors using CSO trade data received through personal communication

4.7 Food poverty, dietary health: stressed human metabolic states

While cost is not the only factor influencing diets, it is nonetheless a key factor driving consumption patterns, particularly for those restricted by income. Ireland demonstrates salient levels of inequality with roughly one quarter (1.2 million) of the population experiencing deprivation; almost 800 thousand regarded as living in poverty (*Social Justice Ireland, 2017*); a third of the working population earn less than the Eurostat low pay threshold (*Collins, 2016*); and 10% earn the minimum wage or less (*Brennan, 2017*). Added to this, the incidence of precarious employment has increased sharply (*Nugent, 2017*).

Despite a policy of zero-rate VAT on food items, the cost of food is 119 % of the European average (*Europa, 2017*) and 12% of the population is classified as experiencing 'food poverty', with certain households disproportionately

affected such as single parent households (*DSP, 2017*). The measurements of food poverty in Ireland are based on a person reporting one or more of the following: being unable to afford a meal with meat, or vegetarian equivalent, every second day; a weekly roast dinner; and/or missing one substantial meal in the last fortnight. By any degree, this is a highly subjective measurement and if nutrition security was to be considered it would likely increase the number of people experiencing food poverty. Based on the questions currently used to gauge the size of the problem, a person who can afford a burger from McDonald's euro menu or a 34 cent packet of noodles from Aldi, is not experiencing food poverty. So while the price of food is an important signpost, in the context of cheap, mass production of energy dense food, it is no longer an adequate measure of food poverty.

Following the trajectory of increasing food aid across Europe, particularly that of the UK (*CaraHER and Cavicchi, 2014*) the number of people receiving food from charitable sources in Ireland has also increased (*FoodCloud, 2017*). Indeed, the food poverty discussions – or lack thereof in Ireland – are progressively being occupied by philanthropy, good will and food business. Increasingly the food industry aided by eager entrepreneurs, is placing itself as the silver bullet to both Ireland's food waste and food poverty problems. This is in spite of the fact that this perceived 'solution' disregards and, arguably, distracts from the causes of food waste and food poverty; it may even be detrimental to the health of those reliant upon it given the abundance of energy dense, nutritionally depleted food in the supply chain.

To purchase a healthy and acceptable food basket in the Republic of Ireland, low income households would have to spend at least one quarter of their income (*McMahon and Maloney, 2016; McMahon and Weld, 2015*). This is a highly improbable choice in the context of alternative food options that are up to ten times cheaper than more nutritious foods, but also at a time when millions of euro are spent on research designed to 'understand' consumers' food practices – with the ultimate aim of getting people to eat more. For example, Bord Bia has been undertaking research aimed at "understanding the snacking occasion in order to identify opportunities for Irish food and drink companies" (*Bord Bia, 2014: 1*). They go on to enthuse about the increasing affordability of consuming snacks: "In the past, once the snacks were all eaten, that was it for the week, but now it is more affordable to have snacks in the house on an ongoing basis" (*Bord Bia, 2014: 6*). Bord Bia, as the state food promotion agency, is a key player in shaping Ireland's food landscape but appears wilfully ignorant of the country's serious dietary health problems. In 2016, Bord Bia opened a state of the art consumer research centre "so that industry can make better informed decisions based on what consumers and

customers want and need – ultimately this leads to more commercial success" (*Bord Bia, 2016*).

Thus, although the opening of Bord Bia's 'Thinking House' was set against the backdrop of the Food Wise 2025 export goals and while it takes great pride in supporting these export achievements, it fails to recognise the importance of national nutritional security and population health.

Poor diet is Ireland's leading risk factor in the burden of disease (*IHME, 2015*), a modifiable factor not fully embraced by Ireland's public health agencies (or the agricultural sector). For example, Ireland's Department of Health 2016 review of key trends in population health stated that: "In the area of health determinants, lifestyle factors such as smoking, drinking, levels of physical activity and obesity continue to be issues which have the potential to jeopardise many of the health gains achieved in recent years" (*Department of Health, 2016*). This is the only mention of obesity, while diet was not mentioned at all. Hyland et al (2016) highlighted that out of 16 food groups, starchy staples (30%), high-sugar snacks (14%) and dairy products (11%) were the top three foods consumed by the Irish population in terms of overall energy intake. In contrast, fruit came in at number 11 (3%), legumes/pulses/nuts at number 13 (2%) and vegetables came in last at number 16 (1%). The World Health Organization (WHO) recommends the consumption of at least five portions of fruit or vegetables daily, while in Ireland only one in four people reported meeting these targets (*Healthy Ireland, 2015*).

One in four adults in Ireland is obese while 60% are overweight and, by 2030, Ireland is predicted to be the most overweight country in Europe (*IFPRI, 2016*). Various estimates suggest that between 10 and 15% of the Irish adult population are living with diabetes (*Diabetes Ireland, 2016*) but in the absence of a national surveillance programme, it is difficult to capture the true burden of this disease (*Tracey et al, 2015*) that currently accounts for ten% of Ireland's national health budget (*Diabetes Ireland, 2016*). Ireland ranks fourth highest for all cancers and continues to fall behind many European countries in relation to many health outcomes.

Ireland also has the second highest health spending in the OECD with pharmaceutical spending 30% above the European average (*OECD, 2015*). Notwithstanding Ireland's aging population, it begs the question as to just how much of health efforts are geared towards prevention rather than treatment.

Gillespie and van den Bold argue that "agriculture needs to work in harmony with other sectors to maximise its impact on nutrition" (2017: 3). Yet a

persistent problem in Ireland is that population health concerns, such as encouraging access to healthy foods, are regarded as entirely irrelevant to the agri-food sector while the decisions made by its protagonists – both public and private – that so significantly affect Irish diets appear entirely removed from the remit of public health agencies. Thus there appears to be little chance of reconciling productivism with national food security: rather, the favoured public health route is to change individual behaviour with little, if any, regard for tackling the wider food system that appears to be largely responsible for many of the current health problems in Ireland.

5. Conclusions

The extent to which productivism reshapes agricultural systems toward commodity export markets resulting in their disarticulation from domestic food security is well illustrated by the Republic of Ireland under its Food Harvest 2020 strategy. Here, despite agriculture being the largest user of land (67% of national territory), the imperative to export has overshadowed the domestic market. With government seemingly disinterested in intervening in the public health space and certainly far removed from designing a national policy to enhance dietary wellbeing, corporate interests have filled the void, competing with each other on grounds of price and convenience.

The consequence is that Ireland has some of the lowest per capita levels of consumption of fresh fruit and vegetables, some of the highest fast food and confectionary intake and worrying levels of overweight and obesity. Drawing upon the concept of metabolic rift helps us to better understand the alienation of production from the realm of consumption. Using the model of Dixon et al (2014) that proposed four forms of ecological rupture, we provided evidence for agro ecological depletion, an erosion of Irish foodways, and increasingly stressed human metabolic states. In the case of the first, we argued that productivism, particularly as it is most manifest in the Irish context through the intensification of livestock husbandry, was contributing very significantly to ecological depletion and the deterioration of environmental support systems as measured by freshwater and habitat quality, biodiversity indicators and atmospheric emissions of greenhouse gases.

Secondly, the transformation of the Irish foodscape in the expansion of corporate retail and fast food outlets seemed to share some responsibility for the increasing availability of energy dense and convenience foods. Without seeking to idealise a national culinary culture as a singular Irish foodway rooted in history and tradition and needing protection from brash 'polluting' influences, there is nevertheless clear evidence of a marked shift in dietary

habits marked by the greater visibility of fast food, carbonated beverages and confectionary that contribute to the creation of what has been called an 'obesogenic environment' (*Lake and Townsend 2006*).

Third, and finally, we noted how the above has contributed to problems of overweight, obesity and dietary ill-health. However, we should also acknowledge that one aspect of the metabolic rift, alienation from nature, is also evident in increasingly sedentary lifestyles.

Diminishing physical activity, especially in the presence of nature which is regarded as enhancing to mental wellbeing, together with energy dense diets exacerbates the failure of human metabolism to effectively balance energy input-output for many bodies. It is in this regard that the notion of metabolic rift exposes the deep asymmetry that has grown between the realms of production and consumption under modern capitalism.

As a metaphor it reveals the gulf that now exists between nature and society, between city and country, arguably between rich and poor, and one that has led to an enormous breadth of responses and initiatives variously aimed at mending this rift. These range from schemes to shorten food supply chains and build closer links with farmers through community supported agriculture to more ambitious plans for the redesign of the urban fabric making new food growing spaces in cities. While these options are not for discussion here, they demonstrate a growing belief that productivist agriculture and its Big Food allies no longer represent the solution for 'feeding the world' and that a food secure future for all can only be achieved when food recovers its centrality as a key dimension of social reproduction that is itself embedded within the ecological possibilities of Earth.

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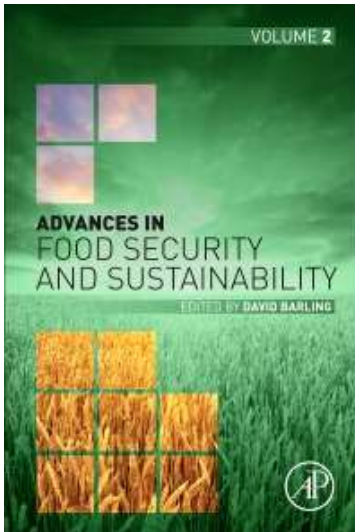
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