



Covid-19 and the UK Food System: Learning Lessons and Building Back Better

A report for the Transforming
UK Food Systems
SPF Programme

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The bulk of this report was written in 2021 and therefore did not cover the challenges and changes in the food system arising from the war in Ukraine in 2022 which we mention briefly in Chapter 7.



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Report Overview

The Food System - An Overview

It is useful to start with the big picture and consider Covid's impact across the whole of the UK's food system which is a highly complex system of inter-relationships and dependencies. Building on the usual focus on the key stages of the food supply chain (from production, through processing, transportation and retail, to consumption), it is important to appreciate other aspects of the food system including ecosystems and natural processes, primary production and up-stream supply chains. This section details the food system pre-Covid and the unfolding global impacts Covid had on availability and access, and subsequent utilisation and stability.





Food Production

This section summarises the Covid related challenges to the food production aspect of the food system, a complex picture that shows that different food production sectors (and sub-sectors) were impacted in different ways and to different extents, and one where there was considerable variation in the degree to which contrasting producers were able to respond and adapt to the challenges of Covid. It outlines the Covid-driven demand-side changes as well as Covid-driven acute labour shortages.



Processing, Distribution and Wholesale

There is perhaps something in the suggestion that processing, distribution, and wholesale represent the often overlooked or 'hidden middle' of the food supply chain. The Covid crisis has now served to shine a light on this critical and often underappreciated part of the food system. This section outlines the effects of Covid on the food processing sectors, namely seafood, meat and flour and food packaging as well as the distribution and wholesale sectors.



Retail and Hospitality

This section outlines the effects of the pandemic on the demand side of the food system, namely consumer behaviours and economic responses. It highlights the so-called panic buying and hoarding episode, the promotions and grocery inflation, and novel shopping habits that became the new normal. It also touches on the hospitality sector, whose industry was severely affected by the regulations and implementations put in place.



Food Consumption

Food consumption and food consumers' attitudes and behaviours reverberate up the food supply chain and throughout the food system. In this section the report focusses on how Covid has impacted on what we eat and why, and how we eat and when, and what the implications are of these changes in consumer food practices for both our own health and well-being and that of the planet.



Local Food Systems

Local food systems also had their part to play in the wider UK food system when the struggles of increased consumer demand came into play. In this section it illustrates how community food growing initiatives can provide a crucial collective asset and a social basis for rebuilding the future differently. Stories of growing, nurturing and sustaining both food and community show that the way community food growing has adapted to the challenges of the pandemic can provide novel, creative ways to overcome current and future disruptions, towards a better, more resilient future.

1. Introduction

Logistical Triumph or Broken System?

The image of the empty supermarket shelf is a powerful one. It speaks directly to a fundamental fear of scarcity and acts as a kind of visual shorthand for a food system that, if not broken, is certainly malfunctioning. It is an image that rapidly became a common and recurring motif early in the pandemic and has remained so, appearing periodically in the press as an accompaniment to stories about panic buying, various production issues, the 'pingdemic' and labour shortages. This pervasive image of the impact of Covid-19 on the UK food system is, however, a little misleading.

Supermarket shelves may have looked a bit sparse at times over the course of the pandemic, but these occasions were, thankfully, relatively rare and short-lived. Contrary to the image of the empty shelf, the UK food system, at least on the surface, has proved itself remarkably resilient, adaptive and adept at ensuring the supply tap has remained on and shelves fully stocked. Food production and supply chain infrastructure, in the face of significant Covid-shaped challenges, has proved to be fairly robust and the vast majority of food types have continued to be readily available in the UK. At least that has largely been the case to date. Images of empty supermarket shelves were continually in the news as a result of both serious Covid-Brexit labour shortages and the carbon dioxide supply issues, carrying warnings of potential shortages in the run up to Christmas.

Of course, critical as it is, maintaining supply and ensuring supermarket shelves are well-stocked is only one side of the food system story. Consider another defining image of the pandemic: the food bank queue.¹ In the UK, food may have been readily available for most, but some people's physical and economic access to food has been impacted severely by Covid. Many of society's most vulnerable, including those with underlying health and mobility issues and those on low, reduced or lost incomes have experienced huge difficulties in accessing sufficient food and nutrition.² In many instances, food banks and other community-based responses have played a critical role in mitigating the worst of Covid's impact, but the pandemic has undoubtedly seen

Figure 1. Empty Supermarket Shelves



a significant rise in food insecurity, and has clearly exposed and exacerbated existing inequalities.

To a certain extent therefore, there appears to be two different versions or narratives of the food system and Covid's impact upon it. One a 'supply side' perspective where it's viewed as a 'logistical triumph' that passed the Covid test and proved itself fit for purpose, and another 'demand side' perspective where the pandemic has revealed the food system to be irreparably broken and in need of a radical rebuild. The 'triumph' and 'broken' perspectives, of course, pre-date the pandemic but it is easy to see, when viewed from these different positions, or sides of the equation, how and why Covid's impact (or lack of impact) might be seen as validating each view.

In the spring of 2020, in the immediacy of Covid's initial impact there was a flurry of papers, opinion pieces, commentaries and blogs all trying to make some sense of what was happening and what Covid was revealing about the UK food system. One paper, for example, suggested that 'the COVID-19 pandemic, and associated pressures on food access, was revealing the stark inequalities in the UK system of food supply and food distribution'.³ Another argued that the pandemic was 'illustrating the flaws and fragility with the food system'.⁴ Writing in the journal *Nature Food*, Garnet et al. talked about how Covid had 'exposed the vulnerabilities in the UK's food supply chains' and 'weakened the UK food system'.⁵ Also writing in *Nature Food*, but taking a somewhat different perspective, Moran et al. were dismissive of commentators who suggested that the food system was 'dysfunctional, non-resilient, or delocalized to a perilous extent', or who overlooked 'the benefits of contemporary supply chains', or were 'vague about what alternatives might look like'. Rather than reveal a broken system, what the Covid-19 crisis was showing, they suggested, 'was that the food system in the UK has remarkable adaptive capacity'.⁶ Taking a similar tone but commenting on the global food system, *The Economist* also talked, perhaps predictably, in largely positive terms about the 'food miracle' and how the 'global food supply chain [was] passing a severe test' and had 'so far weathered the challenge of Covid-19'.⁷

What even the most positive of readings of Covid's impact on the UK and global food systems were happy to acknowledge however, was that, at that stage of the pandemic, barely a couple months in, it was still very much an evolving crisis and that it was too early to come to any definitive conclusions. For *The Economist* it may have been 'so far so good' in terms of the resilience and adaptability of the food system and its supply chains but it was quick to point out that huge uncertainty and challenges lay ahead and that 'things could still go awry'.

Even though this crisis is still evolving, but at 24 months, 3 lockdowns and 3 (maybe 4) waves in from the initial shock, we are certainly in a much better position now to examine and reflect on the impact the Covid-19 pandemic has had (and continues to have) on the UK food system.⁸ As numerous research projects progress and begin to report, and in some cases conclude, and as empirical evidence emerges, it is now



possible tentatively to start constructing a data-driven account of **what happened where, to whom and why**, and to offer evidence based suggestions of how we might start to rethink some parts of our food system and begin planning to **'build back better'**.

The Brief

In the spring of 2021, the Centre for Rural Policy Research at the University of Exeter was commissioned by the *Transforming the UK Food System for Healthy People and a Healthy Environment SPF Programme* to undertake a piece of work which 'synthesised the emerging results and findings of the various UKRI-funded, UK-focused Covid-19 / food system related research projects and innovation awards'. The purpose was to understand how Covid-19 had impacted (and was continuing to impact) the UK food system with a view to addressing two key questions:

1. *What can we learn from Covid-19 for transforming the UK food system?*
2. *How can lessons from Covid-19 help us to build back a better food system for improved human and environmental health?*

In addition to these specific questions, it was also anticipated that the results of this work could make a valuable contribution to the Transforming the UK Food Systems SPF Programme more generally by helping it to identify potential research and policy gaps and by helping it to prioritise some of the critical issues the programme should be addressing going forward.

Covid-19 - UK Food System Research

In March 2020, in the face of the growing Covid-19 pandemic, UKRI established the Covid-19 Rapid Response initiative to fund research and innovation projects to address the urgent need for a better understanding of, and response to, the pandemic and its potential impacts. The rolling scheme ran until December 2020 and funded 500+ new research projects, repurposed 300+ existing research projects, and supported 3000+ innovation projects. Our original brief for this piece of work was to identify and focus on UK food system related research projects and innovation awards funded under this scheme.

A shortlist of 12 Covid-19 / UK food system projects were identified to focus on. These **12 key projects** (see Table 1. below) have a primary focus on the impact of Covid-19 on the UK food system. Their associated emerging outputs and results provide the principal data source for this report. More information on the methodology of choosing these projects and details of the projects themselves can be found in the Annex.

To answer these questions this report draws primarily on the emerging findings of the 12 UK funded and UK focused Covid-19 / food system research projects, and on discussions and conversations with their PIs, Co-Is and RfFs. We hope we have captured the key insights and represented the emerging results of these 12 projects accurately and fairly but acknowledge that we cannot include all relevant information and the finer detail of all project outputs. As such, **we strongly recommend that in addition to reading this synthesis report readers also take the opportunity to follow the links provided to the original source material.**

Table 1: The 12 Projects

No	Project Title	Funder	Duration	P-I
1.	COVID-19: Food and nutrition security during and after the covid-19 pandemic	ESRC	June 20 – June 21	Mike Rivington, James Hutton Institute
2.	The impact of COVID-19 on the UK food system	ESRC	May 20 – Nov. 21	Michael Winter, University of Exeter
3.	COVID-19: Resilience of the UK seafood system to the covid-19 disruption	ESRC	July 20 – Jan. 22	Sofia Franco, Scottish Association for Marine Science
4.	Feeding the nation: seasonal migrant workers and food security during COVID-19 pandemic	ESRC	Oct. 20 – Apr. 22	Roxana Barbulescu, University of Leeds
5.	The impact of the covid-19 crisis on food security	ESRC & Nuffield	May 20 – Apr. 21	Martin O’Connell, Institute of Fiscal Studies
6.	Food in lockdown and beyond	NIHR	Oct. 20 – Dec 21	Corinna Hawkes, City University
7.	The impact of covid-19 and the resulting mitigation measures on food and eating in the east of England	NIHR	May 20 – March 21	Wendy Wills, University of Hertfordshire
8.	The impact of the COVID-19 crisis on nutrition	ESRC	May 20 – May 21	Martin O’Connell, Institute of Fiscal Studies
9.	Meeting food vulnerability needs during covid-19: applying a systems approach to evidence based policy and practice	ESRC	July 20 – Jan. 22	Hannah Lambie-Mumford, University of Sheffield
10.	Capitalising on COVID-19 as a trigger for positive change in food waste behaviour	ESRC	Nov. 20 – May 22	Gulbanu Kaptan, University of Leeds
11.	COVID-19: the local as a site of food security resilience in the times of pandemic: opportunities, challenges and ways forward	ESRC	June 20 – Oct. 21	Anna Krzywoszynska, University of Sheffield
12.	Local food-growing initiatives respond to the covid-19 crisis: enhancing well-being, building community for better futures	ESRC	Dec. 20 – June 22	Les Levidow, Open University

Where available and appropriate, this report also draws on other relevant academic papers and grey literature. As far as possible we have highlighted where the data are limited or where singular sources are used. The BBSRC asked us to indicate the level of certainty or confidence for specific findings. However, this has not proved possible due to the early and provisional nature of many of the findings.

We continue this report by looking at the UK food system as a whole, and then for reasons of simplicity and clarity, we adopt a fairly linear conceptualisation making our way from production (covering farm production and fishing), through the supply chain (covering processing, distribution and wholesaling, to retail and hospitality, then on to consumption (to consider changing food practices and their implications for nutrition and health, and food insecurity), before focussing our attention on local food systems. In the final section, we pick out some common emerging themes and identify key lessons learnt for building back better.



2. An overview of the impacts of Covid-19 on the UK food system

We start our examination of Covid and the UK food system with the big picture and consider Covid's impact across the whole of the UK's food system. For this 'overview perspective' we turn our attention to, and highlight, the work of **PROJECT 1** of the 12 projects, led by **Mike Rivington at the James Hutton Institute**. The Rivington project seems a sensible place to start for a couple of reasons: in taking a broad overview perspective it usefully introduces us to a wide range of issues, impacts and responses that we can pick up again and develop further as we move through the food system and draw on the findings of the other key projects; and as one of the first projects to finish and formally publish results we can be confident that we are starting the process from a solid evidence base. The Rivington project has produced a number of outputs and publications, most recently and most usefully for our purposes a 91-page report entitled: [An overview assessment of the COVID-19 pandemic on the UK food and nutrition security](#).⁹ When referring to the Rivington report below we are referring to this publication.

Rivington et al. look at the impact of Covid on the UK food system through a food and nutrition security lens. By way of introduction to their report they helpfully explain what is meant by food and nutrition security. They also provide some further useful context by explaining what they mean by 'the food system', and by painting a quick picture of what the UK food system looked like pre-Covid. This is essential context for both their report and for any discussion of the impact of Covid on the UK food system, including this report. As such, before we go any further, it is worth providing some of that context here.

Food and Nutrition Security

Rivington et al. remind us that the UN Food and Agriculture Organisation define **food and nutrition security**, as: 'when all people, at all times, have physical, economic and social access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life' (FAO, 2009, p. 1). Associated with this definition are **four pillars** or dimensions of food and nutrition security: availability, access, utilisation and stability. *Availability*, concerns the supply side of food production, reserve stocks and net trade. *Access*, is separated into two categories: *physical access* to food (the ability to travel, access shops and markets and store food) and *economic access* (the ability to acquire food by purchase or trade). *Utilisation* refers to how the body utilises nutrients and is connected to feeding behaviours, preparation practices, diversity of diet and distribution within households. And finally, *Stability* concerns the stability of the other three pillars, when periods of reduction in them can lead to a deterioration in nutritional status. For food and nutrition security to be realised, all four pillars must be fulfilled simultaneously.

The Food System

In a fairly expansive conception of the food system, Rivington et al., in step with much recent thinking, refer to a highly complex system of inter-relationships and dependencies. Building on the usual focus on the key stages of the food supply chain (from production, through processing, transportation and retail, to consumption), they highlight a range of other associated components and issues including:

- **ecosystems and natural processes** that enable terrestrial and aquatic primary and secondary production of food;
- **primary production** itself (which includes both the cultivation and harvesting of food and the social and cultural diversity that interacts with the ecosystem services to produce food);
- **up-stream supply chains** and infrastructure that facilitates primary production;
- the diverse range of activities associated with **processing, logistics and transport, and supply chains** (e.g. processing and packaging, storage and distribution, wholesale and retailing, advertising and marketing);
- **consumption** and how individuals utilise food and are nourished;
- the critical role of **human labour and skills** in tying the whole system together and enabling it to function.

In addition, to these various components, activities and actors, an understanding of the food system also requires an engagement with a range of key issues and concerns. These Rivington et al. identify as: 'the sustainability and stability of food production; resilience; economics; power relations of who influences the governance of food production, distribution and retail and how; inequalities of access; diet and how it relates to health; waste and environmental impacts of production'.¹⁰

The Food System Pre-Covid

An expanded and contextualised understanding of the food system and a desire to focus on and address issues of resilience, sustainability, social inequality, health and nutrition can be seen as part of a broader critique of the post-war productionist global food system. In an effort to feed a booming post-war world population, policies and resources were focussed on achieving ever-increasing efficiencies with the primary goal of producing cheap and plentiful food. Measured in these terms, the agro-industrial global food system was, and is, remarkably successful. It has led to the development of advanced infrastructures capable of moving large quantities of food quickly and cheaply over long distances, and it has developed the capacity to put food in the bellies of billions more people. Moreover, as Rivington et al. point out, it is a system that also creates significant employment and wealth and, through global trade in food, can act as an important stabilising aspect in international relations.¹¹

However, this steadfast focus on efficiencies and producing more food at lower cost, what Rivington et al. refer to as the '**cheaper food paradigm**', comes at a significant price and with enormous external costs and implications for the environment, human health, and food system resilience.¹² It has caused and continues to cause

considerable ecological damage in terms of greenhouse gas emissions, watercourse pollution, biodiversity and habitat loss, soil degradation and fish stock depletion. It has led to 'large inequalities in diet quality and food security, with both under- and malnourished people, and others with high energy but low nutrition diets, both leading to different health problems.'¹³ And, with a large number of food products dependent on a relatively small number of crops (wheat, rice, maize, soya), and the global system vulnerable to various national and regional scale risks (e.g. extreme climate events), there are concerns too for the system's resilience. Perhaps, however, the most compelling indictment of the productionist, 'cheap food paradigm' model is the fact that, despite its obvious achievements in feeding billions of people, according to the FAO, nearly 2 billion people are *still* considered to be food insecure, with 820 million of those not having enough to eat.

Despite its affluence and the agricultural advantages it enjoys, the UK is not immune to the scourge of individual or household food insecurity. Drawing on Trussell Trust data, Rivington et al. state that in the UK prior to the pandemic, 'around 8-10% of households in the UK were estimated to have been moderately or severely food insecure in recent years, whilst 1-2% had used food banks in 2018/19. For households with children, around 11% of children under 16 lived in food insecure households.'¹⁴

At the national scale too, the UK, as Lang persuasively argues, has a food [in] security problem.¹⁵ For various economic, political and historical reasons it has come to rely heavily on food imports with almost half (45%) of what we consume coming from outside the UK.¹⁶ The majority of these imports come from the EU, but in total we import food, feed and drink from more than 200 countries and territories.¹⁷ This reliance on food imports has consistently resulted in significant food trade deficits. In 2018, for example it ran at £24 billion. The UK is also a big importer when it comes to food labour. In 2017, for example, 30% of workers in food manufacturing were EU migrants. In the seafood processing sector it was 51%, and in the meat processing sector 63%.¹⁸ While importing food (and food labour) from different places can enhance a country's food security and increase the resilience of the global food system, reliance on external sources does, however, potentially increase the exposure of individual countries like the UK to a range of systemic shocks and global disruptions.

A Short (So Far) Systemic Shock

Few would argue that the Covid pandemic has not had a disruptive impact on both the global and UK food systems. But Rivington et al. contend that, under the definitions of food and nutrition security, the pandemic (so far) has been a relatively short systemic shock (at least when compared to other long-term threats such as climate change and biodiversity loss). The UK has remained relatively food and nutrition secure with production and imports maintaining supply sufficiently well enough to prevent any significant **availability** issues and food prices remaining fairly stable. Recent increases in food prices – the FAO food price index rose by 1.2% between August and September 2021 and 32.8% from September 2020 – and fears that these will continue appear to be linked to energy and labour issues, that are derived only in part from the pandemic.

Availability

2020 was not a great year in terms of the UK's primary production of food from agriculture and fisheries. Yields and outputs across different sectors were disappointing and often considerably lower than average. The National Farmers Union annual crop survey, for example, indicated winter wheat and barley yields were down 18%, and spring barley and oilseed rape down 6% and 15% respectively. Comparing February 2021 with February 2020, beef and veal production was also down (1.6%), as was mutton and lamb production (9.3%), although pig meat production was up 9.5%. While the quantity of fish landed in 2020 by UK vessels was only 2% less than in 2019 the cumulative value of the catch was down a more substantial 21%.¹⁹

These results may have been disappointing but, as Rivington et al. point out, were not always attributable to the impact of Covid-19. Variable weather conditions had a significant impact on the 2020 wheat harvest for example. Nor are such annual variations historically exceptional, and they did not at any point reduce food availability to levels that threatened food insecurity in the UK from the food access perspective. Food production within the EU, as the UK's primary source of imports, also remained relatively stable, which in part ensured that UK imports of food and drink also remained secure throughout the pandemic. As the Rivington report notes, in the last quarter of 2020, for example, despite the acute stresses caused by short-term border closures just prior to Christmas the value and volumes of food, feed and drink imported to the UK followed largely similar patterns to the previous two years. In terms of food supply and availability, therefore, Covid-19 did not cause an immediate and significant decline in food supplies in the UK.

Access

But of course, maintaining sufficient supply and availability are not the only measure of food system resilience. The Covid-19 pandemic may be characterised as a short systemic shock, but as Rivington et al. are quick to point out, it has resulted in a substantial segment of the population experiencing significant food and nutrition insecurity through reduced economic and/or physical access to nutritious food.

With production and food prices (see below) remaining stable and supply chain infrastructure remaining largely operational, reduced **economic access**, Rivington et al. suggest, 'is the clearest cause of food and nutrition insecurity in the UK', during the Covid-19 crisis.²⁰ Reduced economic access is primarily a function of low individual and household income, which in turn can be attributed to a loss of employment, a reduced salary, or from difficulties accessing income support. Particularly vulnerable have been those who were already experiencing a degree of food insecurity, those, for example, on low incomes, income support, zero-hour contracts or without reliable salaries. Moreover, for many individuals, Covid related additional income issues have only added to and exacerbated a range of other challenges and vulnerabilities including existing debt, physical and mental health issues, and care responsibilities. Whilst furlough and income support (Universal



Credit, mortgage / debt holidays etc.) have helped many people, large gaps have remained in people's ability to access safety nets. In some instances, this may have resulted in low-income people taking on more debt to survive the current situation, reducing their ability to break the poverty trap.²¹

In addition to economic access, the Covid pandemic and its associated lockdowns and restrictions have also significantly impacted people's **physical access** to food, by limiting their ability to shop where, how, and when they would normally. Lockdown restrictions combined with revised supermarket opening times, and social distancing requirements resulted in, for those who could adapt, new food shopping behaviours characterised by larger, less frequent shops and a move to online grocery shopping. But not everyone had the capacity or the resources to adapt and change to these new ways of shopping. Again, as the Rivington report highlights, it has been those with existing vulnerabilities, whether associated with low income, mobility issues, or health/mental health related self-isolation requirements, who have been particularly impacted. So too those living on low incomes in isolated coastal and rural areas who either relied on public transport and/or perhaps did not have access to a reliable internet connection. Conversely, while there were media reports of more people growing their own food during Covid-19 compared with before Covid-19,²² for many living in urban areas without access to outdoor growing space this was not a viable option, and the limited academic research on whether the pandemic significantly increased the numbers participating in home growing is not conclusive.²³

Utilisation

The Covid pandemic has not just led to 'new ways of shopping', but has had a fundamental impact on all facets of food utilisation, leading to a plethora of new food purchasing, cooking, eating and wasting behaviours, which in turn have been shown to have potentially significant dietary/health and environmental implications. Framing much of this shift in food consumption habits has been the reduction in eating out and the corresponding increase in consumption at home. For some people more time at home has been an opportunity to cook and bake more, to experiment, and to reflect more broadly on the provenance and quality of the food they eat.²⁴ For others, with food accessibility issues or faced with the challenges of juggling working from home with caring and home-schooling responsibilities, the pandemic has not brought such opportunities.

In terms of the type of foods people have been eating during the pandemic there seems to be evidence of an increased appetite for *both* healthier and less healthy food. Drawing on the early results of a survey of pandemic impacts on food behaviour undertaken by a James Hutton Institute colleague, the Rivington report suggests that while respondents were eating more varied food, including more fresh meat and fish and less ready-made meals than before Covid, they were also consuming significantly more cakes, biscuits, chocolate and alcohol.²⁵ This lockdown taste for comfort foods and sweet, nostalgic treats, may have been exceedingly good news for companies like Premier Foods (the owners of Mr Kipling). Rivington et al. report that their profits jumped 50% in the six

months to September 2020, but clearly not such good news for the NHS when 64% of adults in England are classed as overweight or obese.²⁶ The news is also somewhat mixed when it comes to new food habits and their environmental implications. With respect to food waste, for example, the Rivington report, citing WRAP, provides some positive initial findings suggesting that certain food management behaviours such as checking date labels and guidance, using or freezing left-overs, or checking fridges for stock, have endured post lockdown.²⁷ However, these gains are tempered with concerns that plastic waste associated with single use items has increased whilst government efforts to reduce plastic use have stalled.²⁸

Stability

Food stability, Rivington et al. remind us, integrates the other three pillars of food and nutrition security (availability, access and utilisation) to consider the ability to obtain food over time. Chronic food insecurity is 'long-term and persistent and occurs when people are unable to meet their minimum food requirements over a sustained period of time'. By contrast, 'transitory insecurity is short-term and temporary and arises when there is a sudden drop in the ability to produce or access enough food to maintain a good nutritional status'.²⁹ Under these definitions, it is Rivington et al.'s assessment that 'the UK has not experienced chronic insecurity thus far in the pandemic'. Rather, **Covid-19, as a short systemic shock, has led to a state of transitory food insecurity.**

This is not to suggest however, that transitory food insecurity is not a hugely significant or pernicious problem, especially when it appears to disproportionately impact the already vulnerable. Nor is it to suggest, as Rivington et al. repeatedly point out, that the UK is immune from the possibility of more chronic forms of food insecurity. Thus far, we may *not* have witnessed the emergence of widespread chronic food insecurity in the UK, but the Covid crisis is far from over and 'the global impacts of the pandemic on availability and access, and subsequent utilisation, are still unfolding'.³⁰

The Rivington project provides some of the overall context, and an extremely useful overview of key issues and themes which we will pick up and develop further as we make our way through the food system and bring in the other projects.



3. Food production

From the elevated perspective of a general overview of the UK food system, UK food producers certainly appear to have proved themselves to be resilient and adaptive, and able, for the most part, to maintain supply and meet demand. This is not to suggest, however, that Covid had a limited impact on the sector for many producers did face huge operational and financial difficulties. Zoom in a little, and a more complex picture comes into focus, one that shows that different food production sectors (and sub-sectors) were impacted in different ways and to different extents, and one where there was considerable variation in the degree to which contrasting producers were able to respond and adapt to the challenges of Covid. In a highly complex and interconnected food system it is also difficult, as Rivington et al. note, to disentangle or separate out these Covid shaped challenges from a range of other issues and drivers influencing and impacting the food production sector in the UK – not least, of course, Brexit. However, over the past 18 months, and particularly during the early stages of the pandemic and Lockdown 1, it is possible to pick out a couple of key Covid-related issues and challenges.



Covid-driven Demand-side Changes

The significant and sudden changes in the shape of demand for food associated with the imposition of Lockdown 1 on the 23rd March 2020 sent a powerful shock wave up the supply chain that had an immediate and, for some sectors and producers, devastating impact. The overnight closure of much of the catering sector with very little advanced warning gave many producers supplying schools, and the hospitality industry, for example, very little time to search for and secure new markets. With retail demand increasing during lockdown, a pivot to supplying supermarkets was one obvious potential opportunity, but a range of challenges associated with packaging availability, logistics and labelling requirements, meant, for most producers, this was not a viable option.³¹ It was a similar story with the switch to supplying customers direct. There were certainly successful examples of producers adapting to supply the public directly through the introduction of online ordering and to-your-door deliveries, in the form of veg and (to a lesser extent) meat and fish boxes, for example. However, for the majority of producers this was either simply not possible or practical, or was scant compensation for the loss of pre-pandemic markets.

To date, there has been relatively little published research on the impacts of COVID on the UK agricultural sector,³² but a **farmer survey** linked to **PROJECT 2, led by Michael Winter at the University of Exeter**, yielded some interesting results. Based on 1,117 responses (28% response rate) to a postal survey of farmers and land managers in the South West of England³³ between October 2020 and early December 2020, Wilkinson et al.'s survey reveals that farmers reported a wide range of both problems and benefits arising from COVID³⁴. Asked if COVID had caused them any problems, for example, 38% of farmers said they had had no problems. Of those who reported problems:

- 21% said they had lost non-farming income such as tourism rental;
- 15% reported a reduction in the price of farm products (12% in the case of milk);
- 11% noted less time being available due to caring responsibilities (such as childcare, or caring for relatives).

The 'other, please specify' column was also well utilised for this question, with a huge range of problems reported, including public trespass, stress, lower staff productivity and availability, shielding and production being capped. Answering a question about any benefits arising from the pandemic, 25% said they were seeing no benefits. Of those who reported benefits, 24% reported higher prices for farm products. Several of the other most noted benefits were about relationships: 23% reported improved relations with the local community; 9% reported more positive interactions with other farmers; and 9% reported closer relationships with buyers. New markets (7%) and demand for direct sales (1%) were also mentioned, but certainly not as frequently as might have been expected from looking at media reporting around direct sales.

For a more in-depth analysis of production we can turn from farming to fishing and aquaculture and to some of the emerging findings from **PROJECT 3, led by Sofia C. Franco of the Scottish Association for Marine Science.**

The 'fisheries' sector is a catchall term for wild-caught fisheries (to distinguish it from aquaculture) that encompasses three distinct sub-sectors: *shellfish fisheries* (e.g. crab, langoustine, lobster, whelk); *demersal fisheries* (e.g. cod, haddock, hake, pollock); and *pelagic fisheries* (e.g. mackerel, herring, sardines). To a certain extent each of these sub-sectors or fisheries has its own different methods/timelines of operation and different markets for its catch and as a consequence each was impacted by Covid-19 in different ways and to different degrees. The UK *shellfish* sector, for example, was hit hard and early by Covid. With only limited domestic appetite for shellfish, many in the sector rely significantly on EU and, increasingly, on Chinese and east Asian export markets. The collapse of these markets in February and early March 2020, followed on the 23rd March by the closure of the UK hospitality sector, which is shellfish's primary domestic market, had a devastating impact across the sector leading to situations of 'extreme operational hardship' and in some instances the collapse of businesses. A fall in demand, aggravated by insufficient cold storage, led to an over-supply, which in turn led to exceptionally high drops in fresh shellfish prices, to the point where, for many fishers, there was no option but to cease fishing and to tie-up in port.³⁵

Some businesses, however, were able to adapt and alter their fishing practices in response to the crisis. Those catching multiple species, for example, were able to shift effort and focus on products that had suffered less of a market hit. Some businesses were able to respond by shifting supply to domestic direct-to-consumer or retail outlets with some establishing online platforms, increasing marketing and operating click-and-collect or 'dock-to-door' delivery services. Others were able to establish new business-to-business relations to access new customers or diversify their offer, with a focus on keeping buyer relations and/or increase take-up of more versatile segments. But certainly not all shellfish businesses were either able or willing to make these sorts of changes. Some were reluctant to change their markets or make the investments




needed to adapt existing gear or to buy the new gear that focusing on a new species or market would require. Moreover, as mentioned above, and as Franco, also notes, for most in the shellfish sector, pivoting to a domestic market provided insufficient value and volume to replace lost export market income.³⁶

Faring a little better than the shellfish sector was the *demersal fishery*. The whitefish fleet, as Franco explained, supplies seafood to both domestic (e.g. cod and haddock) and export (e.g. angler fish and megrim), markets. In so doing it was able to somewhat minimise and mitigate the impacts Covid 'by balancing relative effort towards different target markets and actively avoiding over-supply'. Whitefish fleet responses included, for example, reducing or temporary halting fisheries, with some business also shifting to local direct-to-consumer sales.³⁷

Impacted least of all were the *pelagic fisheries*. Mackerel, herring and other oily fish, Franco explained again, are often destined for the frozen, smoked and canned segments, and with their characteristically long shelf-lives and relative affordability, they were comparatively insulated against the impacts of Covid. Most pelagic boats continued to operate with some even experiencing increased sales, boosted by stockpiling behaviour and higher demand from retail during lockdowns. Export supply chains for pelagic products were also more resilient, Franco suggested, as most maritime transport (e.g. containers) continued to key markets where demand remained high (e.g. east Asia). The negative impact was further minimised by the somewhat favourable timing of the arrival of the pandemic, when ongoing fisheries were less dependent on processing facilities, which later had to implement COVID-secure measures to operate.³⁸

Like its wild-caught counterpart, (food related) *aquaculture* is not one singular sector but a catcall term for three quite distinct sub-sectors: finfish (e.g. salmon, trout), shellfish (e.g. mussels and oysters), and marine algae (seaweed).³⁹ Also like its wild-caught counterpart the UK aquaculture sector is heavily dependent on the food service sector and key export markets. Domestic appetite for shellfish (caught or farmed) is fairly limited and focussed on the hospitality sector, and while UK farmed salmon is a common sight on UK supermarket shelves, it is also one of the UK's largest food and drink exports. In 2019, for example, UK farmed salmon was the UK's second most valuable exported food and drink item (after Whiskey) worth £832 million, with France, the USA, and China the top three destinations. This dependency on the UK food service sector and, particularly, on a number of key EU, North American, and East Asian export markets put many UK shellfish and finfish producers under an enormous strain during the early stages of the pandemic as these critical domestic and export markets either closed entirely or collapsed. The dire situation was also aggravated, as Franco notes, by various 'other logistical and economic difficulties'.⁴⁰

In response to these impacts, many businesses sought to identify alternative export routes and to raise awareness of logistical efficiency challenges. Some businesses, Franco suggests, were able to respond to market volatility and supply chain



disruptions by shifting markets/outlets whenever possible and by working with supply chain/buyers to change the product offering to fit current market demands or constraints. In common with some of their wild-caught counterparts, some shellfish farming businesses were able to shift successfully to direct-to-consumer sales during market closures with some developing fish box schemes, diversifying product lines or increasing their online presence and marketing. Performance across different businesses and segments however varied significantly. Many aquaculture businesses experienced very high losses in the first half of 2020, and while some were able to partially manage and mitigate the impact by pivoting to retail and/or to direct-to-consumer sales, many were not.⁴¹ For most businesses, as Franco remarks, especially for micro, small and medium sized enterprises, which represent the vast majority of the sector, the impact of Covid was an entirely negative experience.⁴²

PROJECT 3 reveals that the three different wild-caught fisheries (and to a degree the three different aquaculture sectors too) were impacted by Covid to different extents depending on a number of demand-side variables, not least of which were the different vulnerabilities of the product segments (e.g. live, fresh, frozen, canned) and the markets (domestic, EU, East Asia,) that each fishery supplied. In addition to these product segment and market impacts, Franco's research also identifies a number of other Covid related challenges faced by the fisheries and aquaculture sectors, which while not demand-side issues, are nevertheless worth mentioning here. In the fisheries sector, for example, all owners/skippers were impacted by common requirements to ensure safe, Covid-secure working environments for their crews. In the confined and challenging spaces of fishing boats, this often proved difficult and sometimes impractical and/or prohibitively expensive. A second significant issue for the wild-caught fisheries sector concerned labour shortages. Although the sector as a whole does not rely on EU migrant labour to the same extent as the agricultural or seafood processing sectors (see below), many individual operators or boats do, and as the pandemic spread across Europe and many migrant workers returned home, some boats were left without sufficient crew to safely put to sea. For aquacultural producers, the fact that most farmed salmon is usually exported in passenger rather than cargo planes, and that most passenger planes were grounded, created considerable logistical challenges with certain export routes (e.g. USA). Moreover, and unlike the fisheries sector, aquaculture also had significant added costs and operational constraints associated with maintaining ongoing production and livestock welfare standards.

Despite these multitude of challenges, and with Brexit looming ominously on the horizon, for the most part, the UK wild-caught fisheries and aquaculture sectors were able to ride out the first waves of the Covid storm largely intact. According to Franco, various government, industry and third sector responses to the crisis were critically important in ensuring the continuation of livelihoods and businesses. These included the designation of fisheries and aquaculture employees as keyworkers, access to the UK government's furlough scheme, direct support from EU funding and government grants, and the help provided by charities. Also of significance was the relationship fishers and producers had, and were able to maintain, with regulators and with their supply chain. Drawing on the early results of a survey of

seafood sector stakeholders, Franco reports that 'fisheries businesses noted their dependence on their supply chain and the importance of communicating and working together with processors', while 'fish farming businesses reported consulting more frequently with regulators and government on various animal welfare matters (e.g. stocking biomass, medication)',⁴³



Covid-driven Acute Labour Shortages

At the time of writing (September 2021) the single biggest issue and challenge that the UK food system faces is a critical shortage of labour. Seemingly, with each new day new warnings and pleas are issued from another part of the food system hamstrung by a severe lack of workers to perform crucial tasks. Today, for example, the National Pig Association reports that the country is overwhelmed with an excess of 100,000 pigs bred for food but with no workforce to farm, slaughter, and transport them.⁴⁴ Yesterday, there was a story about 100,000 litres of milk being wasted on account of the ongoing lorry driver shortage.⁴⁵ This current food system wide labour crisis cannot, of course, be solely attributed to Covid; in fact, most recent media reports of worker shortages cite Brexit as the principal driver. That may well be the case now, but for much of last year and Lockdowns 1 and 2, food labour shortages were more clearly Covid-driven.

It is important to recognise, as noted by **PROJECT 1**, that the Covid-19 pandemic impacted the UK food system labour supply in a number of ways. Most obviously, of course, Covid related border closures and travel restrictions massively limited the number of seasonal migrant workers able to enter the UK and join its agricultural workforce. COVID-19 related illness, self-isolation and social distancing requirements affecting farm staff and associated businesses (e.g. equipment repair, farm auditing, inspector visits and animal testing) also had a significant impact on agricultural labour. It is also important to recognise, as Rivington et al. do, that Covid's impact on production was not just limited to the 'often-discussed demands of fruit and vegetable growers' but included various other sectors too, including fisheries (as mentioned above), animal husbandry and the management of grain crops in mixed and arable-sectors.⁴⁶ Having recognised this, it is reasonable to say that the UK horticultural sector was hit particularly hard by Covid, especially during Lockdown 1, and that its huge reliance on seasonal migrant labour left it particularly vulnerable.⁴⁷

Each year the UK horticultural sector employs around 70,000 seasonal workers to pick and pack UK grown fruit, vegetables and salads.⁴⁸ At least 90% (the NFU has it at 99%) of these seasonal workers are migrant workers, and at least 90% of these migrant workers come from the EU. In turn, of these EU seasonal migrant workers around two-thirds are A2 nationals (Romanian and Bulgarian citizens) and around one-third A8 nationals (Polish, Slovak, Czech, Lithuanian, Latvians, Slovenian, Estonian and Hungarian citizens).⁴⁹ In early spring 2019, thousands of EU seasonal migrant workers arrived in the UK for the start of the soft-fruit picking season. In early spring 2020, Covid related UK and EU travel and movement restrictions had a huge impact on the number of people willing or able to travel, resulting in a fraction of the usual EU migrant workforce being available to help with the harvest.

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Responses to Covid-driven migrant labour shortage included farms and recruiters chartering flights; recruitment of local UK workers under the ‘land army’ and ‘Feed Our Nation’ campaigns were implemented by UK growers and furloughed employees were asked to pick fruits to save harvest.



There were various responses to this Covid-driven migrant labour shortage from different quarters, some more drastic than others, and some more successful than others. The Rivington report picked out a few:

‘... farms and recruiters chartered flights; (Corker, 2020) [...] recruitment of local UK workers under the ‘land army’ and ‘Feed Our Nation’ campaigns was implemented by UK growers; (BBC, 2020a) furloughed employees were also asked to pick fruits to save harvest. Other responses to the labour shortage caused by the pandemic [came] from associations in the agricultural producers and growers’ sector. To mention some, the farmer’s network created the Farm Labour Emergency Support Scheme (FLESS), with the aim to help farmers in Cumbria and Yorkshire to locate and secure workers for keyworker tasks (The Farmer Network, 2020). The Association of Labour Providers developed a tool called “Spare Worker Available Portal” (SWAP) to support workers displaced by the coronavirus to transfer them to where work was available (ALP, 2020).’⁵⁰

For many producers difficulties in recruiting migrant labour resulted in significant increases in production costs. Research by Pelham (2020), for example, which looked at the UK’s orchard fruit sector, showed that orchards incurred a range of Covid-related additional costs including higher recruitment costs, the costs of training inexperienced workers, and higher accommodation and operation expenses, which combined, had increased production costs, as of late June 2020, by 10.5%.⁵¹ Interestingly, however, Pelham’s principal finding was that, despite these significant new Covid costs, labour costs had increased even more sharply as a result of changes in the National Living Wage, which had seen an increase in labour costs of 34% between 2016 and 2020. This is one of many examples of where Covid-induced changes have to be seen in the context of other changes, here labour costs, but often Brexit related changes. In this instance, disentangling of the different factors had been undertaken in the research (a postal survey and follow-up interviews with 27 fruit and vegetable growers, with a combined turnover of over £600 million) but this is often not the case.⁵²

As has become government mantra with respect to current Brexit-related migrant labour issues, a commonly suggested solution to last year’s Covid-related migrant labour challenges was to hire more UK workers. Despite best efforts and decent media exposure however, campaigns like ‘Land Army’ and ‘Feed the Nation’ were to have a limited impact. Estimates, for example, suggested that British workers made up between just 5% to 11% of the 70,000 picking and packing roles required across the 2020 season.⁵³ For an insight into some of the reasons for why this might be, as well as a range of other perspectives on the seasonal migrant labour issue we can turn to **PROJECT 4, led by Roxana Barbulescu at the University of Leeds.**

In a project [blog](#), posted in June 2020, Barbulescu and Vargas-Silva examined the potential for furloughed and unemployed UK workers to fill the gap left in the

horticultural sector's workforce by the developing migrant labour crisis. Noting the very limited success of domestic recruitment, 'with only 0.2% of those who expressed an interest ending up taking the jobs', they identified four key reasons why, for both farmers and UK workers, domestic recruitment was not a viable solution to the problem.

*'Firstly, farms tend to be far from transport links and urban areas where population is concentrated, which means that workers would need to move across the country to take on these jobs. Meanwhile, work with similar pay is often available in the local supermarket, for example, where demand is also on rise in the pandemic. Secondly, early indications are that the retention of farm workers from the UK is low, which suggests that many farmers will be worried about their commitment to stay until the end of their contract. In particular, as the lockdown restrictions are lifted, these workers will be asked to return to their original occupations with little notice, leaving farmers with a reduced workforce. Thirdly, harvesting fruit and vegetables requires a certain set of skills. The most obvious one is capacity to do a physical job (e.g. bending, carrying, lifting) for long hours. A substantial portion of unemployed and furloughed workers don't meet this requirement. Fourthly, few workers in the UK have experience in agriculture – making additional training necessary.'*⁵⁴

“ farms tend to be far from transport links and urban areas where population is concentrated, which means that workers would need to move across the country to take on these jobs. Meanwhile, work with similar pay is often available in the local supermarket, for example, where demand is also on rise in the pandemic.

This characterisation of UK workers as unable or unwilling to undertake what is both a skilled and physically demanding job contrasts sharply with that of seasonal migrant workers, who are often viewed as having a more favourable work ethic and more likely to 'demonstrate lower turnover and absenteeism; be prepared to work longer and flexible hours; be satisfied with their duties and hours of work; and work harder in terms of productivity and speed'.⁵⁵ Migrant workers also return to similar work (and often the same farms), year after year, which lowers the time necessary for, and costs of, recruitment, training and induction. For the farmer, therefore, there are many advantages to hiring seasonal migrant workers compared to dipping into the local available labour pool, if indeed there is one.

From the seasonal migrant worker perspective too, agriculture, as Barbulescu et al.'s research is revealing, remains, in the main, 'an attractive sector because of the perceived lower admission requirements (as confirmed by the Points Based Immigration System), because it offers accommodation (per cost), and because it enables them to both work abroad and spend a significant part of the year with their families'.⁵⁶ But while it may be a relatively good option for many migrant workers, that's not the same, of course, as saying that their experiences of working in the UK agricultural sector are always positive. Based on interviews carried out during the 2020 harvesting season, **PROJECT 4** provides a valuable insight into the experiences and perspectives of seasonal agricultural migrant workers, experiences and perspectives often overlooked in current analyses of the migrant labour crisis. Migrant workers, for example, through repeated actions and engagement, may be more physically adapted and capable of undertaking various picking and packing

tasks, but, as Barbulescu et al. report, they still speak of the work as incredibly 'hard' and demanding. Some mention 'back pain', the 'long hours', and the 'weather', others the 'emotional cost of leaving families behind'. There is often a financial burden to bear too, as the majority need to repay the loans they took out to come to the UK. There is also, as Barbulescu et al. suggest, 'little understanding among workers of the peculiarities of paid work in UK agriculture (the piece rate system) and zero-hours contracts'. Workers, for example, speak of confusion as to why 'tomatoes would be paid this much today, and tomorrow there would be a new price'.⁵⁷ When it comes to accommodation, while often provided, it varies in quality and is usually shared, and this loss of privacy proves a challenge for many workers, particularly for couples. Finally, there is the potential sense of isolation and lack of support. While 60,000-70,000 represents a large town's worth of seasonal migrant workers, as Barbulescu et al. point out, they are geographically well dispersed, which means there is usually 'little support in the community and third sector' for them.⁵⁸

In another **PROJECT 4** [blog](#), which follows the trajectory of farming as 'essential work' during the Covid pandemic, Bethany Robertson, argues that the relative absence of seasonal migrant workers, following both Covid and Brexit, has resulted in an acknowledgment of just how reliant farm business and the UK horticultural sector is on their skills and labour. As Robertson concludes, however, it remains to be seen whether work conditions and policies going forward affirm the 'elevated status' for agriculture and the critical contribution seasonal migrant workers make to it.⁵⁹



4. Processing, distribution, and wholesale

There is perhaps something in the suggestion that processing, distribution, and wholesale represent the often overlooked or 'hidden middle' of the food supply chain.⁶⁰ A black-box of primary and secondary processors and manufacturers, distributors, and wholesalers that is situated somewhere between the more familiar farming/production and retail/consumption ends of the food supply chain. It is telling, for example, that the Federation of Wholesale Distributors (FWD) describes wholesale distribution as 'the biggest industry you've never heard of'.⁶¹ As with the role of agricultural seasonal migrant workers, perhaps the Covid crisis has served to shine a light on this critical and often underappreciated part of the food system. In terms of Covid-19 / UK food system research, while none of the twelve projects we feature in this synthesis focus exclusively on the processing, distribution, and the wholesale sectors, two projects have sought to examine aspects of this 'hidden middle' and Covid's impact upon it.⁶² We will be returning once again to **PROJECT 1** and the work of Rivington et al. in this section, but principally we will be looking to some of the emerging findings of Winter et al.'s **PROJECT 2**.


Drawing on a range of relevant literature (e.g. industry reports, market analysis, newspaper articles, commentaries/blogs etc.), with added critical insight and ground-truthing supplied by an Expert Panel of key individuals from across the UK food system, Winter et al. produced sectoral focussed working papers for discussion with their Expert Panel*. These papers examined Covid's impacts along the length of each supply chain from production to consumption, with a particular interest in the hidden middle and the processing, distribution and wholesale stages.

Processing (Seafood)

We start our look at the impacts of Covid-19 on food processing with another visit to the seafood sector. Drawing primarily on a report published in March 2021 by Seafish⁶³ (which was based on a survey of 280 seafood processing businesses carried out in the summer of 2020) but with additional information and analysis from **PROJECT 2**'s Expert Panel (which included several seafood sector representatives), Winter et al. have summarised some of the impacts CV-19 had on the UK seafood processing sector.

Overall, the impact of Covid on the seafood processing sector, particularly during Lockdown 1, was considerable. Between March and July 2020, for example, according to the Seafish survey, **72% of seafood processing sites reported reducing their activities or temporarily closing** as a result of Covid-19 restrictions. However, the impact was also quite varied from processor to processor. The factors determining which seafood processors closed, reduced activity, or carried on at full capacity during

* These Research Briefs are now available here: <https://blogs.exeter.ac.uk/foodsystemimpactscv19/blog/2022/07/17/research-briefs/>



this period were complex and interacting, but two seemed key: (i.) the **markets** supplied, and (ii.) the **size** of the processing site(s). Processors reliant on foodservice and export markets, for example, typically fresh shellfish and mixed species processors, faced huge reductions in demand. Businesses supplying the UK retail sector, on the other hand, fared much better, with Seafish noting, for example, that none of the surveyed salmon or trout processing sites reported closing at any point in response to Covid-19. A varied picture was also evident with respect to **scale of operation**. According to the Seafish survey, 57% of respondents from the largest processors (100+ FTE) reported that they did not have to reduce activity or temporarily close at any point, compared with only 24% of respondents from the smallest processors (1-10 FTE). Scale of operation also seems to have been a factor in determining how seafood processors responded and adapted to the challenges posed by Covid. While a 100% of large (100+ FTE processors, for example, reported making changes to labour and production practices to meet social distancing requirements and changing market demand, only 64% of small (1-10 FTE) processors did. Conversely, while 66% of small processors reported making changes to their sales and distribution channels (e.g. adding or expanding direct sales offerings and shifting products from foodservice to retail formats), only 20% of processors with 26-50 FTEs did.

Both scale of operation and markets supplied also appeared to be a factor with respect to **business outlook**. Respondents from the largest processing sites, for instance, appeared to be the most positive with 30% of this group reporting an expected uplift in profits in 2020 compared to 2019. In particular, as the Seafish report notes 'those supplying the retail sector saw a surge in demand beginning in March, as consumers stockpiled ahead of lockdown, and even after restrictions began to ease, seafood sales in retail remained well above 2019 levels in spring and summer across all product categories (frozen, chilled and ambient)'.⁶⁴ Respondents from the smallest processors were, in the main, a little less optimistic than large-scale operators with 52% expecting a reduction in business profits in 2020 compared with 2019 and only 19% an increase. However, as the Seafish report again notes, the picture for small-scale processors was somewhat mixed. While many who supplied high value fresh seafood to high end restaurants in the UK and Europe, for example, struggled to make up for sales lost when foodservice markets closed during national lockdowns, some processors, particularly those who were able to pivot and start or scale-up online retail operations and home deliveries in response to the Covid-19 restrictions, experienced an increase in sales (some as much as 200%) and anticipated increased profits in 2020. Least positive of all, with perhaps neither the resources of the larger-scale processors or the adaptability of some of the smaller-scale ones, were respondents from medium-scale seafood processors, with only 6% of sites with 11 to 25 FTEs and 13% with 26 to 50 FTEs expecting an increase in profits in 2020.

Despite the expected financial impacts of Covid, respondents to the Seafish survey were 'relatively optimistic about the next 12 months', with only 15% reporting a negative outlook. To a degree this optimism can be attributed to the timing of the survey (July and August 2020), which coincided with the easing of restrictions, and the re-opening up of the hospitality sector and introduction of the Eat Out to Help Out scheme. The imminent end of the Brexit transition period too, seems, at least at




that particular juncture, to have not negatively impacted the processing sector's sense of relative optimism to any significant extent. Fast forward a few months however into the autumn of 2020 and another lockdown, and in addition to the return of Covid related restrictions, Brexit also begins to loom large for many in the seafood processing sector. The combined impacts of Covid-Brexit posed a particular challenge for businesses supplying export markets on the continent, who in addition to managing COVID-19 challenges also needed to plan for an (at the time) unknown future relationship with the EU.⁶⁵ Fast forward another few months into early 2021, and while the Brexit position is clearer it was no less challenging. Those supplying export markets had to meet new paperwork requirements following the UK's exit from the EU, and these new systems and documentation made the job significantly more onerous and costly for some businesses. Those businesses serving the UK hospitality and foodservice sector also faced significant challenges as the New Year brought with it yet another new lockdown (the third) and reduced domestic demand. By contrast, and in common with Lockdowns 1 and 2, businesses supplying domestic retail or selling directly continued to see strong demand during Lockdown 3.⁶⁶

Processing (Meat)

In many respects the *meat processing* sector experienced a similar pattern of winners and losers (based on markets supplied and scale of operation) and evolving challenges (as the Covid pandemic developed and intersected with Brexit) as the seafood processing sector. As Winter et al.'s meat focussed discussion paper reveals, Covid's initial impact on the meat sector was 'complex and far reaching'. Processing plants faced significantly reduced staffing levels and two-metre distancing requirements created challenges on processing lines. The closure of schools, the hospitality sector, and valuable export markets also had a profound effect, (particularly on the beef sector), significantly displacing markets and changing the balance of meat cuts required. While retail driven demand for low value cuts like mince soared, demand for prime cuts like steak and hindquarter, and for offal and other by-products plummeted making it extremely difficult for many processors to 'balance the carcass' and make a profit. Intervention came in the form of the levy boards working together and establishing the 'Make it Steak' campaign, alongside various other campaigns to encourage people to cook their own 'restaurant experience' at home.

By the late summer and early autumn of 2020, on the back of various 'Make it...' campaigns (e.g. 'Make it Steak', 'Make it Pulled Pork', 'Make it with Lamb'), and with help from the government's 'Eat Out to Help Out' initiative, and a fairly decent barbeque season, meat sales rebounded strongly. For the 12 week period up to 9 August 2020 for example, retail beef sales were up 19.3% by value and 16.2% by volume on the same period in 2019.⁶⁷ Pork sales were up too, 13% in the 24 weeks ending 9 August, and although slower to recover (up just 1% by volume in the 24 weeks ending 9 August), in the 12 weeks to 4 October, lamb retail sales by volume were up 11% compared with the same period 2019.⁶⁸



While the mid-year recovery of meat sales was welcome news for meat processors, the impact of Covid on the sector was far from played out. By the late summer and early autumn of 2020, with cases of coronavirus relatively low compared with the spring, media attention seemed to turn from a focus on total Covid numbers to isolated Covid outbreaks, with a particular interest in the issue of CV-19 transmission at meat processing plants. A *BBC News* article, for example, in answer to its own headline 'Why have there been so many outbreaks in meat processing plants?', suggested that meat processing workers were exposed to the virus more than other similar labour intensive roles due to the cold and damp working environment enabling dispersion of droplets, noisy machinery requiring people to talk more loudly or shout, and difficulties in social distancing when working on fast moving production lines.⁶⁹ A similar piece in *The Telegraph* cited different experts but gave much the same reasons, suggesting meat processing plants with their cold environment, close working, and shared transport created the perfect breeding ground for the virus.⁷⁰ Both articles also identified socio-economic factors as relevant, with problems associated with communicating information about social distancing and safe working practices to some of the meat-processing sector's large migrant workforce. For *Unite*, however, it was not migrant workers' lack of English language skills that posed a significant risk factor for coronavirus transmission, but rather their treatment as 'disposal assets'. This was particularly true, they argued, in meat processing factories that did not provide staff that needed to self-isolate with company sick pay or any other form of financial support, as it increased the danger of individuals with Covid-19 going into work because they could not afford to take time off.⁷¹ A different perspective on the issue was provided by **PROJECT 2's** Expert Panel, which, when asked to comment on the media coverage of meat processing plant Covid outbreaks, suggested that the vast majority of incidences of coronavirus were actually community-based, and that processing plant-based incidences, contrary to the impression given by the media, were in fact extremely low. Moreover, many plants, the Panel pointed out, had made significant capital investment to mitigate the risks posed by Covid and to protect staff, the business, and the larger meat supply chain.⁷²

Despite the early carcass balance crisis and the challenges associated with making plants safe and Covid compliant, 2020 turned out to be a fairly good year for many in the meat processing sector with a rise in both retail sales and farm gate prices. Lamb finished the year, for example, with UK retail sales up 4% on 2019, pig meat was up 8%, and beef, an impressive 11%.⁷³ But not all meat processors, of course, benefitted from increased retail sales. According to **PROJECT 2's** Expert Panel, catering butchers were particularly adversely impacted. Despite that fact that many had moved quite quickly to click and collect and home delivery services and/or switched to supplying markets and farmers markets, these sales with their smaller order sizes and tighter margins, were unable to make up for the loss of the catering sector market.⁷⁴ For meat processors supplying the export market, 2020 brought mixed fortunes. While UK sheep exports were up 10% by value on 2019, and pig meat exports up 7%, beef exports were down by 17%.

In 2021 the meat processing sector has had to contend with a multitude of complex challenges as Covid and Brexit, both directly and indirectly, and both singularly and in

combination, impacted the sector. In the first half of the year, a sudden third lockdown and the closure of schools and the hospitality sector, again caused significant problems for those, like wholesale catering butchers, who supplied these markets. At the same time, Brexit was also posing huge challenges for the meat sector. The British Meat Producers Association (BMPA), for example, described a situation whereby one of the world's most sophisticated just-in-time fresh food supply chains had effectively 'regressed back to an export certification system from the 1970s'. Examining the impacts of Brexit on the UK meat industry in the first quarter of 2021, the BMPA reported that exports were running at 50% of pre-Transition Period volumes during the first six weeks of 2021 and that most companies expected a permanent 20% loss of export trade, with some expecting over a 50% loss.⁷⁵ In the second half of 2021, as both Covid-related demand issues and Brexit-related export issues have eased, a combined 'Covid-Brexit' driven labour recruitment crisis has emerged. Industry concerns about a shortage of workers in the meat industry predate both Covid and Brexit,⁷⁶ but so critical has the situation become that the Association of Independent Meat Suppliers (AIMS), which represents butchers, abattoirs and processors, have recently been exploring how its members could recruit more prison inmates and ex-offenders as well as ex-servicemen and women to plug the gap.⁷⁷

Processing (Flour and Food Packaging)

In a discussion paper and associated Expert Panel meeting held in November 2020, Winter et al. explored the impact of the Covid-19 pandemic on the flour and food packaging sectors. They heard from their project's Expert Panel that the boom in home baking at the start of the first national lockdown (see also this [PROJECT 2 blog](#) on home baking) led to an estimated five to tenfold increase in retail demand for flour. In fact retail flour sales had already begun to significantly pick-up in advance of Lockdown 1 when, along with toilet roll and pasta, it became one of the main products associated with pre-lockdown 'panic buying'. A [working paper](#) from **PROJECT 5** by Martin O'Connell et al. at the Institute for Fiscal Studies (IFS), for example, reported that flour sales were up 46% in the 4 week period immediately prior to the first UK lockdown compared with the same period 2019.⁷⁸

In response to increased retail demand for flour, the milling industry doubled production from 2 million bags a week to 4 million with many mills operating 24 hours a day.⁷⁹ However, even running at full capacity NABIM (now UK Flour Millers) estimated output was only sufficient for 15% of households to buy a bag of flour per week. As Winter et al. explained, the issue was not to do with the supply of wheat, or with milling capacity, but with bag size. The UK produces around 90,000 tonnes of standard flour each week, but only 12 of the 50 mills in the country are geared towards retail direct to consumers. Most mills are setup to supply bakeries and wholesalers with flour in tankers or in large sacks, typically 16kg, but retail usually wants its flour in 1.5kg bags. Packing flour into smaller bags, however, takes much longer, so while there was plenty of flour available in the UK, millers could not pack it into small retail-sized 1.5 kg bags quick enough to satisfy increased retail demand. In response to this problem, some millers invested in specialist small bagging machinery while many others sought to sell direct to the consumer. NABIM responded to the national

'retail' flour shortage by developing the 'Where can I buy flour?' resource, and online map designed to direct home-baking consumers to outlets (mills, local bakeries-, wholesalers) where they could purchase commercial-sized bags of flour.⁸⁰

The flour sector was a notable example, but packaging issues were not limited to the milling industry alone. According to Winter et al. Covid-related increases in demand for food packaging material as a result of a general increase in grocery sales, a specific increase in online sales, and a requirement for additional 'protective' packaging led to packaging supply shortages across many sectors. The problem with food packaging, **PROJECT 2's** Expert Panel explained, is that it is not easily repurposed from one product to another. Most is pre-printed with specific product information and ingredient lists which means that not only can it not be used for other products, but if a single ingredient is substituted due to sourcing issues, the original packaging becomes illegal and unusable. To a considerable extent, therefore, the reduction in food product ranges in supermarkets during Lockdown 1 was as much a consequence of packaging availability as it was the food item itself, as processors concentrated on supplying products they were confident they could get packaging for.

In addition to these supply shortages and substitution problems, Winter et al. also identified a Covid provoked debate on the benefits and problems of plastic food packaging during the pandemic. Susan Hansen, global strategist for supply chains at Rabobank, for example, quoted in *The Grocer* suggested that there had been a 'sea change in public attitude' where, having gone from 'hero to villain' in the past decade, plastic packaging had returned to hero status again during the coronavirus pandemic. Descriptions of food packaging as heroic may have been overstating it but, as research conducted by FMCG Gurus suggested, consumer's perceptions of, and attitudes towards, food packaging did indeed become increasingly more positive as the Covid pandemic unfolded. In April 2020, for example, they found that 35% of consumers stated that their attitudes had changed as a result of COVID-19, a figure that increased to 43% by July. Of these consumers, 68% stated that they had a more positive perception of food packaging, while 54% of total respondents stated that they felt packaging kept their food safe.⁸¹ A similar figure was reported in another consumer attitudes survey by *The Grocer* magazine, which found that just shy of 50% of respondents thought some form of food packaging was safer than no packaging. However, *The Grocer* survey also found that for most respondents environmentally friendly packaging remained a priority with only 23% saying it was not important at all, and for many sustainability concerns had actually increased since the pandemic, with 36% reporting that sustainable packaging had actually become more important to them since the pandemic hit.⁸²

At the time of writing it remains to be seen to what extent consumers have been able to reconcile health and environmental concerns and what Covid's longer-term impact on the sustainable packaging agenda might be.

Distribution and Wholesale

At the onset of COVID-19 lockdowns a combination of demand-side shocks related to consumer behaviour and the supply-side shocks of labour mobility restrictions



deadlocked many of the complex supply chain networks responsible for providing food to the UK with severe implications for the country's food distribution, warehousing, and wholesale sectors (**PROJECT 1**).⁸³ These supply chain disruptions led to delivery delays, congestion in the warehousing sector and higher **freight and transportation** costs.⁸⁴ During the early stages of the pandemic, disruptions from cross-border restrictions and coronavirus lockdowns at ports and harbours, for example, led to an 11% decline in global demand for goods shipped by ocean freight and reduced available shipping capacity by more than 13%.⁸⁵ By September (2020) as restrictions eased, demand for ocean freight began to rise again leading to a huge 40% increase in transpacific freight costs from previous historical highs.⁸⁶ Heightened restrictions in response to COVID-19 also significantly impacted on the road freight and haulage sector. The issue of Covid/Brexit-related food (and fuel) distribution challenges may have come to the fore recently (September 2021), but as early as April 2020 year the Road Haulage Association RHA was reporting that 46% of the UK's truck fleet was not operating due to the crisis, and that without support from the government, hauliers were facing collapse and insolvency.^{87,88} With strains on ocean freight and borders closed to road freight, demand for air cargo increased significantly, as aviation played a vital role in bringing much needed supplies to the UK from overseas. UK Civil Aviation Authority data, for example, shows that cargo operations increased by 42.7% in 2020, with traditionally commercial passenger airlines operating dedicated cargo flights across the globe. The UK saw 1,348,044 tonnes of freight on cargo dedicated aircraft in 2020, an increase of 56.8% from the previous year.⁸⁹

Another critical component of the UK's food supply chain are its **warehouses and distribution centres**. In their report, Rivington et al. share the results of a survey of logistics and warehousing operations carried out by the United Kingdom Warehousing Association (UKWA). The survey revealed that there was a 'lack of available warehousing space in the face of COVID-19 restrictions', with 'ninety percent of respondents confirming that they were totally full, suggesting that the market had just 10% pallet space availability and that there was a high potential of reaching zero capacity within weeks (date not known).' This shortage of warehousing space was due to an imbalance between outbound non-essential goods slowing or stopping but continued inbound flows from imports to the UK. In response to this, Rivington et al. report, the UKWA established a COVID-19 Emergency Space Register to help coordinate storage.⁹⁰

We started this section on the 'hidden middle' by quoting the Federation of Wholesale Distributors' description of itself as 'the biggest industry you've never heard of', so it seems apt to finish it by hearing from and about the food **wholesale sector**. In late January 2021 at a **PROJECT 2** Expert Panel meeting and in a subsequent project [blog](#), attention was drawn to the plight of wholesalers, especially with regard to the speed with which the rules on lockdown restrictions had changed earlier in the month. As, Winter et al. succinctly put it, 'the Government maintained "a back to school come what may" policy until, that is, they suddenly dropped it!' James Bielby, the Chief Executive of the Federation of Wholesale Distributors and **PROJECT 2** Expert Panel member elaborated:

“ Before Christmas, the government were adamant schools would stay open on the basis they were low risk. Schools placed orders for food from their wholesale partners in preparation before going off on two weeks’ holiday. Stock was ordered in accordingly by wholesalers ready for shipment in January.... Then the new lockdown was announced by Boris Johnson, taking effect at midnight on 5 January. Schools closed, hospitality largely shut down.

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These are hard hitting words, but they were far from the end of the wholesalers’ complaints. In addition to the surplus stock issue, there was the issue of free school meal (FSM) packs ‘which were keeping wholesalers afloat in the absence of any government support’. Criticism of the quality of some of these packs led to another media feeding frenzy:

‘... the government did another U-turn today (14 January 2021) and changed the Department for Education guidance on free school meals and reintroduced the voucher scheme. Government by headline. No strategy or consistency. Just following the news, not leading it. ... There’s a lot more excess stock in wholesale now, after schools cancelled the food parcels in their droves. Supply orders have been made by wholesalers for the next few weeks to supply FSM. ... And where can the vouchers be redeemed? Supermarkets! That’s the biggest irony of all. The government has today handed wholesale trade directly to the supermarkets – just to chase a headline.’⁹²

This was therefore, as Winter et al. suggest, much more than just a story about losers within the food system as a result of pandemic restrictions, it was also about shifts of power and market share within supply chains. The boundaries between different players in the food chain were being disrupted and blurred. Not all of this churn, however, derived solely from the pandemic. Some supermarkets, for example, had already moved into the wholesale sector, with so-called hybrid wholesalers, the Co-op and Morrison’s, growing their market share within wholesale from 6.5% in 2018 to 9.2% in 2020. And, of course, those more traditional wholesalers supplying retail saw increased demand whilst those focussing on hospitality and catering for institutions such as schools really suffered. Some wholesalers were also able to offset losses by finding new routes to market. JJ Foodservice, for example, launched JJ Home in July 2020, signalling the permanent addition of its DTC (Direct to Consumer) service – initially introduced as a stop-gap – to the wholesaler’s portfolio. Similarly, Bidfood formalised its DTC business ‘Bidfood at Home’ and Brakes launched its ‘Food Shop’ venture selling direct to consumers in March 2020.⁹³

The fact that some wholesalers came up with innovative partial solutions to the challenges they faced is not surprising. It is equally unsurprising that some were unable to do so, given the heterogeneity of the sector. The fact that wholesalers were not initially included in Lockdown 2’s hospitality support measures suggests, Winter et al. argue, that ‘the Government did not grasp the diversity of the sector either, nor

its importance in a system that, despite initial fears, largely maintained food supplies during the pandemic'. It is also, Winter et al. continue 'hard to avoid a sense that a rather crude politics is at play here. Most food wholesalers are not household names in the way that major retailers and hospitality brands are and their pleas do not easily find ready media coverage'.⁹⁴

Intense lobbying and many media appearances by the FWD took place through January and February 2021 with requests for government to provide bespoke financial support for the sector. After targeted support was not granted in the government's budget on 3rd March (unlike other businesses in the food system whose financial support was extended), the wholesale sector was finally thrown a lifeline in late March with the announcement of the government's new £1.5bn business rates relief fund. With the new package targeted at businesses outside retail, hospitality and leisure sectors who had been affected by Covid and with 'food wholesalers' specifically referenced, the news was greatly welcomed by the FWD and appeared to, albeit very belatedly, acknowledge the 'hidden middle' and the ways the pandemic had reverberated down the supply chain.⁹⁵



... the government did another U-turn today (14 January 2021) and changed the Department for Education guidance on free school meals and reintroduced the voucher scheme.





5. Retail and hospitality

After a brief mention in the previous section, we begin our look at the retail and hospitality sectors by returning to **PROJECT 5**, the first of two projects featured in this report led by **Martin O'Connell at the Institute of Fiscal Studies**.

Panic Buying and Hoarding

In September 2021, it was in the news again, this time in the context of fuel, but it was news stories and images about the panic buying of food and other household items at the beginning of the pandemic 18 months ago that first drew the public's attention to Covid's potentially disruptive impact on the UK's food supply system. In a [working paper](#) published in October 2020, O'Connell, de Paula and Smith unpacked this **panic buying** episode and examined, using household scanner data, consumer spending dynamics in the run-up to the first national lockdown at the end of March 2020.⁹⁶ The IFS analysis reveals that there were large spikes in spending on storable products in the four weeks preceding lockdown. Spending on staples such as canned goods, pasta, rice and grains rose sharply at the end of February, peaking on March 14 at over 80% of the January - February daily average. In the four weeks up to 23rd March 2020, soup sales, for example, were up 75% compared to the same period in 2019, rice and noodles were up 54%, and dried pasta 49%. Spending on discretionary calories (e.g. alcohol, desserts, confectionery and soft drinks) and perishable foods (e.g. fruit, vegetables, meat, and dairy) also increased, but not to the same extent as staples. Interestingly, and contrary perhaps to press reports of the 'selfish and greedy' individual hoarder, O'Connell et al.'s analysis shows that the spike in spending in the run-up to lockdown on staples and household supplies was driven not by a small number of extreme purchasers. Instead, many more households than usual were choosing to buy these products in the run-up to lockdown, with only small increases in the average quantities bought per transaction.⁹⁷

The IFS study also explored differences in purchase dynamics across socio-economic groups. It found that there was a sharp increase in the quantity purchased of all storable categories, underlining the fact that panic-buying and hoarding were widespread. However, O'Connell et al. also found that the average increase was substantially bigger for higher socioeconomic status households, with those in the top group (AB households) increasing purchases by 55% across the affected categories, compared with 30% for the bottom group (E households), a pattern that persisted into the lockdown period. Understanding the motivations behind why people hoard, O'Connell et al. conclude, is important in determining what, if any, an appropriate policy response might be. It is also important to recognize, they continue, that government policy can also affect the degree of panic and subsequent hoarding. An important avenue for future research, they suggest, is to 'explore differences in the course of the pandemic and resulting restrictions across different localities, to further unpack the drivers of panic buying and hoarding behaviour'.⁹⁸

Promotions and Grocery Inflation

In another output from **PROJECT 5**, a [briefing note](#) published at the same time as the above (October 2020), Jaravel and O'Connell used comprehensive real-time data on grocery purchases and prices to show how grocery inflation and promotional activity evolved up until the beginning of August 2020.⁹⁹ Their analysis shows that the onset of lockdown on 23 March 2020 coincided with **a large, 2.5% spike in grocery prices**. By the first week of August however, following five months of gradual deflation, the price level for groceries was just 0.5% higher than it was at the beginning of the year. This inflation, and subsequent deflation, Jaravel and O'Connell suggest, was primarily driven by **changes in promotional activity** and was experienced across all product types. In the first two weeks of lockdown, for example, the share of transactions involving price promotions fell to 16.5%, about 4% lower than the 20.5% seen in the preceding weeks of the year. By the first week of August, the share of transactions entailing price promotions had returned to pre-pandemic levels. Accompanying this initial reduction in price promotions was a reduction in product variety (see above for reference to packaging availability and its impact on product variety in supermarkets). In the first week of lockdown, for example, Jaravel and O'Connell report a decline of 8% in the number of unique products purchased – a figure that persisted throughout Lockdown 1 – indicating a reduction in the variety of products available to households. This fall in product variety, they suggest, led to an increase in the cost of living, as some consumers were unable to purchase their favoured product.

As with panic buying and hoarding behaviour, it is interesting to see how the experience of **grocery inflation varied across socioeconomic groups** as different types of households purchased different products. Using income levels as a proxy for socioeconomic status, Jaravel and O'Connell found that while the inflationary spike at the beginning of lockdown was experienced by households across different income levels, it was larger for better-off households than less well-off ones, although this gap subsequently shrank as the overall rate of grocery inflation fell over Lockdown 1. The familiar pattern identified in the analysis above of a large spike in inflation at the beginning of lockdown, followed by gradual deflation afterwards, also occurred across different **types of retail outlet**, from large to small store formats and online shopping. It was, however, Jaravel and O'Connell note, considerably more pronounced for the set of full-line supermarkets than for discounter supermarkets or convenience stores with the big four retailers (Asda, Morrisons, Sainsbury's and Tesco) and the premium retailers (e.g. Marks and Spencer, Ocado and Waitrose) driving much of the aggregate patterns in promotional activity and inflation.¹⁰⁰

New Food Shopping Habits

Although concluding that it did *not* ultimately play an important role in driving the path of aggregate inflation, Jaravel and O'Connell's research also documents the switch across shopping formats that occurred during the first wave of the pandemic. The introduction of strict social distancing rules at stores and the instruction to work from home where possible led to **significant changes in how and where consumers shopped for food** during Lockdown 1. *Figure 1* (see below), which is based on Jaravel and O'Connell's analysis of Kanter FMCG Purchase Panel data, shows the change in percentage points in the share of expenditure in the first eight months of 2020 relative to the corresponding month in 2019 across four shopping formats: large stores,

compact stores, online purchases and non-food stores. The data reveals that 'in the first month of lockdown, there is an increase in online purchases (of 2.2 percentage points relative to the same period in 2019). This increase continues until the beginning of August; in the final month of data, the share of grocery spending done online is 7.5 percentage points (equivalent to almost 70%) higher than in 2019. There is also an increase in the share of expenditure in compact stores. Large stores exhibit the largest fall in share, and there is a modest fall for non-food stores'.¹⁰¹

In a **PROJECT 2** [blog](#), posted in May 2021, project PI Michael Winter reflected on a recently published *Speciality Food* (SF) article identifying a number of defining characteristics of the 2021 shopper.¹⁰² One of these defining characteristics, Winter reports, was an ongoing appetite for **online shopping**. Drawing on work by Opinium Research for Barclaycard, the SF article found that almost 60% of British consumers expected to continue buying some of their groceries online even after all Covid-19 restrictions end. Of those using click and collect more often during the pandemic, 90% planned to continue. As Winter noted, SF caters primarily for high-end independent retailers and therefore the message is clear: giving customers flexibility to choose the shopping method that suits them, with online as an option, will be key to maintaining market share going forward.

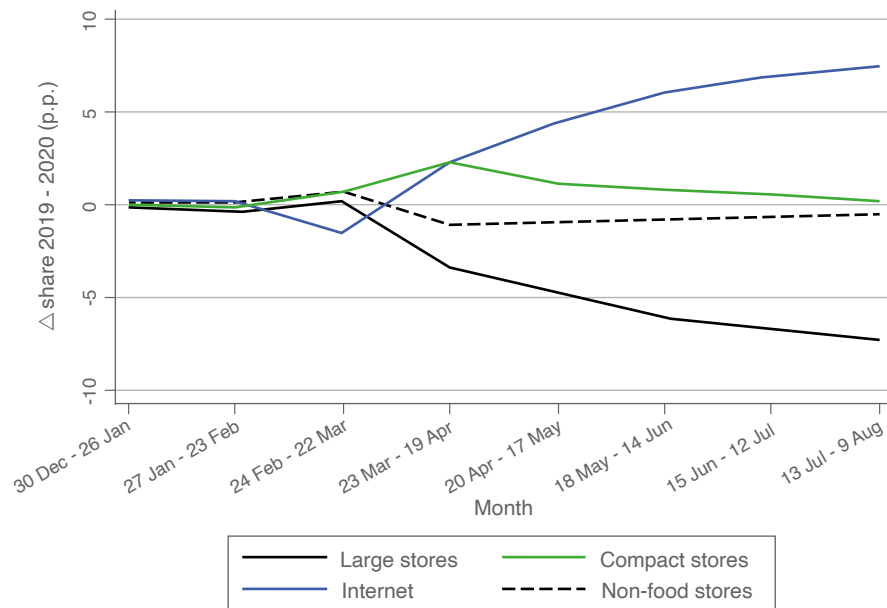
As well as still shopping online, many consumers, the SF article suggests, are planning to continue **working from home**. Drawing on a survey of 2,000 UK companies by CIPD the UK professional body for HR specialists, SF reports that 63% of employers plan to introduce or expand the use of hybrid working to some degree and 45% plan to introduce or expand the use of total, five-days-a-week homeworking to some degree. These figures, SF conclude, suggest that food retailers can expect to see demand for restaurant-quality food at home remaining strong.

Another characteristic of the 2021 consumer, the SF article suggests, is that they **continue to care about the health of the planet**. Referencing the insights of the 2021 Global Buying Green Report, SF report that:

- 67% of consumers are environmentally aware (same as for the previous pre-Pandemic year).
- Fewer than a third of consumers de-prioritized Sustainable Packaging due to COVID-19.
- 83% of consumers among younger generations showed a willingness to pay more for sustainable packaging.
- 67% of consumers find recyclability of packaging important; however, the perceptions do not always match recycling facts.
- 54% of consumers say the sustainability of the packaging is a factor in their product selection process.

Analysis by Deloitte also suggests that the onset of the Covid pandemic saw many consumers increasingly **care about their own health** too, with a general move to healthier product categories such as yoghurts and vitamins and increased desire for local food provenance and fresh food due to concerns over health and welfare in the supermarket environment.¹⁰³

Figure 2. Switching across shopping formats



Note: The figure shows change in expenditure shares in percentage points in 2020 relative to 2019. Source: Jaravel and O’Connell’s calculations using Kanter FMCG Purchase Panel data.

The spike in food retail sales associated with panic buying at the beginning of the pandemic disrupted the just-in-time supply chains first adopted by supermarkets in the 1980s and resulted in empty shelves in many stores throughout the country for the first time since World War II rationing ended in 1954.¹⁰⁴ This panic buying and hoarding episode however was short-lived and food retail recovered to have, what evidence suggests was a remarkably good 2020. As **PROJECT 1** and Rivington et al. report, drawing on ONS data, in terms of volume, conventional food retail sales increased between 3-10% through March to November 2020 compared with February 2020, with an overall year-on-year increase of 4.3% to December 2020.¹⁰⁵ Among conventional food retail, convenience stores had a particularly good 2020 with a reported 39% increase in sales during the pandemic, with market share increasing from 12.4% to 16.3%.¹⁰⁶ However, it was the online food retail sector that saw, by far, the most dramatic year-on-year increase in both sales value and volume, up an incredible (though not unsurprising) 126% and 79% respectively, with the latter figure representing the largest increase of any online UK retail sector.¹⁰⁷

Covid-19 may have had a generally positive economic impact on many in the food retail sector, but not all. The ONS reports, for example, that by November 2020, 3.4 % of UK food retail businesses had permanently ceased trading. For those that did have a good 2020 however, this is still no time for complacency. As Rivington et al., argue food retailers need to be cognisant of household food behaviours and shopping habits that have altered in response to the pandemic. While the latest evidence suggest trends in food purchasing and eating behaviours in the home have remained relatively stable over the pandemic,¹⁰⁸ Covid-19 and its food system impacts are not yet played out. Food retailers, therefore, ‘not only need to reshape and redefine supply chains to ensure robust product availability but be sufficiently agile to take into account different consumer behaviours, demands and pressures driven by the Covid-19 pandemic and resultant government societal interventions’.¹⁰⁹

Hospitality

While many in the food retail sector profited from the pandemic, many in the food hospitality sector suffered enormously. In a series of blogs posted in the second half of 2020 and the first half of 2021 **PROJECT 2's** Tim Wilkinson, commented on the challenges faced by many restaurants, cafés, and pubs as the food service sector sought to weather a succession of Covid related lockdowns and restrictions. In a [blog](#) posted in October 2020, which examined some of the economic impacts of Covid's **first wave and associated lockdown**, Wilkinson, contrasted, for example, the surging first half of the year pre-tax profits of Tesco, up 29% to £551 million, with those of The Restaurant Group (owners of Wagamama's, Frankie & Benny's and Garfunkel's chains) and the pub chain Wetherspoons who posted pre-tax losses over a similar period of £235 million and £34 million respectively. The post also noted recent reports of the closure of street food businesses such as Street Feast, which had traded at four sites in London, but struggled to operate under Covid restrictions.¹¹⁰

In another [blog](#) posted in late November 2020, towards the end of **Lockdown 2**, Wilkinson again looked at the impact Covid-related restrictions were having on the food service and hospitality sector. The blog highlighted a survey of 242 food business operators undertaken by Lumina Intelligence during the week of the announcement of Lockdown 2, which found that support for the measures were divided (41% supported, 43% did not support, 16% undecided). It also reported that in late October business groups warned of the potentially devastating effects on the hospitality and food service sector, emphasising the need for business aid and the prospect of a loss of 750,000 jobs. The blog continued by comparing and contrasting Lockdowns 1 and 2. Although similar, Wilkinson suggests that the second lockdown was not identical to the first, for while there was a dash to stock-up ahead of the Lockdown 2, with queues and shortages of some products being reported (as per Lockdown 1), second time around the rush was not just to purchase food to eat at home, but to restaurants and pubs for a final pre-lockdown taste of the out-of-home eating experience. The second lockdown also saw, Wilkinson suggests, the further development and refinement of the 'at home market' for meal kits, which allowed customers to cook or reheat restaurant food at home. Global companies such as the Mindful Chef, Gousto and Hello Fresh saw soaring subscriptions, but so did many local alternatives, such as Prepped, which delivered meal kits from multiple restaurants (in the Cambridge and Saffron Walden areas) *without* a subscription. The post also highlighted an article in the *Evening Standard* which drew on 14 interviews with restaurateurs and reported that the market for online sales was becoming saturated and that many businesses who were making up for the loss of sales with at-home meal kits still found themselves in a precarious financial position.¹¹¹

Fast forward another few months to April 2021 and Wilkinson, in a third [blog](#), makes another return visit to the hospitality sector, this time as it begins to tentatively emerge from **Lockdown 3**.¹¹² Save for some brief respite in the summer of 2020 thanks to the government's 'Eat Out to Help Out' scheme, the food service sector by the spring of 2021, had been pummelled by the Covid-19 pandemic for over a year. At a pivotal moment for the sector, Wilkinson took a moment to look back over the previous 12 months at how food service businesses had

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To survive many businesses have found new routes to market and/or rationalised their offer. For some casual dining businesses, takeaways or meal boxes have offered more than just a lifeline and have been developed into lucrative income streams, which look set to supplement income from restaurant diners going forward. routes to market via coffee vans or by serving hospitals and key workers.

“ Behind the positives of the headlines has been a huge amount of hard work to ready hospitality for reopening. I came across Linda Anderson’s blog this month; which gives a fascinating insight into the journey of The Kitchen Croxley, a café and cake business in Rickmansworth over the last 18 months. The blog records and describes the numerous logistical and practical adaptations that The Kitchen Croxley has made including: pivoting to takeaway, expanding the takeaway offer and developing systems to manage social distancing across different lockdowns. But on top of that, what comes through is the lived experience of making those changes.

responded to the crisis and to identify some of the challenges facing the sector going forward.

‘To survive many businesses have found new routes to market and/or rationalised their offer. For some casual dining businesses, takeaways or meal boxes have offered more than just a lifeline and have been developed into lucrative income streams, which look set to supplement income from restaurant diners going forward. The owner of pizza chain, Franco Manca, Fulham Shore for instance, are looking to expand and open new restaurants as takeaway and collection raise profits. Some food-to-go chains, like Pret A Manager, have started supplying supermarkets. Pret struck a deal to sell baked goods at Tesco’s, in March. Meanwhile, smaller, independent business have found new routes to market via coffee vans or by serving hospitals and key workers. For some, these changes of business model have worked well; others will want to return to pre-Covid practices as soon as possible. I understand from our Expert Panel that there is nervousness about the choices businesses have as restrictions lift. While shifting back to pre-Covid business models might be very welcome for some, it is not without risk. For smaller businesses the risk is greater and decisions about whether, and what, to change are more difficult. It seems likely food businesses will continue to need to adapt and be agile, but after an extremely challenging year, cash flow will be an issue, especially where additional investment is needed to reopen or where there are existing debts to suppliers.’¹¹³

For the hospitality sector the reopening ‘road map’ after Lockdown 3 was very date based: 12th April, 17th May, 21st June (2021). A focus on dates however, does not say anything about how those changes might have been experienced. In a fourth and final [blog](#), posted following the reopening of indoor service on the 17th May, Wilkinson drew attention to another blog post, one which documented the ongoing adaptations and challenges faced by a small business owner in the food service industry. Describing and commenting on this blog, Wilkinson writes:

‘Behind the positives of the headlines has been a huge amount of hard work to ready hospitality for reopening. I came across Linda Anderson’s blog this month; which gives a fascinating insight into the journey of The Kitchen Croxley, a café and cake business in Rickmansworth over the last 18 months. The blog records and describes the numerous logistical and practical adaptations that The Kitchen Croxley has made including: pivoting to takeaway, expanding the takeaway offer and developing systems to manage social distancing across different lockdowns. But on top of that, what comes through is the lived experience of making those changes. Reading Linda Anderson’s blogs I got a sense of the energy it takes to run a small food business. There is the mental effort of checking government and industry guidance, the physical exertion of reorganising furniture and cleaning, and the emotional labour of trying to provide a familiar service to customers when so much has changed (e.g. the rising prices of supplies, new staff, new menu items).’¹¹⁴

As a consumer, it is easy to forget the experience food service business owners and staff have had over the past year or so. The reopening of the hospitality sector represented, Wilkinson suggests, not a return to ‘normal’, but a new encounter that comes with many thoughts and feelings about how it was before Covid, and how it should be now. There is a continued need therefore, we are gently reminded, for a little understanding as new processes are developed and refined and new ways of doing food service emerge.¹¹⁵

6. Food consumption



We have finally made our way along the food supply chain from farm to fork (or from bait to plate) to arrive at and focus on food consumption and the food consumer. That is not to say we haven't met the food consumer in passing already. In many ways food consumption and food consumers' attitudes and behaviours reverberate up the food supply chain and throughout the food system. For example, in the consumer-driven demand-side shockwave that impacted food producers we heard about in Section 2; in the consumer baking boom and associated packaging problems for the flour industry we discussed in Section 3; and, of course, in the new food retail shopping habits we examined in the previous section. What we will focus on is the section, therefore, is the notion of food consumption in a narrower sense. We will introduce a number of projects that are broadly concerned with understanding how Covid has impacted on what we eat and why, and how we eat and when, and what the implications are of these changes in consumer food practices for both our own health and well-being and that of the planet.

Changing Food Practices and their Implications for Nutrition and Health

For an insight into the impact of Covid on UK consumer food practices we first look to **PROJECT 6 led by Corinna Hawkes of City, University of London**. In an early project [paper](#) (March 2021) published in *The International Journal of Qualitative Methods*, which served to introduce the project and outline and explain its proposed methodological approach, Isaacs, Gallagher, Squires and Hawkes identified numerous other surveys that had explored people's changing food practices since the start of COVID-19. The results of these surveys, Isaacs et al. suggested, presented a somewhat mixed picture. Some research, for example, found that adults and young people reported cooking homemade meals more often, eating more fruit and vegetables, substituting sugary drinks for water, and consuming less fast food, baked goods, and alcohol. These changes were largely reported by those on higher incomes and working from home, who may have greater time and capacity to implement such changes. The same trends were less pronounced in key-worker households and those without children. Other studies, however, identified less favourable dietary trends such as increased snacking, greater consumption of foods high in salt, sugar and saturated fats, overeating and reduced intake of fresh products, including fruit and vegetables. These changes were more likely to be reported by those with pre-existing mental health conditions, suspected or confirmed COVID-19 diagnosis, lower levels of educational attainment, and lower socioeconomic status.¹¹⁶

This mixed picture of both positive and negative food-related experiences and outcomes, was also picked up in a recent study by Snuggs and McGregor.¹¹⁷ Their

paper, published in April 2021, reported the results of an online survey of two hundred and forty UK adult participants who were asked to consider their goals and motivations around food and mealtimes at two time-points: before lockdown and Summer 2020. While some participants, Snuggs and McGregor observe, appear to have thrived during lockdown, with healthier lifestyles and decision-making, others gained weight, lacked varied diets and struggled with food expense. The study found that young adults were the most likely to have changed food priorities over the course of the lockdown period, with those between 18 and 28 years of age placing less importance on convenience and familiarity, and more importance on health, price, weight control and natural content. It also found that parents and carers of children reported an increase in importance placed on family involvement in meal preparation and a decrease in importance on ease of preparation. Furthermore, the study identified those living far away from amenities or in self-isolation as potentially vulnerable in future lockdowns and in need of higher levels of support.

The stark distinction between those who had largely positive food-related experiences and associated health outcomes and those who had largely negative experiences and outcomes as a result of Covid-19 control measures, was also, again, clearly evident in the interim findings of **PROJECT 7, led by Wendy Wills of the University of Hertfordshire**. Outlining the findings of the first 35 interviews of an ongoing qualitative study which aims to understand how Covid-19 is affecting local food systems, household food practices and efforts to mitigate dietary health inequalities in the East of England, Thompson et al. [report](#) that results so far suggest that 'Covid-19 and the mitigation measures put in place from March 2020 (e.g. 'lockdown' and social distancing) are serving to **amplify existing dietary health inequalities**'.¹¹⁸

These findings align with those of both the survey undertaken by Snuggs and McGregor and those identified by **PROJECT 6**, and paint a fairly clear and consistent picture, showing that the relatively more secure financially have been able to spend time addressing and improving their dietary health, whilst those struggling financially or in economic hardship have experienced their diets worsening.

With respect to the latter group, Thompson et al. identify some specific challenges:

*'Older people living alone and/or on low incomes, have had to contend with difficulties in accessing food and a lack of opportunities to eat socially. Those with physical impairments and limited mobility sometimes find busy supermarkets potentially hostile and stressful environments and this has been amplified by the instore changes related to Covid-19. Online food shopping has been a particular challenge reported by participants. For some, the Covid-19 mitigation measures meant they were shopping online for the first time. Participants expressed frustration at the difficulty in securing a delivery slot and deliveries arriving with missing products and/or unsuitable substitutions. There was a general perception that food prices have risen since Covid-19 mitigation measures, especially in supermarkets. Participants suggested this was due to a reduction in the availability of food products and special offers [see also PROJECT 5].'*¹¹⁹

**“
Older people living alone and/or on low incomes, have had to contend with difficulties in accessing food and a lack of opportunities to eat socially.**

To address these issues, and feed and support vulnerable individuals, Thompson et al. report that:

*'Local authorities and community groups in the region have had to mobilise and respond to issues at a rapid pace. While the Government food parcel scheme focused on feeding those in the shielding category, local authorities worked on supplementing the scheme, where required, by helping to feed and support other vulnerable groups in the community. Food banks have seen a rapid increase in need for their services and have also had to change their operating practices. Some have had to close or change venue and operating hours to accommodate changes to their volunteer base. [...] While the innovative, effective and generous ways in which this has been approached in communities is not in doubt, there are gaps in the system and lessons to be learnt should this level of response and co-ordination be called for again.'*¹²⁰

We will pick up the issue of emergency food provision and food banks shortly but before we do we need to return to **PROJECT 6**. Exploring many of the issues and themes identified above, the first empirical results of the Hawkes led research, were recently published in the Isaacs, Gallagher Squires, and Hawkes report 'Phase 1 findings on changing food practices during the pandemic'. As the title indicates the report presents findings from the first phase of a three-part qualitative longitudinal study on families' changing food practices in the context of COVID-19. Fieldwork took place between October and December 2020 at three case study sites (Bradford; Folkestone and Hythe; and the London borough of Brent). Families from across the socioeconomic spectrum were recruited to take part in remote, in-depth interviews and a set of creative activities and were asked to reflect on: family food practices, engagement with the food environment, and broader experiences of managing through COVID-19. The research sought to understand how participating families experiences of, and feelings towards, food changed during the pandemic, how their food practices changed, and what aspects of Covid-19 and the response to it were important in shaping these changes.

Isaacs et al.'s rich data and key findings make for really interesting reading and are summarised below:¹²¹

- **KEY FINDING 1 – Families benefit when they have access to a diversity of food sources in addition to supermarkets.** As supermarkets became a key site of transmission and supply disruption, people visited them less frequently. Those who could afford it and living in areas where these outlets were available were able to pivot to safer, more reliable ways of acquiring food such as veg boxes, online deliveries, smaller local shops (seen as safer due to their size), farmers markets and growing veg themselves.
- **KEY FINDING 2 – It is extremely difficult for families experiencing financial insecurity to prioritise nutritious foods.** When making decisions about food in a context of financial insecurity, ultra-processed and HFSS (high in fat, salt and sugar) foods are abundantly available, often cheaper per calorie, convenient to prepare and enjoyed by children. These foods therefore fulfil an important need for parents struggling to make ends meet.

“
Local authorities and community groups in the region have had to mobilise and respond to issues at a rapid pace. While the Government food parcel scheme focused on feeding those in the shielding category, local authorities worked on supplementing the scheme, where required, by helping to feed and support other vulnerable groups in the community.
”

- **KEY FINDING 3 – In addition to financial security, a range of specific vulnerabilities, make accessing healthy food more challenging.** These vulnerabilities are particularly associated with those living with underlying health conditions and/or anxiety and with families with children who have particular dietary needs, due to allergies or autism, and with those who have limited storage space or feel unable to utilise social networks to support them with food procurement.
- **KEY FINDING 4 – When given the opportunity and time, families enjoy spending time preparing and eating healthy food.** With more time at home and less pressure on schedules (such as from long commutes), those who were furloughed and newly working from home had more time to recommit to healthy food practices that may have always been theoretical priorities but could now be actualised. This included healthier food preparation, cooking from scratch more, purchasing more 'natural' and 'organic' foods, expanding their recipe repertoires and involving children in food preparation.
- **KEY FINDING 5 – However when struggling to cope with the demands of daily life, the nutritional content of food is often sacrificed in favour of foods that are convenient and will be eaten by children.** The burden of unending food preparation became increasingly significant for many. From-scratch cooking and attempts to promote healthy eating fell by the wayside in favour of getting something on the table that will be eaten by children. For parents, this experience highlighted the value of school food in providing a substantial (and ideally balanced) meal, significantly reducing the amount of work that needs to go into both preparing children's food and making sure they eat it.

To digress for a moment, the value of school food and the provision of free school meals emerged as a prominent episode in the Covid food story at the beginning of Lockdown 3. For some thoughts on the issue and the significant role played by the footballer Marcus Rashford please see the short **PROJECT 2** blog '[The Footballer and Food](#)'.

PROJECT 6's Phase 1 results reveal, Isaacs et al. suggest, that the pandemic was experienced by survey participants in a diversity of ways and that these experiences were shaped by a variety of different personal characteristics and circumstances, many of which intersected. These characteristics included participants' pre-existing mental health, their anxiety around transmission, and their comfort being out in local areas, as well as those relating to specific dietary requirements, financial vulnerability, and gender dynamics. With respect to the last of these characteristics, for example, Isaacs et al. found that 'exhaustion and a sense of relentlessness were most keenly felt by single parents and those with unequal child and house care burdens, some of whom had to juggle childcare, work and food procurement'.¹²² As Isaacs et al. point out however, while the pandemic has exposed the many sources of vulnerability that lead families to struggle when circumstances change, it has also revealed some of the factors that help contribute to resilience and keeping people afloat. So in direct contrast to the characteristics mentioned above, these positive factors



include: good mental health; an ability to shop without anxiety and to access alternative food sources in addition to supermarkets; good opportunities for familial, neighbour, community and school support; consistent pay and/or timely furlough; and a more equal division of family-life labour.

Responding to their Phase 1 findings, Isaacs et al. reflect on lessons learnt and their implications for how public health policies should be adapted or augmented to enhance the capacity of families to eat more healthy food and less HFSS food. With respect to the aims and objectives of this report these recommendations are worth noting and are summarised below:¹²³

- **KEY FINDING 1** – Families benefit when they have access to a diversity of food sources in addition to supermarkets.

POLICY RECOMMENDATIONS – Post COVID 19 offers a window of opportunity for promoting availability and accessibility of food markets, veg box schemes and food hubs, which allow people to buy healthy foods safely and which are oriented towards serving families with lower levels of income.

- **KEY FINDING 2** – It is extremely difficult for families experiencing financial insecurity to prioritise nutritious foods.

POLICY RECOMMENDATIONS – In the long term, obesity policy must incorporate interventions designed to address levels, variability and predictability of income to reduce people's reliance on unhealthy but easy-to-prepare foods and make healthy foods more affordable. Benefit arrangements need to better accommodate the additional costs of parenting (e.g. feeding children when other options unavailable). Any policy to increase the price or reduce the availability of ultra-processed / high HFSS foods (e.g. ban on promotions) must be implemented alongside measures to either increase incomes or the affordability of nutritious foods.

- **KEY FINDING 3** – In addition to financial security, a range of specific vulnerabilities, make accessing healthy food more challenging.

POLICY RECOMMENDATIONS – Official government messaging on food shopping during lockdown type scenarios should consider implications for nutrition, particularly for those with minimal storage capacity and unable to afford online deliveries. Obesity policy should explore new avenues to determine how social and material support can help families with vulnerabilities maintain a focus on eating healthily.

- **KEY FINDING 4** – When given the opportunity and time, families enjoy spending time preparing and eating healthy food.

POLICY RECOMMENDATIONS – Consider how flexible working policies may help allow parents the time and capabilities to invest in healthier ways of eating and cooking.

- **KEY FINDING 5** – However when struggling to cope with the demands of daily life, the nutritional content of food is often sacrificed in favour of foods that are convenient and will be eaten by children.

POLICY RECOMMENDATIONS – Given the role public food provision plays in helping families facing vulnerabilities manage their own time, universal free school meals, breakfast clubs and communal schemes for providing nutritious food should be maintained and extended and oriented fully towards obesity prevention (as well as food insecurity). For example, policy must ensure that these meals adhere to School Food Standards and are also acceptable and enjoyed by children. Alongside this, consider how to extend the accessibility, appeal and affordability of products that are both convenient and healthy e.g. through a focus on reformulating HFSS freezer food and ready meals commonly consumed by children.

Adding further still to the emerging evidence base on the impact of the Covid pandemic on people's eating habits and the implications this has for public health policy, is a recently published [working paper](#) from **PROJECT 8**, the second of two **Martin O'Connell and IFS led** projects to feature in this report.¹²⁴

Drawing on a number of sources (including Kantar 'at-home' and 'out of home' datasets, and the Living Costs and Food Survey) which provide information about food and non-alcoholic drinks purchases from stores, takeaways and restaurants, O'Connell, Smith and Stroud sought to quantify the impact of the pandemic on the diets of a large, representative panel of British households.¹²⁵ Their key finding is that **the COVID-19 pandemic led to a significant increase in total dietary calories consumed**. By May 2020, total calories were 15% above normal levels, and they remained, on average, 10% higher than usual for the remainder of 2020. O'Connell et al.'s analysis shows that there was a large increase in calories from takeaways, which peaked at more than double usual levels in the UK's second national lockdown in November 2020. Calories purchased from supermarkets and grocery stores were also more than 10% above normal levels throughout the pandemic. Together, these more than offset the reductions in calories from dine-in restaurants that resulted from the closure of the hospitality sector for a significant part of 2020. **PROJECT 8** also find that although calories from ready-to-eat sources, snacks, fruit and vegetables, and ingredients all increased during the pandemic, the increase for ingredients was largest. The pandemic therefore, they suggest, led to a shift in the balance of calories towards raw ingredients and food that required home preparation.

Consistent with other studies, the IFS research also finds that there was significant variation in the impact of the pandemic across households. While the vast majority (90%) of households increased their total caloric intake, relative to normal, O'Connell et al.'s analysis shows that there is a significant socioeconomic gradient in the effect of the pandemic on calories purchased and consumed. Among working age households those from **higher SES groups exhibit considerably larger increases in calories than households in lower groups**, while retired households exhibit the smallest increase in calories. Accounting for this difference, O'Connell et al. suggest households in higher SES groups were more likely to switch to working from home

and less likely to have suffered an income and employment shock. In contrast, retired households were particularly susceptible to COVID-19 and were much more likely to have been advised by government to shield (i.e. avoid social contact). The IFS research also shows that living in London and being a relatively young working-age household are associated with significantly larger calorie increases. These traits, along with being from a high SES group, they suggest, are strongly associated with being more likely to work from home during the pandemic. This points towards **changes in working patterns itself being a factor in driving more caloric diets.**



O'Connell et al.'s findings highlight some of complex issues faced by policy makers when it comes to improving population diet and reducing obesity levels. To some extent their results are at little at odds with those of Snuggs and McGregor and **PROJECTS 6 and 7**, which broadly found that the relatively more financially secure have been able to spend time addressing and improving their dietary health. The higher SES groups in the IFS study had both the financial and time resources to buy fresh, raw ingredients and to cook from scratch, and in so doing reduce their consumption of more processed ready-to-eat foods, all positive dietary behaviours, and yet they were found to have increased their caloric intake by as much as 25%. It remains to be seen if the increases in dietary caloric intake over the pandemic persist into the future, but as O'Connell et al. conclude, it is likely that the COVID-19 pandemic and the associated changes in people's lifestyles have only served to exacerbate the challenges of improving population diet and reducing obesity levels going forward.¹²⁶

Food Vulnerability and Insecurity

While Covid may have led to the vast majority of households in the UK purchasing and consuming more calories (and for many households, as we have seen, substantially more) conversely and somewhat perversely, a significant minority of households experienced food insecurity and struggled to access sufficient food throughout the pandemic.¹²⁷ As Caitlin Connors et al. observed, while for many food may have offered an important source of small comforts, nourishment, and even a sense of stability amidst profound uncertainty, for others food was a continual source of concern and worry rather than nourishment and security. Moreover, this food anxiety did not go away when the initial demand-side shock subsided and supermarket shelves were restocked. 'There were no treats and little comforts at the end of a hard day. Many quickly cut calorie intake and reduced the quality of the food eaten with far-reaching physical and emotional impacts. Many children went without'.¹²⁸ 'We are all in this together' may have been a commonly heard refrain during the pandemic, but as Connors et al. pointedly remark evidence suggests it was/is very much a case of same storm, but different boats.

Vulnerability to Food Insecurity

On the 11th April 2020, the Food Foundation reported the results of their commissioned YouGov survey which found that more than three million people reported going hungry in the first three weeks of the UK's COVID-19 lockdown. A few days later, an associated [report](#) produced by Rachel Loopstra of King's

College London, commissioned by the Food Foundation and based on the YouGov survey data, was published. This sought to explore the factors that were driving hunger in the population and establish the extent to which the COVID-19 lockdown was exacerbating pre-existing food insecurity and/or creating new economic vulnerabilities.

The report estimated that **the number of adults who were food insecure in the Britain had quadrupled under the COVID-19 lockdown**. Not unsurprisingly, it found that **vulnerability to food insecurity had worsened** for the already economically vulnerable under COVID-19 conditions, with those at particular risk including adults who were unemployed, adults with disabilities, adults with children, and Black and Ethnic Minority groups. The COVID-19 crisis also created **new economic vulnerability** for people who experienced income losses and self-isolation. All adults, for example, reporting income losses of greater than 25% were, Loopstra found, at significantly heightened risk of food insecurity, including adults with background socio-economic risk of food insecurity as well as those typically found not at risk. In addition to economic vulnerability, self-isolation and a lack of food in shops also created **new dimensions of food insecurity** in the UK, with many reporting being unable to acquire the food they needed because they could not go out and/or because food supplies were not, at that time, available.¹²⁹

The Food Foundation report, as well as other data showing, for example, large increases in food bank use in early lockdown,¹³⁰ provided sufficient evidence to suggest that the pandemic and associated responses had led to a food insecurity crisis in the UK in the spring of 2020. The crisis covered all four pillars of household food security as outlined by the Food and Agriculture Organisation (see Section 1), but there was a particularly acute food accessibility problem, with many individuals and households struggling with economic and/or physical access to sufficient, nutritious food. In response to this crisis, charities, governments and food businesses mobilised to meet rising demand and develop new interventions to respond to the new and specific circumstances of people having to stay at home. The result was a 'complex and dynamic system of responses to help people access food, which looked different in different parts of the country and for different households and individuals.¹³¹ To get a sense of these responses, of what happened, where, and how effective they were, we can turn to the work of **PROJECT 9 led by Hannah Lambie-Mumford of the University of Sheffield**.



Mapping Responses to Food Insecurity

The **first phase** of the project was concerned with **mapping responses** to threats to household food security. Lambie-Mumford, Loopstra and Gordon's [Phase 1 Report](#)¹³² published in August 2020 set out the findings from a scoping of national policies and programmes that were made available during the early months of the crisis. The mapping involved systematically searching and analysing publicly available information on responses to food insecurity during the national lockdown across March-July 2020. Lambie-Mumford et al.'s research focussed on **three groups** who were deemed to be at heightened risk of food insecurity during the pandemic:

those who were extremely clinically vulnerable to complications arising from Covid who were advised to **shield**;

- those who were **moderately clinically vulnerable** who were advised to leave their home as little as possible;
- those newly or already on **low income** who faced increased financial barriers to food access.

PROJECT 9's comprehensive analysis revealed a complex and multi-layered landscape of responses. Table 2 below, for example, summarises some of key interventions provided by the three sectors (government, third sector, food industry) for the three targeted 'at-risk' groups (shielding, moderately clinically vulnerable, low income) identified by Lambie-Mumford et al.'s mapping exercise.

Table 2. Types of responses to address threats to household food security for at-risk groups

Shielding Population	Moderately Clinically Vulnerable	Low Income
<ul style="list-style-type: none"> • Government food grocery box scheme • Priority delivery slots • Government financial support • Third sector provision (Salvation Army and Red Cross home delivery parcels, food bank support) 	<ul style="list-style-type: none"> • Priority delivery slots • Government financial support • Retailers shopping hours for moderately vulnerable, increased supermarket delivery capacity • Third- sector provision (Salvation Army parcels and Red Cross hardship grants, food bank support, initiatives supported by FareShare) 	<ul style="list-style-type: none"> • Government financial support • Free School Meal replacement schemes • Charitable emergency assistance (food banks, meal projects)

Source: Lambie-Mumford et al. *Mapping responses to risk of rising food insecurity during the COVID-19 crisis across the UK*

Further complicating an already complex picture, Lambie-Mumford et al. also identified how responses varied across the UK's four constituent countries. Focussing on three major interventions: emergency payments schemes; free school meal replacements and the food parcels (grocery boxes) for people who were shielding, their analysis highlighted some key differences and similarities. Table 3, for example, summarises variations in the provision of Grocery Box schemes for people who were extremely clinically vulnerable.

Table 3. Grocery box schemes for people who were extremely clinically vulnerable (i.e. shielding)

England	Northern Ireland	Scotland	Wales
<ul style="list-style-type: none"> • Scheme ran 29th March to 31st July • Million people on shielding list • People had to fill out an online form to register for the service or call a hotline • Weekly box for single individual provided by Brakes and Bidfood wholesalers 	<ul style="list-style-type: none"> • Announced 6th April and ran until 31st July • Up to 95,000 on shielding list but also covered people in need of food and not shielding • People register for food box through the COVID-19 Community Helpline • Delivered by local authorities 	<ul style="list-style-type: none"> • Scheme ran 3rd April – 31st July • 179,728 people on shielding list • Boxes ordered through the Scottish Government SMS Shielding Service • Weekly box for single individual provided by Brakes and Bidfood wholesalers 	<ul style="list-style-type: none"> • Scheme ran 3rd April to 16th August • 130,000 people on shielding list • Boxes ordered by contacting the local authorities • Weekly box for single individual provided by Brakes and Bidfood wholesalers

Source: Lambie-Mumford et al. *Mapping responses to risk of rising food insecurity during the COVID-19 crisis across the UK*

Phase 1 of **PROJECT 9**'s research revealed that responses to the threat of food insecurity were on a scale and of a complexity not seen in recent times in the UK. Responses to the challenges of Covid came from all sectors (government, private, voluntary) and at all levels (local, national, UK). Government made new funds available, the food industry targeted groups at risk of food insecurity, and the voluntary food aid sector played a hugely significant role in responding to economic vulnerability to food insecurity throughout the crisis. Whilst there were major UK wide initiatives (e.g. the Coronavirus Job Retention scheme), responses varied across constituent countries. In order to understand responses to food insecurity during the COVID-19 crisis, therefore, Lambie-Mumford et al. suggest that, 'we need to play close attention to the nuances of public policy making in England, Scotland, Wales, and Northern Ireland. Differences in devolved responsibilities result in different responses between the four countries'.¹³³ To fully understand responses to threats to household food security, however, it is also necessary to undertake systems **mapping at the local level**. As Lambie-Mumford et al. observed, 'though programmes and funding schemes have been announced by national government, it is local governments, schools and local charities that have often been the ones on the ground delivering responses, and as a result, the use of funds and responses vary across local areas'.¹³⁴

Monitoring Responses to Food Insecurity

Having *mapped* national responses, the **second phase** of **PROJECT 9** concerned *monitoring* responses. Published in December 2020, Lambie-Mumford, Gordon and Loopstra's [Phase 2 Report](#)¹³⁵ looked at how various interventions worked in practice. Drawing on a range of secondary and primary data sources, the report explored the implementation and impact of **four** of the **national interventions** identified as part of Phase 1 and reflected on some key lessons learned. A summary of Lambie-Mumford, Gordon and Loopstra's key findings with respect to these four interventions is provided below:

1. School Food Alternatives

With respect to the rollout and effects of alternative school food provision during school closures in the UK national lockdown from March to July 2020, Lambie-Mumford et al. reported that, while a range of alternative approaches to free school meals (FSMs) were provided (e.g. direct payments via BACS or other cash transfers, food parcels and food vouchers), the evidence suggested that there was a very **varied picture in terms of implementation**. Early in the scheme, for example, there were significant problems with access to the food voucher system rolled out in England. Across the UK, concerns were raised over the suitability of eligibility criteria and the ultimate reach of the replacement schemes. Moreover, there was also an important debate around the benefits of cash or food provision as alternatives for this. Based on the evidence collected Lambie-Mumford et al. called for a systematic and on-going evaluation and monitoring of adaptations to FSM schemes.

2. Emergency Finance Provision

In terms of the effects of national emergency finance schemes during the UK-wide coronavirus lockdown over March to July 2020, Lambie-Mumford et al. reported that additional funding, changes to eligibility criteria and easier access mechanisms were widely welcomed by stakeholders who felt that schemes played a key role in supporting people in need. However, Lambie-Mumford et al. also reported that there were still significant concerns regarding the reach of the schemes, the lack of scheme promotion, and potential problems that those who were newly eligible might have in knowing where and how to access the support available. Significantly, Lambie-Mumford et al. also found that there was a notable **evidence gap** on the impact of such schemes, with no assessment of how effective they might be in preventing household food insecurity despite providing funding for people to access food being one of the key objectives if the schemes.

3. Emergency Food Systems

When it came to emergency food provision Lambie-Mumford et al. reported that their data highlighted **significant increases in the provision of food parcels** over the course of Lockdown 1 and that significant government and corporate funding was directed towards food aid charities. The ways in which these networks adapted were extensive and highly responsive. The scale of funding and bulk food donations they were able to move through their networks in the space of a few months was unprecedented. **PROJECT 9's** research also found that there was a **heavy reliance on charitable emergency food providers** by government. When lockdown 1 was announced in March 2020, the UK government designated food banks as essential services and permitted them to continue their operations. However, Lambie-Mumford et al.'s data also highlighted how Covid threatened several of the well-established vulnerabilities in food charity systems: food donation supply chains, reliance on volunteer labour forces and challenges of meeting dramatic increases in need.

4. Grocery Box Scheme

The grocery box scheme, which was available to people who were shielding during Lockdown 1, was a policy designed to protect the food security of those in the clinically extremely vulnerable group who could not access food by other means, and who were advised to not go out for any reason. Lambie-Mumford et al.'s findings, they suggested, drew attention to the unprecedented nature of the scale, speed and complexity of the need for direct food provision targeted at supporting those on the shielding list. The scheme, they reported, was not without reported strengths, instances of close working, between national and local government for example, but their analysis revealed **several substantial limitations**. The contents of the grocery boxes delivered were generally not adequate. They did not provide sufficient fresh food of good quality, and the boxes were generally not appropriate for meeting the nutritional, cultural or dietary needs of their recipients. Stakeholders also expressed significant confusion around who was eligible for the scheme, especially in the early weeks. Lambie-Mumford et al. also noted again **the need to build a rigorous and robust evidence base**, evaluating the food security outcomes of the grocery box scheme and wider support made available for those people who were on shielding lists across the UK. This, they suggested, will be vital to informing appropriate and successful (national and individual) future crisis planning.

Local Responses to Food Insecurity

Having identified the need during Phase 1 to map local level responses to threats to household food security, **PROJECT 9** duly published its [Comparing local responses to household food insecurity during COVID-19 across the UK](#) report in July 2021.¹³⁶ The Lambie-Mumford, Gordon, Loopstra and Shaw authored report presents findings from a cross-case analysis of **14 local case studies** which were undertaken to explore local responses to food access issues between March-August 2020 (Lockdown 1). Lambie-Mumford et al. conveniently highlight the 'key takeaways' from their research and these are summarised below:¹³⁷

- **The scale of the response was unprecedented.** Local responses to food access issues during Lockdown 1 were unprecedented in their scale, operationalisation, co-ordination and the level of resources required. This included work by new and existing food providers, almost complete overhauls in working practices, and partnership and collaborative working across spaces and places. There were levels of funding for food provision that have not seen in recent times and new groups of volunteers, organisations and companies became involved in food support for the first time.
- **Voluntary food aid providers were pivotal to local responses.** The provision of food (parcels/meals) was central to local responses to risks of food insecurity over this time. This provision was operationalised with support from, and input by, a range of stakeholders including councils and businesses. It is important to note that some councils set up unprecedented direct food provision schemes. However, food banks and voluntary food aid providers (both existing and new) were pivotal to this local response [as they were at the national level], and were relied on, and supported by, statutory agencies and local governments.

- **Food aid was provided through both existing and new initiatives.** Important roles were played by several types of food aid provision, including: i.) food aid projects such as food banks that had been in place before the pandemic and adapted to meet the needs of local communities; ii.) local third sector organisations that started to provide food aid as part of their work to support communities and groups through the pandemic (providing parcels, hot meals, chill-cook food); and iii.) less formal 'pop up' provision, for example on an ad hoc or neighbourhood basis.
- **Partnership working and working together was a key enabler of responses.** Across the case study areas partnership working, coordination and collaboration was seen by participants as key to the success of local responses. The areas studied included places with existing formal partnerships, partnerships that were set up in response to the pandemic and areas that worked on less structured practices of working together. Across all areas the risks of failing to collaborate and communicate effectively were identified including the duplication of provision and not being able to identify gaps in support.
- **There were clearly distinct challenges in rural locations.** In the context of the COVID-19 pandemic distinct challenges in rural areas were identified and included concerns over supplies to, and food available in, local rural shops; supporting areas with a high proportion of older people; the economic security of areas reliant on tourism for employment; lack of affordable transport to access shops and reductions made to transport services during the pandemic.



While a comprehensive systematic evaluation of local responses to food access issues was beyond the scope of the project, Lambie-Mumford et al.'s case study data captured participants' reflections on what they perceived to be some of the key **strengths and challenges in local responses**. A key strength, Lambie-Mumford et al. report, was felt to be the benefits of community responses that understood the needs in local communities and had 'people on the ground', who were established before the pandemic, were known in local communities already and were therefore trusted sources of support. A key challenge, on the other hand, was providing wrap-around and non-food support over a time when face-to-face activities had to stop. Another was balancing assessment of need verses quick, accessible support and, Lambie-Mumford et al. note, there was evidence of varied approaches to this dilemma in practice across and within case study areas.¹³⁸

As Lambie-Mumford et al. themselves identify, their local case studies findings, as well as those from Phases 1 and 2, raise important questions about the role for different governments and different actors. For example, whether **local and/or national scale responses** to the threat of individual and household food insecurity worked best and should be held up as examples of best practice going forward. In the context of the national government shielding grocery box schemes, for example, **PROJECT 9's** research revealed that in some areas, local responses were conceived more broadly, and were designed to support the local food industry as well as

individual households (e.g. sourcing supplies for food boxes locally). In other areas, where this was not done, it was seen as a missed opportunity to support other parts of local economies and communities during this phase of the pandemic response.¹³⁹

Food Waste

Before we conclude this section on food consumption it is worth stopping for a moment to consider what some refer to as ‘the other side of the food security conversation’, the issue of food waste.¹⁴⁰ FareShare, the UK’s national network of charitable food redistributors, estimates that **8.4 million people in the UK struggle to afford to eat**, with 4.7 million of these people living in severely food insecure homes, meaning that their food intake is greatly reduced and children regularly experience physical sensations of hunger. At the same time, drawing on 2019 WRAP figures, FareShare state that **3.6 million tonnes of food is wasted by the food industry** (i.e. all businesses involved in the supply of food, including producers, manufacturers and processors, wholesalers, retailers and food service companies) every year in the UK. Over 2 million tonnes of the food that goes to waste each year, however, is still edible, that’s enough food for **1.3 billion meals**.¹⁴¹ It is worth taking a moment to digest those figures.

“**It is important not to conflate the experiences of food insecurity with the problem of food loss and waste in the food system. They are two distinct phenomena, with fundamentally different solutions required for each.**”

‘Fighting hunger, tackling food waste’ is FareShare’s tagline, and for it and other similar organisations, and indeed in government policy, there is an explicit connection between food insecurity and food waste. Taking issue with this conceptual and policy ‘crossover’ Lambie-Mumford and Silvasti, among others have stated how important it is *not* to conflate the experiences of food insecurity with the problem of food loss and waste in the food system, arguing that they are not two sides of the same coin but rather two distinct phenomena, with fundamentally different solutions required for each. Lambie-Mumford and Silvasti’s research has shown, that conflating environmental and social policy spheres had led to an ‘ad hoc system of private food charity’ reliant on production surpluses and unpredictable redistribution practices and ‘not an evidence-based policy solution to the problem of the systemic lack of access to food’.¹⁴²

Extracting the issue of food waste from discussions of food insecurity would also allow for a more singular focus on what is a gargantuan environmental problem. Growing, transporting, refrigerating, packaging, selling and landfilling food all uses very large amounts of land, resources and energy, and produces vast amounts of GHG emissions. The greenhouse gas emissions associated with food waste in the UK in 2018, for example, have been estimated to be around **36 million tonnes of carbon dioxide equivalent (CO₂e)**. This is equivalent to around 8% of the UK’s total territorial emissions in 2018.¹⁴³ When it comes to food waste, whether in the context of food insecurity or its environmental impacts, it is often the food industry, particularly retail, where the finger of blame is most likely to point. However, as the most recent figures from WRAP confirm, the vast majority of post-farm gate food waste comes not from retail, processing or the hospitality and food service sectors, but from households. In the UK, **households make up 70% of post-farm gate food waste** the equivalent of over £14 billion worth of food, and 20 million tonnes of Green House Gas (GHG) emissions a year. Household food waste, therefore, is a significant societal problem.

COVID-19 and associated lockdowns, as we have seen, have had a huge impact on people's food consumption behaviours: some positive, many negative. In a similar way the pandemic has also had a significant impact on people's food wasting behaviours, some of which have been negative, but many of which have been positive. During the first lockdown in 2020, for example, **self-reported levels of food waste in the UK fell by 34%, the sharpest fall on record.** Moreover, UK consumers reported an increased awareness and willingness to minimise household food waste leading to a reduction across four key products (bread, milk, potatoes, and chicken) compared to the average across 2018-2019.¹⁴⁴ With the stated aim of harnessing these positive changes in food waste behaviour and investigating opportunities to sustain this change over the long-term is **PROJECT 10, led by Gulbanu Kaptan at the University of Leeds.** This is no small task, for as Kaptan highlighted in a project [blog](#) posted in May this year:

*'While the changes seen during the COVID-19 lockdown are promising, previous research shows that behaviour change resulting from temporary contextual changes may not last long. Data from the Waste & Resources Action Programme (WRAP) shows that levels of reported food waste began to rebound after the first national lockdown, with an increase of 31% compared to lockdown figures (although it still remained below the levels seen pre-lockdown).'*¹⁴⁵

At the time of writing, **PROJECT 10** has yet to report any of its key findings and recommendations, and it remains to be seen the extent to which Covid-driven positive changes in household food waste behaviours stick. The most recent food waste data from WRAP however do not look particularly encouraging. An AHDB post published in October 2021, which draws on the recent WRAP data reported that since lockdown restrictions have been removed, consumers have dined out more and returned to the office, and with more displaced meals (out of home/on the go), and consumers claiming to be under more time pressure as lifestyles have become busier, the level of household food waste is now back in line with 2018.¹⁴⁶

“
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CHARD
\$2.50

SWEET
CABBAGE
\$1.50
EACH

7. Local food systems

We began our examination of Covid and the UK food system by taking a step back to look at the bigger picture and to consider Covid's impact across the whole of the UK food system. To conclude, we swap our wide-angled lens for a zoom to focus in on local food systems.

Local Food System Resilience

One of the commonly suggested fixes for the 'broken food system' narrative (see Introduction) involves, to varying degrees, decentralisation and a greater emphasis on, and share for, local food systems. As evidence mounted at the beginning of the pandemic that the UK's centralised food system was struggling to meet increased consumer demand, there were signs that that local food actors (LFAs) were, to some extent, filling the gaps and contributing to food security.¹⁴⁷ This led, as Jones, Krzywoszynska and Maye have recently identified, to a number of commentaries re-emphasising the role of the local food system in the UK's overall food security, and renewed calls to 'localise' and 'regionalise' food systems, 'shorten' food chains and territorialise markets.¹⁴⁸ The capacity, however, of the local food sector to provide food security resilience in times of crises depends, in turn, Jones et al. suggest, on the resilience of the local food actors themselves. While the impacts of COVID-19 on food systems have drawn immediate attention from academia, little research to date has engaged with the lived experiences of the pandemic by local business actors and community organisations. Addressing this significant gap is **PROJECT 11 led by Anna Krzywoszynska at the University of Sheffield.**

In a forthcoming paper entitled *Local food systems as a source of food security resilience in times of crisis: an analysis of the impacts of the COVID-19 pandemic in the UK*, Jones, Krzywoszynska and Maye examine the role of the UK local food sector as a source of food security resilience during the pandemic. Based on documentary evidence and semi-structured interviews, and examined through a 'resilience' lens, Jones et al. looked at a range of Local Food Actor (LFA) responses from across the UK. Their research revealed that the impacts of COVID-19 had been diverse, with some LFAs thriving whilst others struggled to survive. The resilience of LFAs, they suggest, was influenced by various 'resilience characteristics' including persistence (coping capacity) and adaptability (the ability not just to cope with the shock, but to take advantage of the situation by growing their customer base and increasing turnover), as well as various aspects of social capital. In contrast, the LFAs, which were more vulnerable, lacked key resilience characteristics such as redundancy (having spare resources that can be drawn upon during a disturbance) and diversity (having a broad range of alternatives to reduce vulnerability to the loss of specific elements). Further contributing to the LFAs' vulnerability, Jones et al. found, was the sector's overall lack of political (or linking) capital, indicated by the image problem of local food as 'a middle class hobby'. This lack of political capital has also meant that in spite of a wave of optimism amongst local food systems' supporters, these

“ In order for LFAs to take a larger role in the UK food system and provide greater levels of diversity and resilience to future shocks, these vulnerabilities and the systemic issues need to be addressed. The UK was lucky to have LFAs to ‘plug the holes’ in the food system during the crucial first weeks of COVID-19. The adaptability of LFAs during the first wave of COVID-19 highlights the potential for the UK local food sectors to be a source of food security resilience in times of crisis.

actors have so far been unable to use the shock of COVID-19 to drive a food system transformation. Moreover, systemic factors, such as the UK government’s privileging of large food retailers and the limited consideration of local food in the policy sphere, continue to be significant barriers to LFAs transformative capabilities.¹⁴⁹

In their concluding remarks Jones et al. argue that:

‘In order for LFAs to take a larger role in the UK food system and provide greater levels of diversity and resilience to future shocks, these vulnerabilities and the systemic issues need to be addressed. The UK was lucky to have LFAs to ‘plug the holes’ in the food system during the crucial first weeks of COVID-19. The adaptability of LFAs during the first wave of COVID-19 highlights the potential for the UK local food sectors to be a source of food security resilience in times of crisis. However, even the LFAs that adapted well to the shock of the pandemic have done so by taking on unsustainable and stressful workloads, undermining their capacity in the long run. Simultaneously, LFAs should be seeking to improve their political capital and address the “middle class” image problem that is currently limiting their political influence’¹⁵⁰

Local Food Growing Initiatives

The notion of resilience is also a theme that emerges strongly in some of the initial insights from **PROJECT 12 led by Les Levidow of the Open University**. Employing a participatory digital story telling methodology, designed to elicit participants’ feelings, aspirations, social connections and a sense of the multiple benefits they get from community food growing activities, **PROJECT 12** aims to identify, promote, and out-scale best practices and extend the benefits and values of community growing initiatives more widely. The first phase of the project was completed in June 2021 and produced a suite of [seven community food growing films](#) made by participants from food growing projects in London and Reading.

In a project [post](#), the project team highlighted some of the initial insights from these first seven films. The stories that participants produced, they write:

‘... describe how the pandemic stimulated efforts to overcome social isolation by sustaining or even expanding food initiatives, thus maintaining individual benefits such as health and well-being. Despite Covid restrictions, participants’ stories described how they (and often with their children) got to know each other better and extended friendship networks. The stories also showcased how community food growing activities bridged social differences of ethnicity, national origin and age.’¹⁵¹

The stories also reveal, they suggest:

*'... other profound impacts. While fulfilling their own needs, the stories showed how participants felt they were also doing socially useful activities, such as supplying food banks and learning skills for enhancing locally produced food. Earlier feelings of being powerless were overcome by a sense of shared purpose, serving a greater good, the opportunity to 'make a difference' and create a group agency. [...] Beyond the short-term benefits, the stories also show, that such closer relationships strengthen the future basis for more cooperative, reciprocal, socially resilient practices. Participants, described how their involvement in community food growing strengthened people's enthusiasm and cultivation skills for localizing food production.'*¹⁵²

These stories of growing and nurturing and sustaining both food and community can teach us, Jung argues, valuable lessons going forward. They show, for example, that community food growing initiatives can provide a crucial collective asset and a social basis for rebuilding the future differently. They also show that the way community food growing has adapted to the challenges of the pandemic can provide novel, creative ways to overcome current and future disruptions, towards a better, more resilient future. These sentiments are shared by PI Les Levidow, who, in another **PROJECT 12** [blog](#) post commenting on the first seven films writes:

*'Through such stories, community food initiatives can identify exemplary practices, build on their strengths, spread societal benefits and attract greater commitments. Likewise, they can better advocate support measures that strengthen staff skills, replicate them more widely and gain long-term security for food-growing spaces. All this provides a basis for a different agri-food future, rather than a return to the dominant agri-food system.'*¹⁵³

“

Through such stories, community food initiatives can identify exemplary practices, build on their strengths, spread societal benefits and attract greater commitments. Likewise, they can better advocate support measures that strengthen staff skills, replicate them more widely and gain long-term security for food-growing spaces. All this provides a basis for a different agri-food future, rather than a return to the dominant agri-food system.



8. Lessons learnt and building back better

The account we have provided over the preceding pages of Covid's impact on the UK food system is informed by, and constructed around, the **12 key projects** and their emerging findings. As such, therefore, it cannot claim to be a complete or even an entirely balanced account, but it has been possible to get a sense, we think, of the scale and complexity of the impact, as well as some of the nuances and key issues.

Covid's Impacts – Six Main Takeaways

In terms of those impacts and issues it is possible to discern six main takeaway points:

I. Complex and Far-Reaching

The first point to make is that Covid's impact on the UK food system was both complex and far-reaching. This, of course, reflects the complexity and scale of the food system itself, which is an assemblage of sectors, subsectors, supply chains and networks and individual businesses and actors, all of which occupy a unique position or place in the system and all of which were impacted by Covid in different ways, sometimes significantly, sometimes subtly. There is no singular story of the impact of Covid on the UK food system.

A further element to this complexity is that the impact of Covid continues to evolve over time, and is still evolving. Different issues and challenges emerged at different times. Some problems persisted, others were more temporary in nature. It is difficult to talk about the impact of Covid on the UK food system without repeated reference to specific dates and time periods (like lockdowns 1, 2, and 3 or March 23rd).

Contributing further still to this complexity is the way the pandemic has interacted and become entangled up with a range of other issues, not least of which, of course, has been the UK's exit from the European Union. So while in 2020 we could be fairly confident that many of the issues and challenges faced by, for example, producers, suppliers, and exporters, were primarily, if not exclusively Covid driven, in 2021, following the end of the transition period, it became more difficult to disentangle Covid's continuing impact from that of Brexit and other related issues. And in 2022, the attribution of causality was complicated still further as a result of the conflict in Ukraine and the associated trade disruptions and inflationary pressures.

Having recognised that this is a complicated story, it is still possible however to identify some common themes and make some general observations.



II. A Short, Systemic, Demand-side Shock

Drawing on the work of Project 1 which examined in the impact of Covid on the UK food system through a food and nutrition security lens, we can characterise the impact of Covid as a short, systemic, demand-side shock. (Short at least when compared to other long-term threats like climate change and biodiversity loss). As **Project 2** identified, early warning signs reached our shores as early as January 2020 when Asian export markets for UK seafood collapsed, but it was the closure of EU export markets and the domestic food service sector associated with lockdown 1 that was the ground zero of this demand-side shock.



The impact of Covid on consumption patterns and demand was instant, and it sent a huge shock wave up the UK food supply chain. In addition to this initial shock, there were also a number of significant aftershocks, related to subsequent waves and lockdowns, and to a certain extent we are still feeling these reverberations now, but so far at least, Covid's most significant impact was associated with its initial impact.

III. A Supply-side Success Story... But

And for the most part it was an impact and shock that the UK food system, at least in terms of food supply and food availability, proved remarkably resilient to. Panic buying, as **Project 5** examined, may have led to some empty shelves and temporary shortages of a few items but, in the main, producers, processors, and distributors were able to respond to changes in demand, adapt their operations, maintain supply, and keep shelves stacked.

In general terms therefore, at a system-level, and viewed from a food supply/availability perspective, the UK's food system's response to the impact of Covid can be viewed as a success story.

However, within this system-level, supply-side success story, is a more complicated tale of individual producers, processors, and suppliers. This is a story where there are clearly some winners, clearly some losers and many who just about managed to make it through. The reasons why some food supply businesses were able to thrive while **others struggled are complex and different for each producer, but drawing on the work of Projects 2 and 3** some common, cross-sectoral factors clearly emerge.

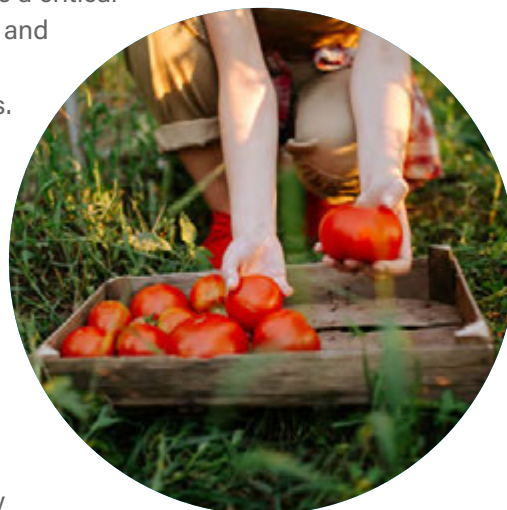
The most critical and obvious of these is the market supplied, with producers who supplied food-service and export markets struggling, while those who supplied the booming retail sector doing well. Relatedly, the market segment supplied (e.g. frozen, fresh, or ambient) was also significant, with those supplying long-life, frozen and ambient segments better positioned to take advantage of new shopping habits.



In addition, scale and diversity of operation, as well as geographical location also seemed to be relevant factors, as did the ability of a business to ramp-up or pivot to online sales.

IV. Covid-driven Labour Issues

And it wasn't just *demand*-side challenges that many food suppliers faced, **labour issues** also proved to be a common, recurring and persistent problem. Food system labour issues were a problem pre-Covid, but the pandemic shone a critical spotlight on the issue in the spring 2020, when Covid related UK and EU travel and movement restrictions resulted in a fraction of the usual EU migrant workforce being available to help with harvests. A commonly suggested solution to the problem was to hire more UK workers. But despite best efforts and decent media exposure, campaigns like 'Land Army' and 'Feed the Nation' were to have a limited impact. **Project 4**, for example, reported that only 0.2% of those who expressed an initial interest in domestic recruitment initiatives ending up taking the jobs.



So within the supply-side success story narrative therefore, there is a more complicated story of various winners and losers and of ongoing issues that were not satisfactorily resolved and have not gone away. Nevertheless, the supply-side success story narrative is a perfectly legitimate one, and it is certainly one that many members of the Expert Panel on **Project 2**, for example, would both recognise and subscribe to.

V. Food Vulnerability and Insecurity

However, maintaining sufficient supply and availability of food, critical as that is, is only half the story, or only one measure of food system resilience. The Covid-19 pandemic may be characterised as a short shock, but it resulted in a substantial segment of the population experiencing significant food and nutrition insecurity through reduced economic and/or physical access to nutritious food.



Project 9 reported, for example, that the number of adults who were food insecure in Britain quadrupled under lockdown 1. Not unsurprisingly, it also found that vulnerability to food insecurity increased for the already economically vulnerable, with those at particular risk including adults who were unemployed, adults with disabilities, adults with children, and Black and Ethnic Minority groups. The crisis also created new economic vulnerability for people who experienced income losses and self-isolation. Moreover, Covid also created entirely new dimensions of food insecurity in the UK, with many reporting being unable to physically access or acquire the food they needed because they could not go out and/or were not able to order food online.

VI. Changing Food Practices and their Implications for Nutrition and Health

This idea that the Covid pandemic and associated restrictions **exacerbated existing inequalities** is one that emerges quite strongly across a number of the projects.

Projects 6 and 7 examined what the implications were for nutrition and health from Covid-driven changes in UK consumer food practices. What is revealed from their interim findings and from a number of other studies, is a mixed picture of both positive and negative food-related experiences and outcomes.

While some consumers appear to have thrived during lockdown, easily pivoting to new ways of shopping and adopting new positive, cooking, eating and wasting behaviours, others appear to have struggled, and to have increased consumption of foods high in salt, sugar and saturated fats and reduced intake of fresh products. As **Project 6** reported, typically those able to make positive changes were those working from home, not in key-worker roles, and in households without children, i.e. those who had greater time and capacity to implement such changes. Whereas those who adopted more negative food practices were more likely to have pre-existing mental health conditions, a suspected or confirmed COVID diagnosis, and come from a lower socioeconomic group.



This stark distinction between those who had largely positive food-related experiences and associated health outcomes and those who had largely negative ones as a result of Covid control measures, was also, again, clearly evident in the interim findings of **Project 7**. Early results from an ongoing qualitative study which aims to understand how Covid is affecting local food systems, household food practices, and efforts to mitigate dietary health inequalities suggest that 'Covid and the mitigation measures put in place from March 2020 are serving to amplify existing dietary health inequalities'.

Some Thoughts on Lessons Learnt

To a certain extent lessons learnt are implied by the six key takeaways listed above. But, drawing on discussions and conversations we have had with Project PIs and Co-Is, and our own continuing reflections, we can address the issue of lessons learnt more directly.

We Must Learn Lessons!

The first thing to say is that it is important that *we do learn lessons* from this experience. It might be tempting and comforting, from a societal perspective, to draw a line under the episode, viewing it as a temporary aberration and returning to business as normal. However, it is imperative that we take the opportunity to learn important lessons about what Covid's impact tells us about the UK food system and how it can be made more resilient, just, and sustainable.

But it is not just about Covid. It is also important that we learn wider lessons. A key rationale for **Project 1**, for example, was to explore what we could learn from the pandemic in respect of other risks such as climate change, biodiversity loss and


ecosystem degradation. And it is important we can take these Covid specific lessons learnt and apply them more generally as we live in an age of multiple and intersecting acute challenges and chronic risks and global uncertainty (e.g. Covid, Brexit, Geopolitical challenges, Climate Change, Biodiversity loss etc).

Different Perspectives on What Lessons Have Been Learnt

A second point regarding lessons learnt from Covid is that we must be mindful that different perspectives on, and positions within, the food system may lead to different conclusions about what Covid's impact has been and what that reveals about how resilient the UK food system is. There were no significant food availability issues and the much critiqued 'just-in-time' system actually worked rather well for most people, most of the time. Therefore, it is not unreasonable to conclude that the pandemic, rather than exposing the fragility of supply chains or a system that's broken, as many commentators have argued, actually demonstrated the resilience and robustness of the UK's food system.

At the outset of this report we asked whether, in response to the Covid pandemic, the food system had emerged as a logistical triumph or a broken system. Our answer remains that it was both and this is also how the author of the National Food Strategy, Henry Dimbleby, sees it. He said in July 2021 that "the food system is both a logistical miracle and a disaster".¹⁵⁴ In reality the food system pre-Covid was multifaceted and complex, working well for some but not for others. It is therefore not surprising that these differences remained and existing inequalities in food, nutrition and diet quality were exacerbated by lockdown. Thus, there are clearly different perspectives and the increased vulnerability of some in society to food insecurity during the pandemic certainly provides grounds for an alternative narrative that should not be lost sight of. Moreover, it is possible to envisage circumstances where the impact of the pandemic could have been much worse. For example, acute labour shortages and/or fuel shortages during the first lockdown might have seriously compromised the 'just-in-time' model. So too, things could have been far worse if the UK's food imports had been more severely impacted by the pandemic adversely affecting production levels in exporting countries. In other words, to reiterate, Covid produced a demand side shock. Had it turned into a supply side shock, things might have played out very differently. Long term structural shortages of particular commodities or products might have led to the need for rationing and/or price controls in order to prevent serious negative implications particularly for those unable to access food easily due to poverty or physical/medical accessibility issues.

The Government's reliance on the logistics power of retailers made perfect sense in the context of changes in the pattern of demand. It would have made much less sense if there had been significant supply side disruptions which would have required a more interventionist stance. Thus there is no room for complacency and there are compelling reasons from both environmental security and social justice perspectives not to assume that a system that worked well in particular circumstances is without its faults and contradictions. Moreover, issues to do with planetary sustainability, health and nutrition, and social justice for food producers and concerns remain



irrespective of the performance of food logistics during those critical few months. And as the Ukraine crisis is now showing, domestic food production in the UK is heavily dependent on fossil fuels, either directly in the heavily mechanised agricultural sector or indirectly through the role of energy in the production of fertilisers and pesticides. Food processing and retail are also heavily dependent on fossil fuels. Driving down reliance on inputs of this nature has become a major priority because of the climate change emergency. This imperative is currently more keenly felt because of the impact on global energy prices and availability as a result of the conflict in Ukraine.

There is much debate and contestation about how agriculture might adjust to lower inputs and, inevitably, this is a debate not just about agriculture but also about how changing consumption might help, particularly through a transition to a more plant-based diet. The pandemic certainly illustrated that some businesses could adapt to changing patterns of demand remarkably well, finding new routes to market often through direct retail and/or shorter supply chains. These adaptations certainly throw up possibilities with regard to longer-term measures needed to combat climate change alongside more immediate responses to the changing costs of inputs resulting from the war in Ukraine. More localised food systems, whilst not a panacea, certainly have a role to play here as does a closer alignment between what we eat and what we are well placed to produce. For example, as highlighted in the Dimpleby report and the Government's National Food Strategy published in June 2022, the trade deficit in fruit and vegetables put alongside the need for more fruit and vegetables in most people's diets, prompts the need for major investment and innovation in horticulture. But we cannot focus purely on production, or even production and marketing. There is a need for more radical attention to the choices consumers make with regard to what they eat and the healthiness of their diets.

Many businesses, across the economy, have tilted towards more carbon-friendly businesses models in recent years. In food businesses, there is a need for an equivalent shift to more health-friendly products and in this context proposals made in the Dimpleby report have not yet been carried forward into policy. There is a real risk that attempts to make food production more sustainable, linked with making the UK less dependent on food imports, will not lead to system transformation. The reason is simply put but hard to address - consumption trends need to change as well. The long-standing, and oft criticised, fragmentation of food policy, in particular the failure to join up public health, agriculture and food production and distribution, lies at the heart of the problem. There is little evidence that any substantial lessons have been learned from the pandemic in this regard. Governance reform is necessary at a national level alongside more innovative partnership working at a more local level where some local food provisioning and procurement initiatives offer signs of hope for the future. Finding ways to scale up these initiatives and to work with the big retailers in creative and innovative ways remains a significant challenge.

We Need More Research

Learning lessons requires more research. In terms of where future research might want to focus, we suggest three potentially fruitful areas:

- i. More research is still needed on Covid's and Covid/Brexit's impact on the UK food system, with the Ukraine conflict making this even more urgent. While these 12 projects have provided an excellent baseline assessment, future projects will be needed to continue mapping and deepening our understanding of the UK food system and Covid's impact on it. Indeed, given the short time frames of most of the projects it is frustrating to feel that the insights of many of the projects will not necessarily be followed up, without a further injection of research cash. In particular, more empirical investigations are needed to examine the legacy of responses and adaptive strategies across the food chain, as observed at the height of the pandemic in 2020 and 2021.
- ii. More research on the 'hidden middle' of the food supply chain is highly desirable. Many of the issues at the heart of building a resilient food system are to be found in this space where decisions about packaging, processing, and distribution are made; decisions that have major implications for both the carbon footprint of food provisioning and human health and wellbeing.
- iii. Labour shortages seem endemic in the food sector and there is need for more research on innovative solutions covering skills, pay and conditions, production systems, and robotics.

Building Back Better

When thinking about building back better, it is important to recognise the strengths of certain aspects of the system as it is currently constituted, particularly the supply side success story built on powerful logistics systems.

But that is not to argue that the system isn't in need of a major structural transformation. We offer some suggestions to what building back better should involve:

Reversing the Trend toward a Two-tier Food System

Perhaps the single most significant effect of the pandemic in terms of the UK food system has been to expose and exacerbate the already large inequalities in food and nutrition security and diet quality within the UK. Such inequality if not addressed risks the development, of what Mike Rivington of **Project 1**, describes as **two-tiered food system**, a scenario which only serves to increase food inequalities further. Building back better must involve reversing that trend toward a two-tier system, and this necessarily involves addressing bigger structural and geographical issues and broader questions about social justice and poverty.

The Government's Levelling Up White Paper was published (February 2022) after the bulk of this report was written but we note the response from the Food Foundation rightly highlighting the importance of food inequalities to a number of the Levelling Up missions¹⁵⁵. In particular, they point to the missions on health, well-being, pride in place, education and living standards, as all especially dependent on successful food system transformation:

“
Defra’s upcoming Food Strategy White Paper and OHID’s newly announced Health Disparities White Paper will need to provide much more of the detail – focussing their efforts on concrete policy proposals that will embed long-term change in the food system and help to rebalance the costs of healthy vs unhealthy food (breaking the Junk Food Cycle), whilst raising incomes and directly supporting those on lower incomes, so that everybody can afford and access a healthy diet.

Today’s Levelling Up White Paper is welcome. We support its ambitions, but it is not yet clear that these are backed up by sufficient action and resources. Encouraging dietary shifts and addressing dietary inequalities more broadly, will need to be an essential part of the levelling-up agenda – food is central to many of the levelling up missions announced today. Defra’s upcoming Food Strategy White Paper and OHID’s newly announced Health Disparities White Paper will need to provide much more of the detail – focussing their efforts on concrete policy proposals that will embed long-term change in the food system and help to rebalance the costs of healthy vs unhealthy food (breaking the Junk Food Cycle), whilst raising incomes and directly supporting those on lower incomes, so that everybody can afford and access a healthy diet¹⁵⁶.

A Greater Focus on Food Quality

Another component of building back better that emerged during workshop and interview discussions was the need to reorient the system away from a focus purely on resilience in terms of food *quantity*, to one that gave more focus to food *quality* and nutrition. Les Levidow of **Project 12** suggested the pandemic had given many people cause to think more carefully about the quality of food they were eating in terms of nutritional value and provenance. Shelves may have remained stacked but they did so with the usual predominance of processed and ultra-processed food. For Levidow, building back better means looking beyond just-in-time models, to ones where food quality isn’t degraded at every stage from farm to fork. Such a system requires investment in new infrastructures and a greater emphasis on shorter, localised supply chains. Food quality is not just about nutritional content but also about wellbeing and experience. For example, whilst some impacts of Covid may be ephemeral, there is an opportunity to build on interest in scratch cooking by providing more cooking and nutrition context in school curriculum and through food banks.

The Value and Importance of the Local

Another point to make, picking up on Levidow’s point, and it’s one which we haven’t really mentioned yet is the value and importance of the ‘local’, both as a scale of response and as a site of food system resilience. **Project 9** demonstrated just how important local-scale responses to food access issues were, and **Project 11** highlighted the critical role the local food sector played in plugging the holes in the food system during the crucial first few months of crisis. Local isn’t always synonymous with better, as **Project 7** pointed out. For many people on low incomes ‘local’ generally means corner stores and limited access to healthy nutritious food, but we think it’s a fair assessment to conclude that during the course of pandemic the local food sector has shown itself to be adaptable and responsive and clearly must play an integral part in a more diversified food system. The positive impact on relationships between farmers and local communities and the increase in consumers buying direct from farms also suggests that shortening supply chains can help address issues of disconnection that are in part associated with mental health problems in agriculture.

Final Word

For too long, food has been seen entirely as a market issue, with the individual consumer as sovereign within a free market. Putting aside the power inequalities and lack of transparency in most markets, and especially food, there is also a question here about whether food, with its consequences for environment, health and wellbeing is not too important and complex to be seen as best left to the market. The alternative is not necessarily 'big state', although many would argue that much clearer and more focussed policy direction is required, rather a more collective, inclusive and socially just approach is needed. We are all in this together, the food system affects all of us. So we give the last word to Tim Lang: *"we need to move from a 'me' food culture to a 'we' food culture."*





Annex

Covid-19 - UK Food System Research

In March 2020, in the face of the growing Covid-19 pandemic, the UKRI established the Covid-19 Rapid Response initiative to fund research and innovation projects to address the urgent need for a better understanding of, and response to, the pandemic and its potential impacts. The rolling scheme ran until December 2020 and funded 500+ new research projects, repurposed 300+ existing research projects, and supported 3000+ innovation projects. Our original brief for this piece of work was to identify and focus on UK food system related research projects and innovation awards funded under this scheme.

Our initial search of the UKRI's Covid-19 project database (<https://www.ukri.org/find-covid-19-research-and-innovation-supported-by-ukri/>) was undertaken using a keyword ('food', 'food system', 'farm', 'restaurants' and 'supermarkets') search of project titles and summaries. This search returned a list of 52 potentially relevant research and innovation projects. We supplemented this search with a look at the UKRI's database of all publicly funded research and innovation (<https://gtr.ukri.org/>) using the term 'covid food'. This search returned no additional projects to the 52 we had already identified. Finally, for the sake of completion, we also undertook a more general internet trawl for non-UKRI funded Covid-19 / UK Food System focused research. This search returned an additional 4 potentially relevant projects. In total, our combined searches returned a longlist of 56 potentially relevant research and innovation projects.

From this longlist of 56, and in consultation with the SPF commissioning team, a shortlist of 12 Covid-19 / UK food system projects were identified to focus on. These **12 key projects** (see Table 1. overleaf) to a degree, selected themselves as they were the only projects of the 56 to either exclusively or primarily focus on the impact of Covid-19 on the UK food system. It was also felt, given the limited resources and timeframe of the commission, that it was better to focus engagement and energy on the projects that were most likely to produce examinable and relevant results or outputs over the period March-September 2021. As such, and while we believe there is considerable value and merit in the various practical responses and solutions to the pandemic being developed under this scheme, we chose not to include any of the numerous 'Innovation Awards' in our synthesis.

Of the 12 key projects, 9 are funded under the UKRI's Covid Rapid Response scheme,¹⁵⁸ 2 are NIHR funded projects, and one is a Nuffield Trust funded piece of work. These 12 projects and their associated emerging outputs and results provide the principal data source for this report. One of the problems in conducting a project of this nature, however, is the fast-moving nature of the pandemic and its various contrasting phases over the course of the 18 months after March 2020. As so many of the UKRI projects are not yet finished and, in some cases, have yet to produce final data sets or peer-reviewed publications, the SPF commissioning team agreed to our

suggestion that we supplement information from these 12 key projects with other relevant Covid-19 / food system focused papers and reports. It was also agreed, that although our focus is the UK food system, we could draw on literature from elsewhere in the world should it appear to offer insights that were relevant to the UK.

Table 1: The 12 Projects

No	Project Title	Funder	Duration	P-I
1.	COVID-19: Food and nutrition security during and after the covid-19 pandemic	ESRC	June 20 – June 21	Mike Rivington, James Hutton Institute
2.	The impact of COVID-19 on the UK food system	ESRC	May 20 – Nov. 21	Michael Winter, University of Exeter
3.	COVID-19: Resilience of the UK seafood system to the covid-19 disruption	ESRC	July 20 – Jan. 22	Sofia Franco, Scottish Association for Marine Science
4.	Feeding the nation: seasonal migrant workers and food security during COVID-19 pandemic	ESRC	Oct. 20 – Apr. 22	Roxana Barbulescu, University of Leeds
5.	The impact of the covid-19 crisis on food security	ESRC & Nuffield	May 20 – Apr. 21	Martin O’Connell, Institute of Fiscal Studies
6.	Food in lockdown and beyond	NIHR	Oct. 20 – Dec 21	Corinna Hawkes, City University
7.	The impact of covid-19 and the resulting mitigation measures on food and eating in the east of England	NIHR	May 20 – March 21	Wendy Wills, University of Hertfordshire
8.	The impact of the COVID-19 crisis on nutrition	ESRC	May 20 – May 21	Martin O’Connell, Institute of Fiscal Studies
9.	Meeting food vulnerability needs during covid-19: applying a systems approach to evidence based policy and practice	ESRC	July 20 – Jan. 22	Hannah Lambie-Mumford, University of Sheffield
10.	Capitalising on COVID-19 as a trigger for positive change in food waste behaviour	ESRC	Nov. 20 – May 22	Gulbanu Kaptan, University of Leeds
11.	COVID-19: the local as a site of food security resilience in the times of pandemic: opportunities, challenges and ways forward	ESRC	June 20 – Oct. 21	Anna Krzywoszynska, University of Sheffield
12.	Local food-growing initiatives respond to the covid-19 crisis: enhancing well-being, building community for better futures	ESRC	Dec. 20 – June 22	Les Levidow, Open University

Some Further Notes on Methodology

Having arrived at 12 projects to focus on, the next stage in the process was to identify and collate emerging project results or outputs. As mentioned above, given that none of the projects had yet to formally finish and some were still only a little over 6 months old it was necessary to employ a broader conception of 'result' or 'output' or 'finding' than would normally be the case. In our initial desktop searches therefore, we were looking for any project output that could offer some insight into either the aims and objectives of the project, or the impact of Covid-19 on the UK food system. At that point (April 2021), a few of the projects had produced some initial or interim reports but for the most part, publicly available project 'outputs' consisted of websites or webpages and a few blog posts.

With not much in the way of project outputs publicly available, it was necessary to take the slightly unusual methodological approach of writing to PIs to ask if they would be prepared to share any *non*-publicly available project outputs or information, for example, an original Case for Support, an early draft of a paper, some preliminary survey findings, or an interim report. In addition, all project PIs, Co-Is and Research Fellows were asked if they would be willing and able to participate in a small online workshop and/or short interview, with the former providing an opportunity for PIs, Co-Is and RFs to collectively identify and discuss common themes and issues across the different projects, and the latter an opportunity for the CRPR team to question selected individual project staff more closely about their specific methodologies and emerging results.

With relatively few publicly available 'results' to work with, this commission has relied significantly on the cooperation and participation of the PIs, Co-Is and RFs of the '12 key Covid/Food projects', all of whom responded positively and generously to our various and repeated requests for information and their latest results/outputs, and were able to engage in one way or another in this research process, either through participation in an online workshop, an online interview, or through email exchanges and conversations.¹⁵⁹ The outputs listed in the tables below were the ones used to inform this work and were up to date at the time of writing; readers should follow the links to respective projects websites for the latest project updates.

Some Further Notes on Methodology: The outputs listed in the tables below were the ones used to inform this work and were up to date at the time of writing; readers should follow the links to respective projects websites for the latest project updates.

PROJECT 1

Project		COVID-19: FOOD AND NUTRITION SECURITY DURING AND AFTER THE COVID-19 PANDEMIC		
Duration	(June 20 - June 21)			
PI	Mike Rivington (James Hutton Institute)			
Co-Is	Tim Benton and Richard King (Chatham House); Paul Burgess and Jim Harris (Cranfield University); Pete lanetta, Derek Stewart, Cathy Hawes, Roy Neilson, Gary Polhill, Adrian Newton, Dominic Duckett (James Hutton Institute)			
Website	https://www.hutton.ac.uk/research/projects/covid-19-food-and-nutrition-security			
Summary	<p>The COVID-19 pandemic is having substantial consequences on UK and global food and nutrition security (FNS). This project will undertake world-leading research to provide government, business and decision makers with the evidence that they need to develop a robust FNS response to the current pandemic.</p> <p>The pandemic is causing major shocks to the four pillars of FNS: access; availability; utilisation and stability. Examples include reductions in productivity (labour limitations), breakdown of norms of food systems (distribution, changed demand) and supply chain restrictions (agri-chemicals for crop management). Economic impacts are altering both supply, distribution and demand. Collectively these shocks are substantially altering food systems whilst in the longer-term norms of trade may not adapt appropriately leading to changes in the balance of traded commodities, reduction in food reserves and price increases.</p> <p>The project focusses on UK FNS which is heavily dependent on global markets. Half of the food we consume is imported and UK livestock industries rely heavily on imported feed. Some countries have already restricted exports in order to supply home markets. Normal market forces, transportation and distribution networks may no longer be appropriate to provide national requirements. A priority is to understand how to increase capacity for self-reliance to maintain civic stability, a healthy population and to understand the ramifications for third countries. The aim of this study is to conduct an initial rapid FNS risk assessment and explore options for changes in agricultural production, trade and distribution to protect FNS without jeopardising wider ecological and climate goals.</p>			
Data Sources	Various data sources associated with different deliverables including: official statistics, media reports, key informants, academic and grey literature, and Chatham House's own resource trade, earth database, online surveys, hybrid DELPHI/participatory scenario development method, dialogue with stakeholders and online workshops.			
Focus	Production: ✓✓✓	Supply Chain: ✓✓✓	Retail: ✓✓	Consumers: ✓✓
Emerging Results	<ul style="list-style-type: none"> - Website - https://www.hutton.ac.uk/research/projects/covid-19-food-and-nutrition-security - JOURNAL ARTICLE - UK food and nutrition security during and after the COVID 19 pandemic - BRIEFING - UK food and nutrition security in a global COVID-19 context: an early stock take - BRIEFING - UK food and nutrition security in a global COVID-19 context: an update - REPORT - Scenarios for UK Food and Nutrition Security in the wake of the COVID-19 Pandemic - REPORT - Exploring COVID-19 Food and Nutrition Security Plausible Scenario Narratives with the 'FeedUs' Model of Global Food Trade — ResearchOnline (gcu.ac.uk) - REPORT - Exploring the effects on UK food security and land use of four scenarios describing socio-economic responses to COVID-19 - REPORT - An overview assessment of the COVID-19 pandemic on the UK food and nutrition security 			

PROJECT 2

Project		THE IMPACT OF COVID-19 ON THE UK FOOD SYSTEM			
Website	https://blogs.exeter.ac.uk/foodsystemimpactscv19/				
	Mike Rivington, James Hutton Institute				
Duration	(May 20 - Nov. 21)				
PI	Michael Winter (University of Exeter)				
CO-Is	Matt Lobley (University of Exeter), Timothy Wilkinson (University of Exeter)				
Summary	<p>From panic buying to shortages, real or perceived, COVID-19 is leaving its mark on the food system. Whilst media attention has been on retail, the shock has also been felt in the food manufacture, processing, packaging and distribution sectors. In the first weeks of lock-down there have been cases of milk companies cancelling contracts with farmers but other companies have experienced increased demand from supermarket outlets. Fishermen have seen the demand for seafood from the restaurant trade in the UK and the EU dry up. Some are seeking to establish new retail outlets such as home delivery, others are reported not to be fishing. We need to know very rapidly how the supply chain for dairy, fish, flour, fruit and vegetables, and meat is adapting. Critically, what steps might be required to ensure food continues to reach shops and that there is fairness for food workers and for consumers? We will work with a panel of experts to gain and share information about food supplies, and we will interview those working in the industry. Our monthly bulletins will highlight both good practice and areas of concern as we work towards a resilient and fair food system in the crisis.</p>				
Data Sources	On-line survey of post-farm food businesses; Postal survey of SW farmers; Expert Panel; Key interviews.				
Focus	Production: ✓✓	Supply Chain: ✓✓✓	Retail: ✓	Consumers: ✓	
Emerging Findings	<p>MONTHLY PROJECT BULLETINS</p> <p>BLOGS (e.g.)</p> <ul style="list-style-type: none"> - Labour Shortages in the Food Chains: COVID, Brexit or both? - South West Farm Survey 2020: Selected Results - A bit late, but some more thoughts on the labour question - How should the meat food chain be regulated? - Government support for food wholesalers - How can we understand the complexity of the food system? - The Footballer and Food - Covid Food Business Barometer – summary of results from a short survey in late 2020 <p>EXPERT PANEL MEETING MINUTES</p>				

PROJECT 3

Project		COVID-19: RESILIENCE OF THE UK SEAFOOD SYSTEM TO THE COVID-19 DISRUPTION (RISEUP)		
Website	https://www.sams.ac.uk/science/projects/riseup/			
Duration	(July 20 - Jan. 22)			
PI	Sofia C. Franco (Scottish Association for Marine Science)			
CO-Is	Maria Sharmina (University of Manchester)			
Summary	<p>The UK seafood industry is under unprecedented pressure to deliver on national food security during COVID-19/SARS-CoV-2 pandemic, while trying to adapt to remain socio-economically viable. However, no data exists on the systemic impacts to the UK seafood industry, adaptation actions employed by businesses and their potential effects on seafood supply. This compromises the timely adoption of measures to address challenges currently faced by businesses and delays the implementation of changes to increase the UK seafood industry's resilience to future shocks.</p> <p>RiseUP brings together the expertise of SAMS, the University of Manchester and Seafish to explore pathways to increase resilience at the system and business levels and provide policy-relevant recommendations and stakeholder-specific advice to address challenges. It will collect evidence on the impacts of COVID-19 disruption across the UK seafood industry, how these are managed by businesses and how impacts are propagating through the supply network. A mix-method approach combines data collection through interviews and surveys; modelling of the industry supply network to explore systemic, particularly unintended, consequences to its resilience; and in-depth case studies to investigate business model adaptation and circularity in selected sectors. The project will provide evidence for decision-making under pressure and uncertainty, to manage the COVID-19 disruption. The project will outline areas for immediate action and inform strategic changes to increase the resilience of the UK seafood industry to future shocks. RiseUP will contribute to understanding the routes to increased resilience, sustainability and security of the UK's seafood system.</p>			
Data Sources	Mixed methods: interviews and online surveys; in-depth case studies			
Focus	Production: ✓✓✓	Supply Chain: ✓✓✓	Retail: ✓	Consumers: ✓
Emerging Results	<p>-Website - https://www.sams.ac.uk/science/projects/riseup/</p> <p>- PRESENTATION - Franco SC, Billing SL and Charalambides G. 2021. Aquaculture businesses during COVID-19: a UK case study. Aquaculture Europe, October 4-7, Funchal, Portugal</p> <p>- E-POSTER - Macdonald A & Franco SC. 2021 Modelling the resilience of the UK seafood system. Aquaculture Europe, October 4-7, Funchal, Portugal.</p> <p>- INTERVIEW (Summary) with Dr. Franco</p> <p>- PERSONAL COMMUNUCATION with Dr. Franco</p>			

PROJECT 4

Project		FEEDING THE NATION: SEASONAL MIGRANT WORKERS AND FOOD SECURITY DURING COVID-19 PANDEMIC		
Website	https://feedingthenation.leeds.ac.uk/			
Duration	(Oct. 20 - April 22)			
PI	Roxana Barbulescu (University of Leeds)			
CO-Is	Carlos Vargas-Silva (University of Oxford)			
RFs	Bethany Robertson (University of Leeds)			
Summary	<p>The UK edible horticulture sector relies on seasonal workers to plant, harvest and pack crops. 94% of seasonal workers in the UK are EU nationals. Travel restrictions and quarantines pose unprecedented challenges to recruitment, yet seasonal workers remain essential to ensure food security throughout the pandemic.</p> <p>This project examines the recruitment and experiences of seasonal agricultural migrant workers throughout harvest seasons 2020 and 2021. Using 212 remote qualitative interviews and data analysis, findings will support policy interventions from our policy impact partner - the Department of Environment, Food and Rural Affairs - and other stakeholders for which we will prepare monthly reports including comparative international analysis. Furthermore, we will co-produce with our charity impact partner - New Europeans - information materials adapted to the needs of seasonal migrants. To engage with the wider audiences and inform public views about seasonal migration, we propose a web-based monitor and a virtual exhibition.</p> <p>The project has 6 key objectives: (1) to provide information in real time on worker recruitment and retention in order to support evidence-based rapid interventions and mitigate risks for UK the food supply; (2) to provide information to limit contagion on farms; (3) to document the experiences of seasonal workers and farmers; (4) to inform decisions on the post-Brexit immigration system in light of possible future pandemics; (5) conceptually, to contribute to theories about the high demand for migrant labour in periods of high unemployment and (6) and to debates on the contributions of low skilled migrants as key workers.</p>			
Data Sources	<ul style="list-style-type: none"> - Qualitative interviews with seasonal migrant workers (n=71), survey with farmers in edible horticulture (n=40) follow up qualitative interviews with farmers (n=10) - Identifying best practices on seasonal migration from international contexts (comparative policy analysis) - Mapping seasonal migration across food systems in the four nations (England, Wales, Scotland and NI) using publicly available reports and agricultural censuses (June surveys, etc.) - Newspapers reports on COVID-19 outbreaks. 			
Focus	Production: ✓✓✓	Supply Chain: ✓✓✓	Retail:	Consumers:
Emerging Results	<ul style="list-style-type: none"> - FORMAL WORKING GROUP with DEFRA Access to Labour Team (monthly meetings, DEFRA is formal partner) which led to contribution to DEFRA Access to labour team 'Evidence base' for 2022 INTERACTIVE DASHBOARD (with commercial partner to be uploaded end of July 2021) <ul style="list-style-type: none"> - Item 1: interactive horticultural map of the UK - Item 2: workforce in agriculture and the role of seasonal workers - Item 3: public opinion towards immigration of seasonal workers (strong support overall, 2 data points before and after the start of the pandemic (January -May 2020) more support for seasonal workers after the start of the pandemic - Item 4: visa allocation for seasonal workers year 2019, 2020 and 2021. 			

PROJECT 4 continued

Project	FEEDING THE NATION: SEASONAL MIGRANT WORKERS AND FOOD SECURITY DURING COVID-19 PANDEMIC
Emerging Results Continued	<p>COVID 19 OUTBREAK TRACKER (with commercial partner to be uploaded end of July 2021)</p> <p>SUPPORT MATERIAL FOR SEASONAL MIGRANT WORKERS (with charity partner New Europeans, publication date August 2021)</p> <p>CONFERENCE PRESENTATIONS:</p> <ul style="list-style-type: none"> - 18th annual conference IMISCOE, 8th of July paper: 'Feeding the nation: COVID-19 pandemic and the emerging global regimes of seasonal migration in agri-food' - CES 27th annual conference paper, 22nd of June 2021: 'Understanding Seasonal Migration in Agriculture in Pandemic Times: Evidence from US, UK, Spain, and Italy' - BSA food 23rd of June 2021: 'Food and Food systems in times of insecurity' <p>INVITED TALKS & WEBINARS</p> <ul style="list-style-type: none"> - UK in a Changing Europe and Governance after Europe, Migration after Brexit webinar, 5th November 2021. Welsh Institute for Government: Agriculture and Rural economies, Governance after Brexit webinar, 2nd July 2021. - Centre for Migration Studies, University of Warsaw '(Im)mobility during the pandemic – one year later' Karolina Follis and Roxana Barbulescu. CMR UW Seminars: Recent Advances in Theory and Research on Migration." 19th May 2021. - Global Food and Environment Institute Webinar, University of Leeds: 'Seasonal workers across borders: farming needs, COVID-19 and immigration' 16th June 2021 <p>EVIDENCE SUBMISSIONS to</p> <ul style="list-style-type: none"> - Joint Committee on Vaccination and Immunisation - DEFRA-led review on automation - DAERA Northern Ireland consultation on the abolition of the Agricultural Wage Board https://www.daera-ni.gov.uk/publications/summary-consultation-responses-proposal-revoke-agricultural-wages-regulation-northern-ireland-order - EFRA inquiry on Labour Shortages in the Food and Farming Sectors; written evidence https://committees.parliament.uk/work/1497/labour-shortages-in-the-food-and-farming-sector/publications/written-evidence/ <p>BIBLIOGRAPHIES</p> <ul style="list-style-type: none"> - Agricultural and seasonal workers in agriculture - Seasonal migrant workers: health and wellbeing - Worker replacement and automation in horticulture <p>EXHIBITION and ARTISTIC BOOK (collaboration with artist Sarah Hannis, deadline Spring 2022)</p> <p>MONTHLY POLICY BULLETINS</p> <p>MONTHLY POLICY BULLETINS</p>

PROJECT 4 continued

Project	FEEDING THE NATION: SEASONAL MIGRANT WORKERS AND FOOD SECURITY DURING COVID-19 PANDEMIC
Emerging Results Continued	<p>PUBLICATIONS:</p> <ul style="list-style-type: none">-BLOG – Seasonal harvest workers during Covid-19 (02.06.21)-BLOG – Without freedom of movement who will pick the fruit? (14.04.21)-SPECIAL ISSUE of seasonal migrant workers in agriculture for <i>International Migration</i> (accepted 01.09.2021) <p>NEW GRANT</p> <p>Tender with Food Standards Agency on the impact of Labour shortages in the food system. The tender is led by the N8 Agri-Food consortium</p>

PROJECT 5

Project		THE IMPACT OF THE COVID-19 CRISIS ON FOOD SECURITY			
Website	Research - Institute For Fiscal Studies - IFS				
Duration	(May 20 - Apr. 21)				
PI	Martin O'Connell (Institute for Fiscal Studies) (UKRI, with additional Nuffield funding)				
Summary	<p>This project will provide evidence on how access to food, and the groceries people buy, are being affected by the COVID-19 crisis.</p> <p>The pandemic has led to unprecedented changes in the supply of groceries, where people access them, and the demand for different products. Food spending patterns, the nutritional quality of people's diets and levels of alcohol consumption may be changing. Longer-term impacts on health will be determined by whether households' food consumption reverts to pre-crisis patterns when the food environment returns to normal.</p> <p>The research will use data on more than 30,000 households, which will be updated bimonthly, documenting changes in food price, availability, spending, and diet quality throughout the crisis.</p> <p>Availability of certain key essentials and the variety of products stocked by supermarkets will be tracked over time. How prices are changing, and how these changes feed through into differences in households level price inflation will be documented. Patterns of food, drink and alcohol spending will be compared to pre-crisis levels, through analysis of food and drink consumption habits and the nutritional quality of households' diets during the crisis. The research will show how any changes affect different groups, such as people with low incomes, people with children, and the elderly.</p> <p>Assessing household-level patterns of food spending before, during and after the crisis will be crucial for understanding long-term effects and will inform policy that seeks to tackle diet-related disease and reduce health inequalities. This project will provide evidence while the coronavirus crisis is still ongoing, with the findings released in several short reports, each focusing on particular aspects of the analysis.</p>				
Data Sources	Household-level scanner data collected by the market research firm Kantar FMCG Purchase Panel.				
Focus	Production:	Supply Chain:	Retail: ✓✓✓	Consumers: ✓✓✓✓	
Emerging Results	<ul style="list-style-type: none"> - Website - Research - Institute For Fiscal Studies - IFS - UKRI Summary - BREIFING NOTE - Grocery prices and promotions during the COVID-19 pandemic - WORKING PAPER - Preparing for a pandemic: spending dynamics and panic buying during the COVID-19 first wave 				

PROJECT 6

Project		FOOD IN LOCKDOWN AND BEYOND			
Website	https://blogs.city.ac.uk/covid19foodstudy/				
Duration	(Oct. 20 - Dec. 2021)				
PI	Corinna Hawkes, (City, University of London) (NIHR funded)				
Co-Is	Anna Isaacs (City, University of London)				
RFs	Charlotte Gallagher Squires (City, University of London)				
Summary	<p>Since March 2020, when the first UK lockdown measures were introduced, people have had to rapidly change the way they interact with food environments. Financial security has also decreased for many in the UK, putting pressure on family resources and budgeting and negatively impacting on mental health. The food environment is important in ways that go beyond just eating - for example, it can also be a place to spend time with family, or provide affordable pleasures. This means that the closure of shops and restaurants is likely to have impacted family life in a broader sense. Failing to understand these changes may result in policy which is out of touch with the everyday experiences of families in the UK.</p>				
Data Sources	Qualitative longitudinal study incorporating: a survey, semi-structured interviews; and a range of creative activities (photo-elicitation, spatial map-drawing and oral diaries)				
Focus	Production:	Supply Chain:	Retail:	Consumers: ✓✓✓✓	
Emerging Results	<p>- Website - https://blogs.city.ac.uk/covid19foodstudy/</p> <p>- JOURNAL ARTICLE - How Is COVID-19 Shaping Families' Relationships With Food and the Food Environment in England?</p> <p>- REPORT PHASE 1 FINDINGS - How should the UK government's obesity prevention strategy (and related public health agenda) adapt to ensure equitable obesity prevention in light of changes related to COVID-19?</p>				

PROJECT 7

Project		THE IMPACT OF COVID-19 AND THE RESULTING MITIGATION MEASURES ON FOOD AND EATING IN THE EAST OF ENGLAND			
Website	The impact of COVID-19 on food systems and practices in the East of England				
Duration	(May 2020 -March 2021)				
PI	Wendy Wills (University of Hertfordshire) (NIHR ARC, East of England funded)				
Co-Is	Claire Thompson (University of Hertfordshire) Laura Hamilton (University of Hertfordshire) Elspeth Mathie (University of Hertfordshire) Angela Dickinson (University of Hertfordshire) Samantha Rogers (University of Hertfordshire) Roz Fallaize (University of Hertfordshire)				
Summary	<p>A qualitative study of how Covid-19 has affected the food and eating practices of people across the East of England.</p> <p>Background</p> <p>Measures to control the spread of Covid-19 are impacting upon food systems, household food practices, and organisations supporting vulnerable people. Local councils are putting together regional multi-sector working groups to support those at risk and make sure they have enough food. We conducted in-depth telephone and video call interviews from May 2020 to March 2021 with i.) 38 East of England residents, with a focus on: those with infants and young children; those aged 70 years+; those on a low income; families eligible for free school meals; households including people self-isolating due to a health condition; and households including key workers; ii.) 27 professionals or volunteers based in the East of England, working with the above groups by providing support around dietary health.</p> <p>Aims</p> <p>To understand how Covid-19 is affecting local food systems, household food practices across the life course, and local efforts to mitigate dietary health inequalities in the East of England.</p> <p>Activity</p> <p>We have presented findings at the ENUF (2nd UK Research Conference on Food and Poverty: Evidence for change) in 2020 and the BSA and BSA food study group conferences in 2021. In September 2020, we published a report of our preliminary findings. These findings suggest that Covid-19 and the mitigation measures put in place from March 2020 (e.g. 'lockdown' and social distancing) are serving to amplify existing dietary health inequalities. Older people living alone and/or on low incomes have had to contend with difficulties in accessing food and a lack of opportunities to eat socially. Foodbanks have seen a rapid increase in need for their services and have had to change their operating practices. Despite ongoing difficulties, local groups across the region have devised a range of schemes to support and feed vulnerable people.</p>				
Key Data Sources	In-depth telephone and video call interviews				
Focus	Production:	Supply Chain:	Retail: ✓✓	Consumers: ✓✓✓✓	
Emerging Results	<ul style="list-style-type: none"> - Website - The impact of COVID-19 on food systems and practices in the East of England - POLICY BRIEFINGS - The Impact of Coronavirus on Food and Eating in the East of England: Policy Briefings - REPORT - The impact of Covid-19 and the resulting mitigation measures on food and eating in the East of England: Interim Report 				

PROJECT 8

Project		THE IMPACT OF THE COVID-19 CRISIS ON NUTRITION		
Website	Research - Institute For Fiscal Studies - IFS			
Duration	(May 20 - May 21)			
PI	Martin O'Connell (Institute for Fiscal Studies)			
Co-Is	Kate Smith (Institute for Fiscal Studies)			
Summary	<p>A major challenge facing policymaking during the COVID-19 crisis is ensuring all households have access to a nutritious diet. The Department of Environment, Food & Rural Affairs (DEFRA) have provided supermarkets with a list of 1.5 million vulnerable people in England; this is being used to determine eligibility for grocery deliveries. However, there are press stories that families are struggling to put adequate food on the table. And in the devolved nations there are delays in supermarkets obtaining information on who the vulnerable are.</p> <p>Many households are under significant financial pressure, some low-income families have lost access to free school meals, and interrupted supply chains and hoarding by some consumers are leading to significant upward pressure on food prices.</p> <p>We will provide evidence on whether vulnerable people - e.g. the elderly, those on low incomes, and those with young children - are having difficulties accessing essentials and maintaining a healthy diet. We will use real-time longitudinal data on a large representative sample (over 30,000 households) to provide a systematic analysis of how different people's food spending is changing over the crisis relative to pre-crisis spending patterns. We will show how prices have changed and how the crisis is impacting the number of calories different people buy, how they obtain these calories (e.g. food out, takeaways or home cooked), the balance across different types of foods, and the overall quality of people's diets.</p> <p>Our analysis will provide timely, invaluable information to policymakers tasked with ensuring a food supply chain that functions for all.</p>			
Data Sources	Household-level scanner data collected by the market research firm Kantar FMCG Purchase Panel.			
Focus	Production:	Supply Chain:	Retail: ✓✓✓	Consumers: ✓✓✓✓
Emerging Results	<ul style="list-style-type: none"> - Website - Research - Institute For Fiscal Studies - IFS - UKRI Summary - WORKING PAPER - The dietary impact of the COVID-19 pandemic (July 2021) 			

PROJECT 9

Project		MEETING FOOD VULNERABILITY NEEDS DURING COVID-19: APPLYING A SYSTEMS APPROACH TO EVIDENCE BASED POLICY AND PRACTICE		
Website	http://speri.dept.shef.ac.uk/food-vulnerability-during-covid-19/			
Duration	(July 20 - Oct. 22)			
PI	Lambie-Mumford (University of Sheffield)			
Co-Is	Rachel Loopstra (King's College London), Peter Jackson (University of Sheffield), Simon Shaw (Sustain: the alliance for better food and farming), Niall Cooper (Church Action on Poverty)			
Summary	<p>During the COVID-19 pandemic, governments, local authorities, charities and local communities have been working to ensure access to food for those facing new risks of food insecurity due to being unable to go out for food or due to income losses arising from the crisis. New schemes have been developed, such as governments replacing incomes of people at risk of unemployment on account of lockdowns, providing food parcels for people asked to shield, referrals for people to receive voluntary help with grocery shopping, and free school meals replacement vouchers or cash transfers. These have been working alongside existing provision for those unable to afford food – such as food banks – which have been adapting their services to continue to meet increasing demand from a range of population groups. The result has been a complex set of support structures, which have been developing and changing as the COVID-19 pandemic, and its impacts, evolve.</p> <p>The research aims to provide collaborative monitoring and analysis of food support systems to inform food access policy and practice. The research team is led by the University of Sheffield and King's College London alongside colleagues from Sustain: the alliance for better food and farming and Church Action on Poverty. Collaboration with partners and stakeholders is at the heart of the project. The research team is working with stakeholders from national and local government, the civil service, third sector, NGOs as well as people who are accessing food and financial assistance during the pandemic. The project has three work packages.</p> <p><i>Work package 1: National level food access systems mapping and monitoring</i></p> <p>Looking at food access support across the UK during the COVID-19 pandemic, national level mapping and monitoring is taking place in England, Northern Ireland, Scotland and Wales as well as at a UK level. National level stakeholders (for example from devolved governments and national voluntary organisations) from across the four nations are working with us to understand and monitor how support for food access has evolved and is operating across the UK.</p> <p><i>Work package 2: Participatory Policy Panel</i></p> <p>To fully understand food access responses, it is crucial to hear directly from those with lived experience of food insecurity during the pandemic. In partnership with Church Action on Poverty, we have convened a participatory policy panel made up of people who have direct experience of a broad range of support to access food. Meeting regularly throughout the project period (Oct 2020-Dec 2021), the panel is using a range of participatory and creative methods to share and reflect on their experiences and contribute these to policy recommendations.</p> <p><i>Work package 3: Local area case studies</i></p> <p>Fourteen local areas across the UK are the focus for in depth case study research. Working with local stakeholders in each area, the research has mapped what local responses have looked like and how they are operating. The research will follow developments in these areas through the duration of the project.</p>			
Data Sources	Stakeholder workshops, case studies (qualitative and quantitative data), in-depth interviews, longitudinal participatory research, desk based research using publically available information and secondary data.			
Focus	Production:	Supply Chain: ✓	Retail: ✓	Consumers: ✓✓✓✓

PROJECT 9 continued

Project	MEETING FOOD VULNERABILITY NEEDS DURING COVID-19: APPLYING A SYSTEMS APPROACH TO EVIDENCE BASED POLICY AND PRACTICE
Emerging Results	<ul style="list-style-type: none"> -Website - http://speri.dept.shef.ac.uk/food-vulnerability-during-covid-19/ -PHASE 1 REPORT - Mapping responses to risk of rising food insecurity during the COVID-19 crisis across the UK (Aug. 2020) -PHASE 2 REPORT - Monitoring responses to risk of rising food insecurity during the COVID-19 crisis across the UK (Dec. 2020) -EXECUTIVE SUMMARY - Comparing local responses to household food insecurity during COVID-19 across the UK (March – August 2020) (published 23.07.21) -COMPARATIVE REPORT - Comparing local responses to household food insecurity during COVID-19 across the UK (March – August 2020) (published 23.07.21) -FULL REPORT - Local responses to household food insecurity during COVID-19 across the UK (March – August 2020) (published 23.07.21) -REPORTS - Eight local case studies are presented in the Mapping local responses: March to August 2020 (published 23.07.21) - Aitchison, G. and Perry, J. (eds.) 'Food Exp CV19 Panel, 2021: Navigating Storms: Learning from Covid-19 food experiences [Aitchison, G. and Perry, J. (eds.)]. Church Action on Poverty. Available for download from www.church-poverty.org.uk/navigatingstorms/ and available online http://speri.dept.shef.ac.uk/food-vulnerability-during-covid-19/ (published 12 October 2021)

PROJECT 10

Project		CAPITALISING ON COVID-19 AS A TRIGGER FOR POSITIVE CHANGE IN FOOD WASTE BEHAVIOUR		
Website	https://business.leeds.ac.uk/dir-record/research-projects/1782/capitalising-on-covid-19-as-a-trigger-for-positive-change-in-food-waste-behaviour			
Duration	(Nov. 20 - May 22)			
PI	Gulbanu Kaptan (University of Leeds)			
Summary	<p>Household food waste is an acknowledged societal problem, contributing to greenhouse gas production, food insecurity, and food price inflation. In the UK, household food waste makes up 70% of all post-farm-gate food waste and was recognised by the UK Government's Michael Gove: "Nobody wants to see good food go to waste. It harms our environment, it's bad for business - and it's morally indefensible." Although there have been studies in the past to reduce food waste, the problem has largely remained intractable until the COVID-19 lockdown.</p> <p>The COVID-19 lockdown has been a big contextual change in people's daily lives. However, it has resulted in positive changes in food waste-related behaviours as indicated in the reports of the Waste & Resources Action Programme (WRAP) and UK media. For example, UK consumers reported an increased awareness and willingness to minimise household food waste leading to a 34% reduction in food waste across 4 key products (bread, milk, potatoes, and chicken) compared to the average across 2018-2019. However, these changes may not last long with the ease of lockdown.</p> <p>Our research aims to harness the positive changes in food waste behaviour and investigate opportunities to sustain this change over the long term. Therefore, our project will (1) identify the factors that have affected food waste behaviours under lockdown, (2) develop, implement and evaluate interventions to support positive behaviour change, and (3) use our partnerships with WRAP and Zero Waste Scotland to disseminate the outcomes across the UK.</p> <p>The outcomes of this research will have positive social and economic impacts on UK food insecurity, consumers' cost savings, and food price inflation, as well as environmental impact on the amount of resources and inputs required and greenhouse gas generated, by not producing food that becomes waste.</p>			
Data Sources	https://business.leeds.ac.uk/downloads/download/267/capitalising_on_covid-19_as_a_trigger_for_positive_change_in_food_waste_behaviour Data sources from a 'National representative survey', 'qualitative interviews' and 'experimental interventions'			
Focus	Production:	Supply Chain:	Retail: ✓	Consumers: ✓✓✓✓
Emerging Results	<ul style="list-style-type: none"> - Website - https://business.leeds.ac.uk/dir-record/research-projects/1782/capitalising-on-covid-19-as-a-trigger-for-positive-change-in-food-waste-behaviour - UKRI Summary - BLOG POST - Capitalising on COVID-19 as a Trigger for Positive Change in Food Waste Behaviour 			

PROJECT 11

Project		COVID-19: THE LOCAL AS A SITE OF FOOD SECURITY RESILIENCE IN THE TIMES OF PANDEMIC: OPPORTUNITIES, CHALLENGES AND WAYS FORWARD		
Website	https://www.sheffield.ac.uk/sustainable-food/research/local-site-food-security-resilience-times-pandemic			
Duration	(June 20 - Oct 21)			
PI	Anna Krzywoszynska (University of Sheffield)			
Co-Is	Damian Maye (University of Gloucestershire)			
RFs	Stephen Jones (University of Sheffield)			
Summary	<p>The COVID-19 pandemic has significantly impacted on the UK's food systems, and disruptions are likely to continue. There is emerging evidence that the local food sector (local food producers and their supply chains) can significantly contribute to the resilience of the UK's food system at this time. However, robust data is needed to better understand the impact this sector can make on food security during and after the pandemic, and to help maximise its contribution.</p> <p>By working closely with key businesses and organisations in the local food sector, this 5-stage project will use surveys, interviews, citizen science, and back-casting to provide timely evidence on 1.) the sector's robustness, capturing the impact of and response to the pandemic (deliverable 1); 2.) its adaptability, gathering information on adaptation by local producers, short chains and intermediate actors (deliverables 2 & 3); 3.) its route to transformation in the post-pandemic context, assessing longer-term changes at supply chain and policy levels (deliverables 4 & 5).</p> <p>The project will collect and feedback robust data, and by providing structured space for sector-wide collaboration and long-term planning, it will thus enable the business and policy actors on local and national levels to maximise the local food system's contribution to UK's food security, and to ensure its sustainability and resilience. This project has significant buy-in from key businesses and organisations in this sector, as well as policymakers, as evidenced by letters of support. It is therefore highly likely to ensure high participation rates and deliver significant impact.</p>			
Data Sources	Surveys; interviews; citizen science; back-casting			
Focus	Production: ✓✓✓	Supply Chain: ✓✓	Retail: ✓✓	Consumers: ✓
Emerging Results	<ul style="list-style-type: none"> - Website - https://www.sheffield.ac.uk/sustainable-food/research/local-site-food-security-resilience-times-pandemic - Project Progress Report outlining emerging themes from a series of interviews conducted with a range of key stakeholders from across the local food sector (shared in confidence, not in the public domain) - JOURNAL ARTICLE - Local food systems as a source of food security resilience in times of crisis: an analysis of the impacts of the COVID-19 pandemic in the UK (Under Review, not yet published, shared in confidence) 			

PROJECT 12

Project		LOCAL FOOD-GROWING INITIATIVES RESPOND TO THE COVID-19 CRISIS: ENHANCING WELL-BEING, BUILDING COMMUNITY FOR BETTER FUTURES			
Website	https://cobracollective.org/news/digitalstories/				
Duration	(Dec. 20 - June 22)				
PI	Les Levidow (Open University)				
Co-Is	Andrea Berardi (Open University)				
Summary	<p>The Covid-19 crisis has revealed the stark inequalities in UK society. Many vulnerable people have had more difficulty accessing food, so third-sector organisations have mobilised emergency food provision. They have also expanded community food-growing initiatives, which enhance participants' well-being, strengthen social cohesion, localise food provision and thus build future resilience. This project will investigate the expansion of community cultivation during the Covid- 19 crisis, its benefits, social barriers and means to overcome them, especially for more vulnerable marginalised social groups, with the aim to strengthen third-sector capacities for such inclusion.</p> <p>Through participatory digital story-telling, this project will work with third-sector partners in community cultivation to elicit participants' feelings, aspirations, social connections and multiple benefits from community food activities. This knowledge will identify the most effective strategies that have been deployed during the Covid-19 crisis, and devise ways to share and promote them. Thus the digital story-telling process has a dual purpose: a research method and a means to promote better practices through our third-sector partners. As a practical impact, food growing activities will strengthen their engagement with vulnerable marginalised people, thus helping to overcome inequalities. Based on the digital assets and research insights, the project will provide an open-access online capacity-building programme for community food programmes, so that they can outscale similar benefits around the country. This impacts will promote better mental health, well-being and better access to healthy food; they will also spread agri-food practices that enhance social resilience, and thus provide an alternative to the unhealthy, unsustainable agri-food system.</p>				
Data Sources	Digital story-telling methods: participatory video films eliciting individuals' experiences; picture-storyboards based on group discussions within the same food initiative (either via Zoom or in-person); and Zoom call recordings where participants share their experiences, both within and across food initiatives.				
Focus	Production: ✓✓✓✓	Supply Chain: ✓	Retail: ✓	Consumers: ✓✓	
Emerging Results	<ul style="list-style-type: none"> - Website - https://cobracollective.org/news/digitalstories/ - Digital Storytelling about Community Food Growing Project: First Insights - The first 7 'Community Food Growing' films 				

Endnotes

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- 36 Ibid
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- 39 NB aquaculture also includes non-food production, for example, ornamental fish and plants.
- 40 Franco SC, Billing SL and Charalambides G. 2021. Aquaculture businesses during COVID-19: a UK case study. Presentation at Aquaculture Europe, October 4-7, Funchal, Portugal
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- 43 Results related to data collected from 40 interviews with stakeholders across the UK seafood industry (including aquaculture, fisheries, processors, wholesale, retailers, food service, amongst other supply chain) conducted from October 2020 to February 2021, reflecting the early impacts of the COVID-19 disruption to the UK seafood

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- 47 The low importance attached to labour in PROJECT 2's farmer survey is almost certainly because of the low incidence of horticulture in the south-west.
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- 159 Across the two discussion workshops, for example, there were 14 participants representing 9 of the 12 projects. Data from these workshops was supplemented with online interviews with 6 individuals from 4 projects

Programme Information

The £47.5M 'Transforming the UK Food System for Healthy People and a Healthy Environment SPF Programme' is delivered by UKRI, in partnership with the Global Food Security Programme, BBSRC, ESRC, MRC, NERC, Defra, DHSC, PHE, Innovate UK and FSA. It aims to fundamentally transform the UK food system by placing healthy people and a healthy natural environment at its centre, addressing questions around what we should eat, produce and manufacture and what we should import, taking into account the complex interactions between health, environment and socioeconomic factors. By co-designing research and training across disciplines and stakeholders, and joining up healthy and accessible consumption with sustainable food production and supply, this Programme will deliver coherent evidence to enable concerted action from policy, business and civil society.



