

# Covid-19 and food security

Novel pathways and data collection to improve research and monitoring efforts

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## Key messages and recommendations

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The Covid-19 pandemic may create new types of food insecurity. These are focused not on food supply, but rather on the indirect effects of mobility restrictions and social distancing measures on household purchasing power and access to food.

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Existing food insecurity forecasting systems may need to be complemented with additional data and methods to capture these novel pathways of food insecurity.

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So far, evidence on Covid-19's effects on food demand (e.g. household purchasing power) is mixed. The impact on food supply is limited to certain supply chains for inputs and higher-value, perishable foods.

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The effects vary strongly by context, possibly due to the role of relief packages. More information is required on social protection coverage, including of low-income households and informal workers.

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Evidence also suggests that actors in the informal midstream food supply chain played an important role in explaining the resilience of food systems in low- and middle-income countries. However, they are often overlooked in current data collection and research efforts.

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## About this publication

In 2020, the United Kingdom's Foreign, Commonwealth and Development Office (FCDO) commissioned a review of data and evidence of the links between Covid-19 and food security to help ensure that they are monitored effectively. This resulted in the development of a new model called RAPID-FS (see box below), using publicly available quantitative and qualitative data. The latest iteration of the model identified countries at risk of food security as a result of Covid-19, but which are not monitored by existing systems (e.g. the Famine Early Warning Systems Network (FEWS NET)).

### RAPID-FS

RAPID-FS uses economic, social and geospatial data to analyse the probability of countries experiencing food insecurity from Covid-19. Building on the five pathways developed by FAO and WFP (2020), it uses the following data sources:

1. Food access through reduced household purchasing power: International Monetary Fund (IMF) gross domestic product (GDP), Multi-dimensional Poverty Index, World Bank population data.
2. Availability of food, agricultural production and food supply chains: Oxford Lockdown Stringency Index, Worldwide Governance Indicators (WGI) Government Effectiveness, Ugo Gentilini's Social Protection data.
3. Government capacity to protect vulnerable populations: Social Progress Index, World Bank debt data, sovereign credit ratings.
4. Political stability: risk scores from Coface, Bertelsmann BTI, Credendo.
5. Conflict dynamics: the Armed Conflict Location and Event Data Project (ACLED).

Source: TMP Systems using data from ACLED, Asonuma and Trebesch (2016), Bertelsmann Transformation Index, Coface, Credendo, Fitch Ratings, IMF, MPI, OECD, OxCGRT, riskadvisory.com, SPI, UNODC, World Bank.

In developing the model, we reviewed data and evidence of the links between Covid-19 and food security. This revealed several blind spots, data gaps and research requirements. The purpose of this brief is to set the frame to think about the pandemic's impacts on food security, and to provide recommendations to FCDO, governments, international donors and researchers on what data might be useful to keep track of it. The technical annex to this brief offers specific guidance against the evidence on the hypothesised causal links.

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# Introduction

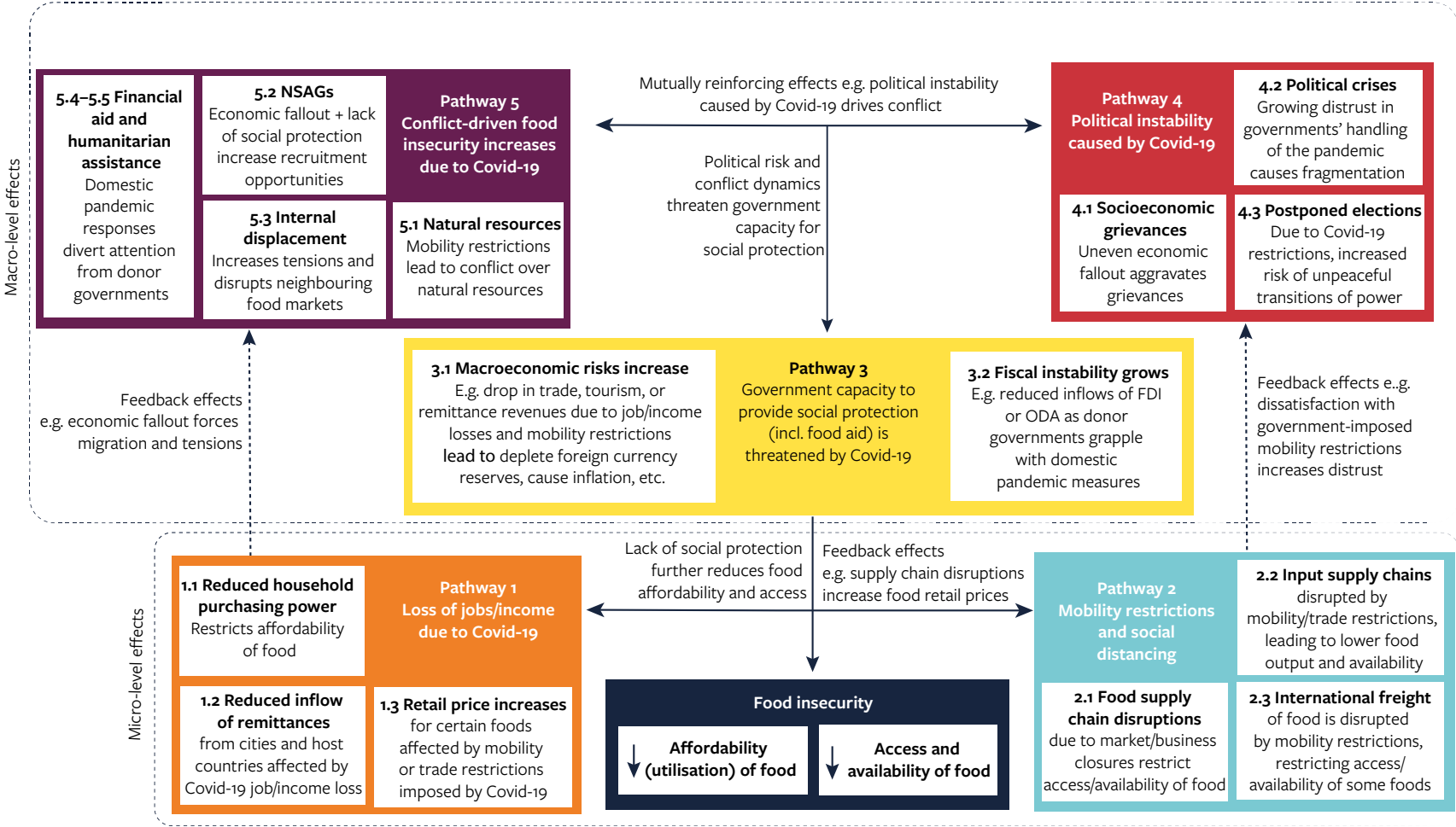
Covid-19 immediately triggered food security concerns. Early in the pandemic, the World Food Programme (WFP) estimated that Covid-19 will double the number of people facing food crises from 130 million to 265 million in 2020 (WFP, 2020). The World Bank, the International Monetary Fund (IMF) and the World Health Organization (WHO) followed suit, suggesting that levels of hunger around the world could increase dramatically due to the impact of the pandemic on jobs, incomes and livelihoods.

A year on, the research community is making its first assessments of these predictions by analysing a deluge of evidence and data gathered on the link between Covid-19 and food security. A recent systematic review counted nearly 10,000 documents, largely anecdotal, that referred to the impact of the pandemic on people's food security (Béné et al., 2021). The review suggests there is widespread evidence of both supply- and demand-side factors that have influenced food security, including reduced demand due to consumers' loss of income, difficulty of accessing food markets, transportation problems and price changes in some value chains.

Contrasting this, Covid-19's direct impacts on agri-food production systems have (so far) been muted. The pandemic has not resulted in widespread loss of food production, as an early review (Wiggins et al., 2020) of past crises and their impacts on food security predicted. In fact, food systems have proved remarkably resilient in the face of an unprecedented, global shock that has affected nearly all parts of society. This is due in large part to the role of both formal and informal actors in the midstream food supply chain, often overlooked in past food security monitoring efforts. Today, the 'missing' or 'hidden' middle are lauded as 'essential workers'.

In this policy brief, we set the frame to think about the pandemic's impacts on food security by summarising evidence on the hypothesised causal links, based on FAO and WFP's *Pathways report* (FAO and WFP, 2020). An overview of these links, and a summary of the evidence, is provided in Figure 1 and Table 1. For each of the links, we used evidence from Béné et al.'s recent review (2021), as well as information from a host of data collection efforts (e.g. rapid-evidence phone surveys) to test their validity (see the technical annex to this brief). In the concluding section, we provide a summary of the evidence in Table 1 and discuss what data might be useful to monitor food security under Covid-19, and how it might be improved.

**Figure 1** Covid-19 food security pathways and interactions



Note: FDI = foreign direct investment; NSAG = non-state armed group; ODA = official development assistance.  
 Source: Adapted by authors based on FAO and WFP (2020)

**Table 1** Summary of causal mechanisms, evidence and data/evidence gaps

Pathway	Causal mechanism	Evidence	Data/evidence gaps
<b>Pathway 1</b> Loss of jobs and income due to Covid-19	<b>1.1</b> – Loss of jobs reduces household purchasing power and the affordability of food	Mixed	More data needed on low-income households which cannot afford coping strategies
	<b>1.2</b> – Loss of jobs reduces ability of workers to send remittances, and therefore the household purchasing power of recipient families	Little to none	Little data on in-country remittance flows to rural areas, which may play important role
	<b>1.3</b> – Food retail price rises restrict affordability of food	Evidence within certain value chains	Monitor effect of increase in international food or transportation prices
<b>Pathway 2</b> Mobility restrictions and social distancing due to Covid-19 disrupts availability and access to food	<b>2.1</b> – Mobility restrictions and social distancing requirements force market and business closures and thereby restrict access and availability of food	Mixed	More data needed on role of informal midstream supply chain actors in LMICs
	<b>2.2</b> – Supply chain disruptions due to Covid-19 reduce availability of inputs, leading to reduced yields and food production	Little to none	Livestock farmers or livestock-keeping households may be suffering from limited access to feed
	<b>2.3</b> – International freight of food is disrupted by mobility/trade restrictions, leading to lower food output and availability	Little to none	Monitor effect of international freight price hike on retail prices (see 1.3)
<b>Pathway 3</b> Government capacity to provide social protection (including food aid) is threatened by Covid-19	<b>3.1</b> – Increased macroeconomic risks (e.g. drop in tax revenues, trade, tourism or remittance income) deplete foreign currency reserves, increase inflation, etc.	Evidence in Haiti, Sudan and Zimbabwe	Little understanding of social protection programme coverage of workers in informal sector
	<b>3.2</b> – Fiscal instability grows due to reduce FDI inflows or ODA as governments grapple with domestic pandemic measures	Strong evidence of FDI declines, but not of knock-on effects on food security	Monitor long-term impact on sustainability of social protection programmes and food security

**Table 1** Summary of causal mechanisms, evidence and data/evidence gaps (continued)

Pathway	Causal mechanism	Evidence	Data/evidence gaps
<b>Pathway 4</b> Political instability caused by Covid-19 limits government ability to provide social protection or leads to conflict-driven food insecurity	<b>4.1</b> – The uneven economic fallout of the pandemic causes socioeconomic grievances, leading to protests	Evidence of increased protest activity, widespread distrust in governments and increased number of postponed elections, but knock-on effect on food security unclear	More research on the politics of food security and state repression
	<b>4.2</b> – Growing distrust in governments’ handling of the pandemic causes political crises, fragmentation of ruling elites and increasing distrust in governments		
	<b>4.3</b> – Postponement of elections due to mobility restrictions and social distancing guidelines increases likelihood of unpeaceful transitions of power		
<b>Pathway 5</b> Conflict-driven food insecurity increases due to Covid-19	<b>5.1</b> – Mobility restrictions lead to increased conflict over natural resources	Little to no evidence that conflict-driven food insecurity has grown as a result of the pandemic	Monitor evidence that pandemic is leading to increased recruitment opportunities for NSAGs
	<b>5.2</b> – Economic fallout and lack of social protection increase recruitment opportunities for non-state armed groups (NSAGs)		
	<b>5.3</b> – Internal displacement causes increased tensions between migrants and host communities and puts strain on food supply chains		
	<b>5.4–5.5</b> – Domestic pandemic responses divert attention from donor governments and reduce financial aid and humanitarian assistance		

Note: FDI = foreign direct investment; LMIC = low- to middle-income country; ODA = official development assistance.



## Reduced purchasing power

Lockdowns have had an indirect impact on food security due to the loss of jobs and working hours that result from them. People employed in sectors where social distancing is difficult are more likely to be affected by forced closures or restrictions to curb the spread of Covid-19. This may result in a reduction of working hours and, in more severe cases, a permanent loss of jobs. The International Labour Organization (ILO) estimates that, globally, the pandemic has resulted in the loss of 255 million full-time equivalent jobs in 2020 (ILO, 2021).

The loss of jobs and working hours has gone hand in hand with an increase in levels of poverty. It is estimated that an additional 119–124 million people will suffer from extreme poverty (living on less than \$1.90 per day) in 2020, up from 645 million in 2019 (World Bank, 2021). The International Food Policy Research Institute (IFPRI)'s global CGE model estimates that this number could be as high as 140 million (Vos et al., 2020).

This turn of events reverses years of declining poverty rates. Many of those affected will have only recently moved above the poverty line. There is consensus that most 'newly poor' live in South Asia and sub-Saharan Africa (Vos et al., 2020; World Bank, 2021), where people are more likely to work as income earners in the informal services sector, which has been disproportionately affected by social distancing and mobility restrictions (FSIN, 2020). Claims have also been made that 'newly poor' are more likely to be urban (e.g. Nguyen et al., 2020), better educated and less likely to work in agriculture than those already living in extreme poverty (World Bank, 2021). However, evidence so far points towards the variability of effects by location (urban versus rural), time, supply chain and socio-economic group (see e.g. Béné et al., 2021).

We have distinguished three consequences of reduced purchasing power for food affordability: (1) income losses; (2) a drop in remittance flows; and (3) a rise in retail prices for certain foods.

### **Income losses**

Rapid evidence surveys show that although there was a sharp decline in jobs and income at the beginning of the pandemic, it is not clear whether those drops led to increased unaffordability of food. For instance, households in Ethiopia, Malawi, Liberia, Ghana and Burkina Faso reported no significant declines in food security despite citing severe impacts on incomes.

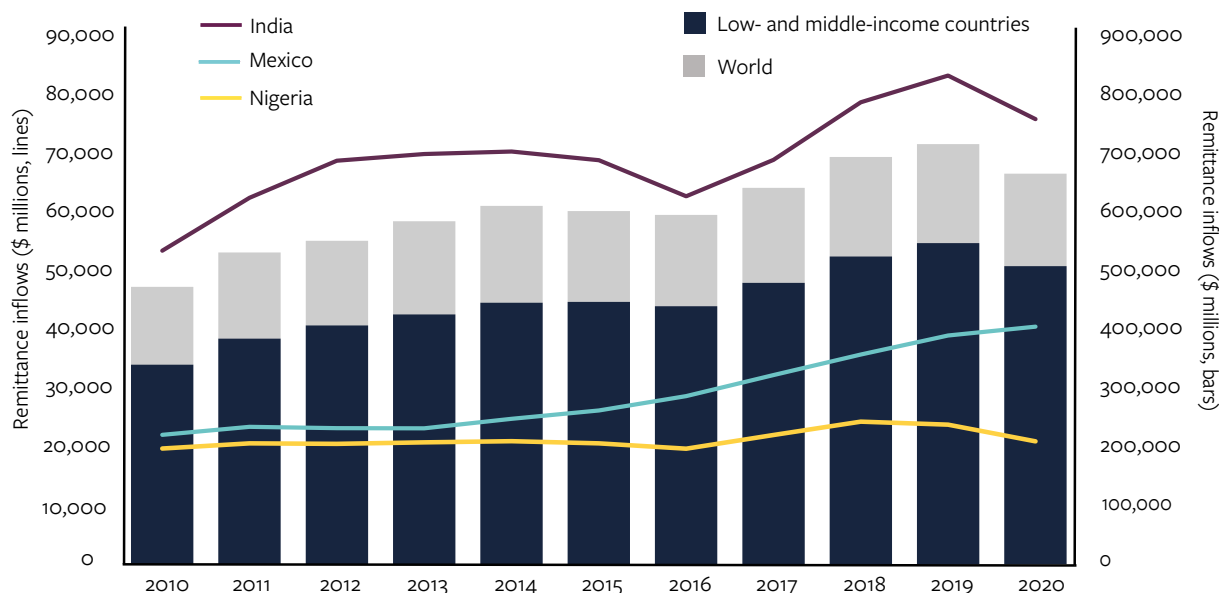
A variety of coping strategies can explain this, including dietary changes away from higher-value foods towards more affordable staples. Reduced non-food consumption, social assistance (including food aid), the sale of assets or the use of savings may also have helped to smooth food consumption despite the loss of jobs and working hours from the pandemic.

Nonetheless, lack of money remains the most important driver of food insecurity in many poor settings (see WFP, 2021). Low-income households, many of whom are already unable to afford enough food, do not have the ability to adopt such coping strategies. Young Lives at Work phone surveys show that the share of young people running out of food in the previous 12 months had increased in Ethiopia, India and Peru.

## Drop in remittance flows

Lost work or income may also result in knock-on effects on the drop in remittances for recipient families, who may be reliant on them to meet their basic needs. Slowdown of economic activities in migrant-hosting countries, especially the United States, European and the Gulf states, led to a decline in remittance flows to low- and middle-income countries by 1.6% (Ratha, 2021). However, this data does not capture informal or domestic (e.g. urban to rural) remittance channels, and even at its most pessimistic suggests that the overall drop will be moderate, settling somewhere between previous 2017 and 2018 levels (Figure 2). Furthermore, in some remittance-dependent economies (e.g. Mexico), the actual drop in remittance flows was below expectations, possibly because cash transfer programmes were extended to migrants in their host countries.

**Figure 2** Resilience of remittance inflows, 2010–2020



Source: KNOMAD (2021)

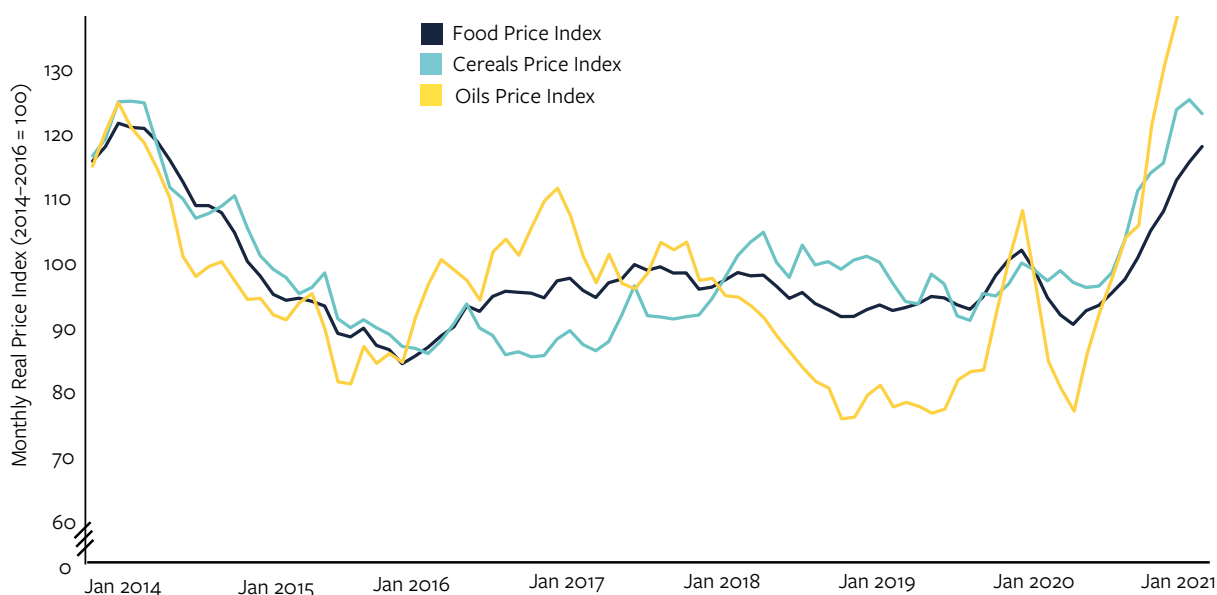
## Rise in local retail prices

There has been no clear pattern regarding the effect of the pandemic on retail prices. Surveys have reported both price increases and decreases for staples as well as costlier foods (such as fresh produce), depending on location, and with variations over time.

These mixed reports may be evidence of price rises occurring where specific value chains are disrupted (Reardon and Swinnen, 2020).<sup>1</sup> Perishable, nutritious and higher-value foods are at greater risk of failing to reach their destination due to mobility restrictions, which not only affects availability but can also result in sudden price increases. Where this is the case, relative price dynamics may facilitate consumption smoothing strategies towards more affordable staple foods.<sup>2</sup>

Local retail prices could also be affected by a creeping rise in international food prices, in part driven by an uneven economic recovery from Covid-19 and disruption to international freight prices.<sup>3</sup> While there is at present no evidence of a systematic increase in food prices, the global FAO Food Price Index has risen for 12 consecutive months and is now at its highest level since 2014 (Figure 3). The Agricultural Market Information System (AMIS) Market Monitor forecasts little chance to rebuild stocks in the next five years, which could make some local food markets susceptible to sudden price spikes, especially if they are deeply integrated with global food markets or if they suffer harvest failures (AMIS, 2021).

**Figure 3** Monthly food, cereals and oils price indices, 2014–2021



Source: FAO Food Price Index

- 1 See Pathway 2.1.
- 2 See Pathway 1.1.
- 3 See Pathways 3.1 and 2.3, respectively.

# Food availability, agricultural production and food supply chains

The impacts of Covid-19 on the upstream food supply chain have been minimal, with production of major food crops (e.g. wheat, rice and maize) remaining above average in 2020 (FAO et al., 2020). However, lingering effects on food production may follow if Covid-19 continues to affect input supply chains, leading to lower yields. Further down the supply chain, massive shifts in food consumption patterns caused by lockdowns have caused some disruption, especially for small- and medium-sized enterprises (SMEs) such as market vendors. However, commentators posit that, all in all, the global food system has coped remarkably well with the pandemic (e.g. Deaton and Deaton, 2020; OECD, 2020; Reardon and Swinnen, 2020).

In addition, some countries restricted the import and export of agricultural products, either as a result of protectionist food security concerns or because of fears that logistics and transportation workers could help spread the virus. Together with an uneven economic recovery from the pandemic, this has led to price hikes for international freight, which could have knock-on effects on food prices.

## Reduced availability of food

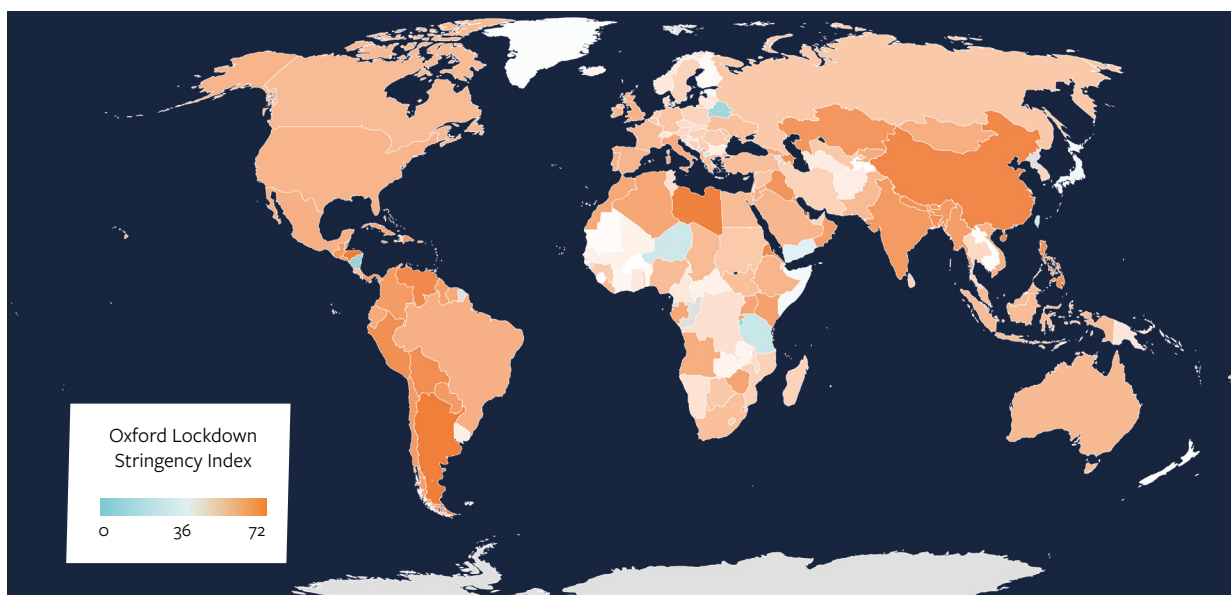
Mobility restrictions and lockdown measures caused a massive shift in food consumption patterns away from food services and wholesale markets towards retail markets. The forced closure of food services and schools could restrict the availability of food for certain populations, especially urban households who do not typically grow their own food, and children who rely on school meals.

However, despite closures, food availability has not been identified as a severe issue because supply chains have shown remarkable resilience (Béné et al., 2021). Evidence suggests that many actors 'buttressed their resilience' by introducing social, technological, financial and e-commerce innovations to continue operating safely (Reardon and Swinnen, 2020). Authorities were also quick to recognise food supply chain workers as essential. In the midstream sector (wholesale, logistics and processing), large-scale enterprises rapidly adjusted to disruptions, building on a track record of managing similar risks (e.g. climate shocks) by changing product composition or using suppliers from different regions. Although physical restrictions to accessing food were widely reported at the beginning of the pandemic, rapid evidence surveys show that food unavailability is now rarely cited as a reason for food insecurity, except in conflict areas.

Further down the supply chain, there is some evidence that SMEs found it more difficult to adjust to mobility restrictions (see e.g. Hirvonen et al., 2021). In China's agri-food sector, 25% of self-employed businesses had permanently shut by May 2020 (Dai et al., 2021). Market vendors have also been forced to close in Malawi and Ethiopia (Béné et al., 2021). Rapid evidence surveys further suggest that non-farm activities in the commercial sector were more disrupted than farming activities.

While data sources such as the Oxford Lockdown Stringency Index (see Figure 4) enable us to estimate the effect of lockdown restrictions on food service closures, the resilience of informal food supply chain actors, and the degree to which they are affected by lockdown restrictions, is poorly understood. These vendors are often the only sources of affordable, convenient or fresh food for hundreds of millions of urban dwellers, but are rarely captured by national statistical systems. The same goes for nomadic or semi-nomadic pastoralists, whose livestock migration routes may not be considered essential parts of the food supply chain.

**Figure 4** Oxford Lockdown Stringency Index (2020 average)



Note: Higher scores in orange indicate more stringent lockdowns. OxCGRT collects publicly available information on 23 indicators of government responses, which are aggregated into a set of four common indices between 1 and 100. The overall index combines the four indices into one score between 1 and 100. Source: OxCGRT (2020)

## Reduced availability of inputs

The impact of the pandemic on fertiliser markets has been multifaceted, including reduced affordability due to loss of remittances or price inflation linked to exchange rate movements, or reduced availability due to trade restrictions. Low fertiliser availability and/or high prices have been an issue in some countries, including Liberia and East Africa.<sup>4</sup>

Related to this is the effect of mobility restrictions on the availability of agricultural labour, especially for labour-intensive food sectors and in certain geographies. Many countries rely

<sup>4</sup> See Pathways 1.2, 2.3 and 3.1, respectively.

on migrant labour for harvesting or in labour-dense processing activities, such as meat and horticultural operations. There has also been evidence that livestock farmers have suffered from a lack of access to feed.

Disruptions to input markets or prolonged labour shortages could diminish next season's crop. While these effects can only be observed over a longer term, farmers are beginning to report lower yields due to rising fertiliser prices in Kenya, Tanzania and Zimbabwe (FAO and WFP, 2020b; CPAN, 2021; IFDC, 2021). However, evidence from rapid evidence phone surveys shows that these effects are muted. For example, data from Nigeria shows that where inorganic fertiliser has been unavailable or unaffordable, it has been replaced by local organic fertiliser. Crop area has also expanded as people have looked for opportunities outside non-farm work, which could fully or partly offset any yield losses.

## Trade restrictions

Protectionist trade restrictions, especially export bans, can put countries dependent on imports at risk of food insecurity. A recent simulation highlighted that import-dependent African countries are least prepared to deal with cereal supply shocks (Udmale et al., 2020). Although the Food Export Restrictions tracker (LaBorde, 2020) shows that no country has currently implemented a ban on food exports, some restrictions (e.g. for trucking) remain in place in a number of African countries, according to the Logistics Cluster (2021).

There have been some efforts (e.g. ECOTIS, 2021) to monitor the impact of restrictions on informal cross-border trade (ICBT), an important channel for agricultural trade in low- and middle-income countries (LMICs). They show severe impacts of restrictions on ICBT, including long delays, protests and heightened tensions over natural resources.<sup>5</sup> This may affect food security in border regions, such as the eastern Democratic Republic of Congo (DRC) (Africa Centre for Strategic Studies, 2021), as well as the livelihoods of people employed in these activities, especially women.

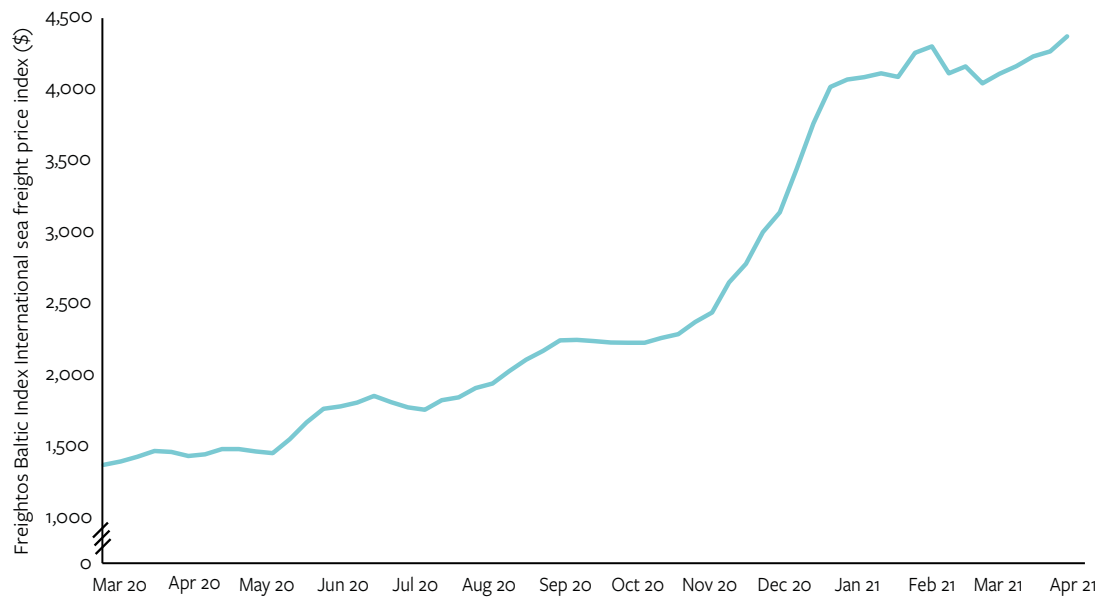
Uneven recovery has led to price hikes for international freight, which could in turn have an impact on retail prices and therefore food security.<sup>6</sup> Strong import demand from China is causing container shortages and a threefold increase in sea freight prices (Figure 5).

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5 See Pathway 4.

6 See Pathway 1.3.

**Figure 5** International sea freight price index, March 2020–April 2021



Data source: FBX (2021)

# Government capacity to provide social protection

To cushion the effects of lost jobs and income, extension of social safety nets has gone hand in hand with the imposition of mobility restrictions to curb the spread of the virus. These include social assistance (direct cash transfers), especially in LMICs, as well as labour market and social insurance programmes in high-income countries (HICs) (Gentilini et al., 2020).

These programmes can be extremely effective in mitigating the impacts of Covid-19 on food security, especially food demand.<sup>7</sup> There is solid evidence that such programmes prevented households from falling into food insecurity, for instance in Ethiopia (Abay et al., 2020). However, if governments cannot afford to keep existing programmes in place or introduce new ones, households on low incomes may suffer food insecurity.

## Macroeconomic risks

Food security may be threatened where governments are unable to extend social safety nets due to the macroeconomic shocks directly or indirectly caused by Covid-19. Alongside the more general effects of the pandemic on the macroeconomic risk (e.g. falling aggregate demand for goods and services), the most important from a food security perspective is related to import dependencies and a sudden drop in remittances. Where economies are dependent on certain commodity exports (e.g. extractives), tourism, or remittance inflows, export earnings and foreign cash reserves may be lost, weakening local currencies and leading to local retail price rises<sup>8</sup> for food and inputs.<sup>9</sup> This is a particular threat to countries that rely on food imports to cover consumption, such as the DRC, Sudan, Syria and Yemen. Furthermore, countries that face the greatest risk of such shocks are often those with the weakest social protection systems, and where many people do not have sufficient financial buffers or individual savings to protect or maintain basic needs. Trackers show an exponential increase in social protection measures since the beginning of the pandemic, suggesting that most countries have not suffered significant macroeconomic risks. However, FSIN (2020; 2021) has estimated that the number of people suffering food insecurity due to economic shocks, including but not exclusively related to Covid-19, has increased from 24 million to 40 million between 2019 and 2020. People in Haiti, Sudan and Zimbabwe are highlighted as being at particular risk, especially if they work in the informal sector unlikely to be covered by social protection programmes.

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7 See Pathway 1.

8 See Pathway 1.3.

9 See Pathway 2.2.



## Fiscal stability

Social protection systems in countries with high levels of debt are at greater risk of failing to maintain support to vulnerable households whose food security is threatened by the pandemic. This is because financial investment flows could drop as governments are preoccupied with their own handling of the economic fallout of Covid-19, threatening host governments' fiscal manoeuvrability.

These investment flows include foreign aid and foreign direct investment. Overseas development assistance reached record levels of \$201 billion in 2020. After an initial focus on public health measures, assistance shifted towards extending social protection. However, the expansion of financing in 2020 for social protection, and aid in general, may not be sustainable in the context of a global recession. Some donors, such as the United Kingdom, have already implemented cuts in their aid budget. Furthermore, recent efforts show a sharp 35% drop of global FDI flows from \$1.53 trillion to \$999 billion (UNCTAD, 2021). Flows between developed economies have been most affected (-58%), but some African (-16%) and Latin American economies (-45%) may find it increasingly difficult to finance generous social protection programmes if trends persist. However, the impact of this on food security is yet to be seen.

## Political risks

The *Pathways report* (FAO and WFP, 2020) identified three channels through which Covid-19 could create conditions for social and political unrest, which we have linked to Pathways 1 and 2:

1. The economic fallout from the pandemic (Pathway 1) could aggravate socioeconomic grievances and therefore social discontent.
2. Dissatisfaction with governments' handling of the pandemic, particularly resistance to mobility restrictions (Pathway 2), may lead to political crises, fragmentation of ruling elites, and distrust in governments.
3. Mobility restrictions (Pathway 2) have also led to (or been used as an excuse for) the postponement of elections, which in turn may lead to protests.

Furthermore, political mismanagement can erode international support and financial trust in governments, worsening debt crises and thereby threatening social protection programmes.<sup>10</sup> This has led to spikes in inflation and currency depreciation in Zimbabwe, Sudan and South Sudan (Africa Center for Strategic Studies, 2021). Similarly, FAO and WFP (2021) has directly linked the political instability in Haiti and Lebanon to the pandemic's effect on foreign exchange reserves, price inflation and subsequent increases in the cost of living (Pathway 3.2). There has also been a heightened risk of election violence. This is due to disruptions to electoral calendars, with at least 78 countries having postponed national or subnational elections or referendums due to Covid-19 (IDEA, 2021). Postponement of elections could increase the potential for political instability, especially in countries that have experienced a rise in socioeconomic grievances or distrust in government as a result of the pandemic. Analysis of ACLED data shows that while demonstrations were initially interrupted as governments introduced movement restrictions, overall demonstration activity has increased relative to 2019 because of the pandemic (Kishi, 2021). According to global subjective data, there is also evidence of widespread distrust in governments and their efforts to tackle the pandemic (NBER, 2020).

Taken together, it has been argued that political instability caused by Covid-19 may be a greater threat to food security than the direct effects of the pandemic on household purchasing power (Pathway 1) and food supply chains (Pathway 2) (Dugué et al., 2021). Political instability not only threatens the ability of governments to provide social protection, (Pathway 3), but in the worst case can lead to conflict-driven food insecurity (Pathway 5). As a result, some authors have argued that more research is needed on the politics of food security and state repression (Herbert and Marquette, 2021). However, at present there is not enough evidence to judge whether this driver of food insecurity has significantly grown as a result of the pandemic.

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<sup>10</sup> See Pathway 3.2.

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# Conflict

Pre-pandemic, conflict and insecurity were the main drivers of food crises (FSIN, 2020), especially in the Middle East, Africa and parts of Asia. FAO and WFP (2020) expect that the pandemic will lead to new outbreaks and further intensification of existing violence and conflict. Countries at particular risk of food insecurity from conflict due to Covid-19 include Afghanistan, Burkina Faso, the Central African Republic, the DRC, Mozambique, Niger, Nigeria, South Sudan and Yemen (FAO and WFP, 2020).

The *Pathways report* identifies five distinct channels through which violence and conflict caused by Covid-19 can have repercussions for food security. First, trade and mobility restrictions aimed at curbing the spread of the virus<sup>11</sup> can disrupt fragile food supply chains and access to natural resources. Resulting violence and conflict could lead to a complete breakdown of food supply chains in affected areas, e.g. the destruction of agricultural land, mills, storage facilities and machinery. For example, FAO has warned of increased tensions between nomadic herders and sedentary farmers in the Sahel due to the closure of borders and restrictions on movement, contributing to an intensification of violence and conflict in the wider region (e.g. FAO, 2020; Refugees International, 2020). Ethiopia and Somalia have also been identified as being at increased risk of exacerbating inter-communal conflicts over resources. However, overall conflict events have declined on aggregate compared to 2019, according to ACLED data (Herbert and Marquette, 2021).

Second, non-state armed groups can take advantage of the situation, recruiting the unemployed<sup>12</sup> or citizens disillusioned with the political system,<sup>13</sup> and leading to a further escalation and entrenchment of violence. There is evidence that the pandemic is changing incentive structures in favour of armed groups and giving NSAGs these opportunities, for instance in Mozambique (Cabo Delgado), or Afghanistan.

Third, neighbouring food markets and systems may also be affected by food security concerns, even if they do not experience violence or conflict themselves. Internal displacement can place additional strain on local food supplies, the scarcity of which may increase tension between refugees and host communities and lead to political instability.<sup>14</sup> Perceptions that the virus is brought by non-nationals may further increase discrimination and social exclusion in such circumstances (FSIN, 2020). However, at present there is only scant, anecdotal evidence of this effect, for instance in Burkina Faso.

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11 See Pathway 2a.

12 See Pathway 1a.

13 See Pathway 4b.

14 See Pathway 4.

Finally, international humanitarian assistance efforts may be disrupted or distracted. Denying access to food is often used as a weapon of war, triggering further violence and instability (FAO et al., 2017). Blockades and embargoes prevent not only local food supply chains from operating, but also humanitarian convoys from reaching those who are vulnerable. In addition, international budgets for assistance are being reduced as a result of the global economic repercussions of the pandemic. At present, there is no evidence that Covid-19 is disrupting humanitarian efforts.

# Recommendations

This review reveals several areas where international donor organisations, governments and research institutes can adapt existing food security monitoring and assessment systems. Based on the evidence, making the following changes would help better anticipate Covid-19-related shocks and deteriorating food security:

## **1. Seek a better understanding of the vulnerability and needs of specific population groups.**

A plethora of mobile phone surveys is underway which is delivering rapid and insightful evidence of the pandemic's effects on food security. However, these surveys are often geographically restricted to a few countries, and can overlook key information needed to better understand the specific vulnerability and needs of different groups. There is mixed evidence of the impact of the pandemic on the food security of women, young people, pastoralists and internally displaced people, suggesting that the effects of the pandemic vary strongly by context. The coverage and generosity of social protection systems undoubtedly play a role in explaining some of these differences.

Existing surveys should therefore be complemented with questions on labour market position and social protection transfers or services. Additional mobile phone surveys should be carried out in countries with large informal sectors or creaking social protection systems. Where sufficient data is available, country-specific CGE models can be used to better understand the impacts of the pandemic across economic sectors and value chains, and therefore the people whose livelihoods depend on them.

## **2. Identify threats and opportunities to the midstream informal sector in food value chains.**

Existing economic forecasts need to improve their assessment of the pandemic's negative impacts on the informal sector, particularly on the people employed in it. Most food security monitoring focuses on farming field activities, specific crops and health outcomes (Barrett, 2020). However, recent literature reviews (Melesse et al., 2020; Veldhuizen et al., 2020; Béné et al., 2021) point out that indicators and metrics in these systems do not sufficiently capture the important role played by the midstream segment, especially in LMICs.

We also need to better understand the capacity of the midstream informal sector – and especially its SMEs – to innovate, improvise and adapt to shocks such as the pandemic. Collecting data from traders, processors, transporters, wholesalers, market vendors and exporters will help to identify where resilience in domestic food supply chains is low, where it needs to be supported, and how prepared it is for future shocks. This includes data on informal remittance channels, as well as informal cross-border trade.

**3. Collect more real-time data on food security and its drivers.** Real-time food security monitoring already covers most of the hotspot countries, but it is often limited to pre-coded and quickly ‘measurable’ data such as self-reported changes in income. Less information is available on the reasons for food insecurity, such as limited availability, security concerns or reduced affordability. The persistent rise in the price of some foods on international commodity prices will also require closer monitoring of local retail price inflation.<sup>15</sup>

To address this, existing monitoring systems should integrate additional data points, which would enhance the ability of governments to respond in a timely and targeted way. Over time, these quantitative data collection efforts will need to be complemented with qualitative studies.

**4. Support further innovation and coordination of food security monitoring systems.** New technologies offer ways of collecting data promptly and at low cost through mobile phones, even for informal food value chains. This can help plug information gaps on food security drivers, the impact of Covid-19 on the informal sector, and other factors such as political risks and trust in governments. It would also help expand the geographic scope of existing real-time food security monitoring systems to countries not traditionally covered, such as Bolivia, Kyrgyzstan, Sudan or Venezuela. There is evidence that some of these countries are disproportionately affected by some of Covid-19’s effects on macroeconomic, political or conflict risks. Efforts should be coordinated to allow for comparison, and should be made open access.

The review also identified four avenues of research not covered by this paper. First, there is some concern that Covid-19 will have a long-term impact on nutrition due to dietary shifts (Béné et al., 2020; Headey and Ruel, 2020). Furthermore, as the pandemic continues to evolve, the emphasis will shift from immediate micro-level effects caused by mobility restrictions, to longer-term societal, political and fiscal effects. This may require additional data on private debt, perceived trust in governments, recruitment efforts by NSAGs or the effect of conflict events on food production capacity and local food supply chains.

Second, the review has largely been focused on LMICs, because this is where food security concerns are most widely felt. However, it should be noted that literature and evidence is emerging on substantial increases in food insecurity in HICs, such as the United States (Niles et al., 2020).

Third, the review was restricted to publicly-available data. While there has been a remarkable increase in data availability as a result of the pandemic, especially for what was previously proprietary freight and logistics data, much of it remains behind closed doors, especially data on economic forecasts and private sources of public debt.

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<sup>15</sup> See Pathways 2.1, 1.3 and 1.1, respectively.

Finally, and most importantly, the review does not consider the impact of exogenous shocks that are not directly related to the pandemic. Chief among these are climate shocks, the likelihood of which continues to grow. The year ahead may prove challenging as key agricultural production seasons are affected by La Niña-induced adverse weather conditions, such as in parts of Eastern and Southern Africa, which in March 2021 were continuing to experience abnormal dryness (FEWS NET, 2021). In addition, humanitarian crises that began before the pandemic continue to unfold, for example in Yemen and Ethiopia. Together with the ongoing impacts of Covid-19, these may cause a ‘perfect storm’ for food security.

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