



Technical annex: summary of data sources, evidence and recommendations

Covid 19 and food security: novel pathways and data collection to improve research and monitoring efforts

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Disclaimer: this annex contains background data to the above paper. The information has been included in the peer review process but has not undergone extensive editing or formatting.

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
Pathway 1 Loss of jobs and income	1.1 Reduced household purchasing power restricts affordability of food, especially in economic sectors disproportionately affected by restrictions aimed at curbing the pandemic or in areas with poor social protection coverage	CARI/VAM surveys and FAO-WFP early warning analyses	<p>VAM Hunger Snapshot dashboards show rising numbers of people with insufficient food consumption in Afghanistan, Angola, Cameroon, C.A.R., Colombia, El Salvador, Ethiopia, Liberia, Nigeria, and Somalia. However, it shows sharp declines (e.g. Benin, Madagascar, Guatemala) or plateauing numbers for others (e.g. Burkina Faso, Chad, Ethiopia). It is not clear how these trends relate to other data points in the survey that could indicate reduced household purchasing power (e.g. livelihood coping strategies or food price inflation). These dashboards also show the number of people facing food insecurity according to IPC, as well as showing the share of people who cite 'lack of money' as a reason for being unable to access food markets.</p> <p>The hunger snapshots show that 'lack of money' is cited as the most common barrier for accessing markets in Angola, Benin, Colombia, Côte d'Ivoire, the D.R.C., El Salvador, Ethiopia, Guatemala, Honduras, Kenya, Liberia, Madagascar, Malawi, Mauritania, Nicaragua, Sierra Leone, Somalia, Syria, Tanzania, Yemen, Zambia in Zimbabwe. Overall, it is the most common answer given ahead of travel restrictions, markets/grocery stores being too far away or security concerns. The snapshots provide data on food-based coping strategies as well.</p> <p>A recent report (FAO and WFP, 2021) of countries at risk of acute food security includes 'economic shocks, including Covid-19 related measures', as a risk factor. This is cited as a risk factor in all countries and regions, except for the Central Sahel (Burkina Faso, Mali and Niger).</p>	<ul style="list-style-type: none"> • Rapid evidence data is not always consistent between countries and time periods, making it difficult to analyse results. Presenting data as a trend series rather than as a snapshot would help monitor effects of Covid-19. IGC's Sierra Leone dashboard is a good example of this. • It is not always clear what the drivers of food insecurity are. Surveys should be updated to collect additional data on causes, distinguishing clearly between those that are related to reduced income and employment as a result of the pandemic. Income-related drivers should be clearly distinguished from price inflation or reduced accessibility (e.g. due to market closures). • Beyond simple urban/rural divides, further disaggregation of data by socioeconomic and demographic group would help understand varying impact by context. This is especially important for low-income households who cannot adopt coping strategies

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		CPAN Covid-19 Poverty Monitor	<p>CPAN provides an overview of key economic areas of concern. Although the country reports are structured in different ways, they generally cover economic disruption to businesses (e.g. market closures), loss of employment or discretionary spending and coping strategies. For some countries, these are split by sector (e.g. casual day labourers, agriculture, etc.).</p> <p>As an example, the reports show that market closures have resulted in lost income and employment, especially for small and micro-businesses in Ethiopia, the Philippines, Zambia, Malawi and Nepal. There are also reports of lost income for farmers and casual day labourers in Ethiopia or Nepal.</p>	<ul style="list-style-type: none"> • Include more direct food consumption data in high-frequency surveys, such as WFP's Food Consumption Score (Hirvonen et al., 2021; Lainsharad and Vishwanath, 2021)
		IFPRI Covid-19 Poverty Impact Dashboard	<p>IFPRI's Covid-19 Impacts on Global Poverty Dashboard estimates that the number of people falling into extreme poverty will increase by 147.5 million people over the next year due to Covid-19, a rise of 19.8%. Over half (79.4 million) live in sub-Saharan Africa. Rural populations of South Asia are also heavily affected (34.6 million).</p>	
		ILO Monitor: FTE jobs and working hours lost	<p>The ILO estimates that 2020 saw an 8.8% loss of working hours, equivalent to 255 million full-time jobs. These were concentrated in Latin America and the Caribbean, Southern Europe and Southern Asia. 144 million jobs were lost relative to 2019, with relative losses higher for women than men, and for young workers than for older workers. Global incomes are estimated to have declined by 8.3%. 2021 projections show continued losses of working hours by 1.3-4.6% (36-130 million FTE).</p>	
		IMF Economic Outlook*	<p>IMF's latest economic outlook projects that the global economy contracted by 3.3% of GDP in 2020, but that it will grow by 6% in 2021 and 4.4% in 2022. Latin America and</p>	

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		<p><u>IPC</u> 'convergence-of-data' methods, including those provided in FSIN (2020; 2021)</p>	<p>Europe took the biggest hit in 2020 (-7% and -6.6%, respectively).</p> <p>IPC estimates show that 155 million people suffered food crises (IPC/CH Phase 3 or above) in 2020, an increase of around 20 million people from 2019. Economic shocks, including from Covid-19, became the primary driver for over 40 million, up from 24 million in 2019. Haiti, Sudan and Zimbabwe were particularly affected, as are people in the informal sector, where limited social protection programmes exist to buffer the impact of income shocks (FSIN, 2020; 2021).</p>	
		<p><u>World Bank</u> LSMS high-frequency phone surveys</p>	<p>The surveys report the effects of the pandemic on employment status (e.g. working/stopped working by sector), occupational mobility, source of household income (e.g. wage, family, non-farm, remittances, social assistance), family business status (e.g. temporarily closed) and family business revenue (e.g. less than last month). The data is available over time and split between urban/rural respondents, as well as by sector. The surveys also provide reasons why people are not working (e.g. seasonality, business closure due to Covid-19 restrictions, illness, etc.) and whether they are unable to buy certain staple foods because of a decrease in regular income (e.g. in Ethiopia). In some countries (e.g. Malawi), there is also a question about the perceived threat to household finances posed by Covid-19.</p> <p>For most countries, the data reports a sharp drop in employment and income followed by a gradual recovery. However, the detailed results are more nuanced and it is difficult to draw cross-country conclusions. In some countries, income losses were greater in urban than in rural</p>	

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			<p>areas, and employment levels still lag behind in towns and cities compared to rural populations. Agricultural employment has generally gone up, while the commerce sector (i.e. non-farm work) has been hardest hit in terms of business closures and reduced employment.</p> <p>This economic data could be combined with severe and moderate food insecurity indices (Food Insecurity Experience Scale: FIES) collected as part of the survey. However, in practice it is difficult because the structure, timing and the results of the surveys are inconsistent with each other.</p>	
		<p>Young Lives at Work Covid-19 Phone Surveys</p>	<p>Provides telephone survey results of the pandemic's effects, including employment and food security, in Ethiopia, India (Andhra Pradesh and Telangana), Peru and Vietnam. The results show that employment levels have returned to pre-pandemic figures, with some shifts towards self-employment and agricultural jobs. However, the share of young people reporting that they had run out of food in the previous 12 months increased in Ethiopia, India and Peru.</p>	
		<p>Other</p>	<p>Declines in food consumption observed in Nigeria (Amare et al., 2020), Mexico (Gaitán-Rossi et al., 2020) or Brazil (Manfrinato et al., 2020), but it is unclear what the drivers are. A recent panel survey shows that food insecurity rose for households affected by lockdowns due to reductions in non-farm wages (Amare et al., 2020).</p> <p>Evidence of 'consumption smoothing', and that consumers have changed their diets by consuming more staples and fewer legumes, vegetables, fruits and animal source foods (e.g. Hirvonen et al., 2021; Harris et al., 2020).</p>	

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			<p>IGC provides country dashboards for Kenya and Sierra Leone, including real-time data on food security indicators by district. These can be displayed over time, as current averages or using maps, which helps monitor the effects. Overall, evidence review by Béné et al. (2021) cites loss or reduction of consumer income as a source of food insecurity in 44% of documents reviewed. However, also evidence that food security remained stable despite severe income losses (e.g. Aggarwal et al., 2020; de Brauw et al., 2020; Dugué et al., 2021; Hirvonen et al., 2021).</p>	
	<p>1.2 Drop in remittances due to loss of jobs and reduction of working hours in developed countries and developing cities. This affects Global South–North and urban–rural flows of capital, with further knock-on effects on input affordability and therefore on food supply.</p>	<p>World Bank Migration and Remittances Data, including RemitSCOPE</p> <p>World Bank LSMS high-frequency phone surveys*</p>	<p>Latest estimates show that remittances to low- and middle-income countries (LMICs) declined by 1.6% between 2019 and 2020, dropping from \$548 to \$540 billion. This has, in part, been helped by cash transfer and employment support programmes in migrant-hosting countries being extended to foreign-born persons (Ratha, 2021).</p> <p>There are regional variances, especially for remittances from oil-dependent countries which declined more than those from non-oil dependent ones. This led to big declines in flows of remittances from Russia and the Gulf Countries to countries in Europe (e.g. Bulgaria, Lithuania, Hungary) and parts of the Middle East (e.g. Lebanon, Jordan). Countries such as Mexico, Pakistan or Bangladesh enjoyed continued growth in the inflow of remittances as social protection programmes were extended to their foreign workers in host countries such as the US (Pathway 3) or the UK and EU.</p> <p>Under sources of income, respondents can report on whether they have needed to draw on remittances from abroad or from within the country. Although results are very</p>	<ul style="list-style-type: none"> • In-country remittances appear to have played an important role cushioning the economic effects of the pandemic in some countries (e.g. Ethiopia according to the World Bank high-frequency phone surveys). This may be important to understand the coping mechanisms of rural, farming households to the pandemic. • Data gaps exist for informal remittance channels, including hand-carrying from returning migrants and the use of unregulated digital money transfer services. These are significant in South-South corridors, which official figures are likely to

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		<p>CPAN Covid-19 Poverty Monitor</p> <hr/> <p>Other</p>	<p>mixed, there has generally been a slight reduction in the percentage of households receiving remittances, especially in urban areas (e.g. in Ethiopia).</p> <p>CPAN provides an overview of the effect of lost remittances, including qualitative case studies. For example, elderly were more affected by the loss of remittances in Zambia, while households in the Philippines reported the return of international workers as a result of the pandemic. In Nepal, no disruption to remittance inflows was reported.</p> <p>In Yemen, Elsabbagh et al. (2021) estimate that the falloff in remittances led to an 11% decline in rural household income, which could affect affordability of inputs and therefore of crop yields in mid- to long-term.</p>	<p>underreport by as much as 50 percent (World Bank, 2011).¹</p>
	<p>1.3 Food retail price rises due to fall in demand for goods (primary commodities) and services (tourism), as well as border closures or suspension of markets</p>	<p>FEWS NET: Global Price Watch</p> <hr/> <p>IFPRI Global Price Watch</p> <hr/> <p>IFPRI/GATE Food Price Media Analysis System</p> <hr/> <p>FAO Food Price Index, GIEWS FPMA, Daily Food Prices Monitor and Food</p>	<p>Prices in parts of West Africa remain above-average due to inflation and elevated transport costs (e.g. Nigeria). Spikes have also been reported due to atypical demand increases as traders and institutions replenish stocks after lockdowns (e.g. Niger). International staple food markets are well supplied, but price increases have been reported for rice, maize, wheat and soybean due to firm demand.</p> <p>Volatility has been reported for maize and cotton prices.</p> <p>Media reports suggest there is a very mixed evidence of price rises and declines for rice, wheat and soybean.</p> <p>The FAO Food Price Index (FFPI) has continued to rise unabated and for 12 months in a row. It is above 30 percent above what it was at this time last year. Price rises have been highest for vegetable oil (over 100%) and sugar</p>	<ul style="list-style-type: none"> • It is not yet clear how the continued increase of international prices will affect local price inflation in some countries. This will need monitoring. • Local food retail prices need to distinguish between staples and high-value foods to assess a) how food choices are evolving, and b) where certain value chains are being disrupted.

¹ The World Bank’s Global Knowledge Program on Migration and Development (KNOMAD) has already launched a Working Group on Improving Data on Remittances in response to the major lags and limited granularity of existing data that was exposed by the COVID-19 crisis.

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		<p>Price Monitoring Analysis (FPMA) Bulletins</p>	<p>(60%) but have also increased for cereals and dairy products. However, the latest FPMA bulletin shows that international prices for cereals (e.g. maize, barley, rice) declined in March to reflect excellent cereal production expectations. Meat prices have remained relatively stable.</p> <p>Domestic price warnings are being reported for Argentina and Zimbabwe (food items), Brazil (cereals), Kyrgyzstan and Tajikistan (wheat flour), Nigeria (coarse grains), South Sudan and Sudan (staple foods). Some of these have been Covid-19 related, caused by supply chain disruptions (Sudan and South Sudan) or sudden upsurges in consumer demand due to lockdown restrictions (Tajikistan and Kyrgyzstan).</p>	
		<p>WFP/mVAM Global Food Prices Database, also available via humdata</p>	<p>Food market price rises of:</p> <ul style="list-style-type: none"> • 80–100% in Sudan, Syria and Lebanon • 60–80% in South Sudan, Ethiopia and the Philippines • 40–60% in Somalia, Chad, Mexico, Zambia, Pakistan, Turkey, Nigeria and Cameroon • 20–40% in Peru, Djibouti, D.R.C., Mozambique, Burkina Faso, Mali, the Dominican Republic, Afghanistan, Yemen, Colombia and Niger. 	
		<p>World Bank LSMS high-frequency phone surveys</p>	<p>Under coping strategies, the survey includes some questions on exposure to selected shocks, including increase in prices of food items consumed. This is cited as the most common shock in many of the countries covered, e.g. Uganda or Nigeria. 'Increase in price' is also given as a reason for being unable to buy certain items (incl. staple foods), especially in some countries (e.g. Burkina Faso).</p>	

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		Other	<p>Price declines have been reported for staples in Myanmar (Goeb et al., 2020) and Malawi (Aggarwal et al., 2020), while many products in Liberia (Aggarwal et al., 2020) and Ethiopia (Hirvonen et al., 2020) suffered declines.</p> <p>CPAN has a section covering increased costs of basic items and food. It reports costlier foods, especially fresh produce but also of staple foods, in Kenya, Nepal and Rwanda. Price rises, including for staple cereals, have also been reported in Ethiopia, Yemen, Haiti, South Sudan, Sudan and Zimbabwe.</p>	
Pathway 2 Mobility restrictions and social distancing measures disrupt food access, production and supply chains	2.1 Reduced availability of certain foods due to food supply chain disruptions	<p>ACAPS Covid-19 Government Measures Dataset</p> <p>IFPRI Covid-19 Policy Response (CPR) Portal</p> <p>Google C-19 Community Mobility Reports</p>	<p>As a share of total measures implemented, social distancing interventions were common in Europe, Africa and the Middle East. Movement restrictions were more common in the Middle East, and least common in Europe.</p> <p>Of the 33 countries covered by the tracker, Uganda (155), Rwanda (140) and Sri Lanka (108) had the most policies in place for restricting population movement. These included bans on public gatherings, curfews, home quarantine, closure of schools and religious institutions or travel bans.</p> <p>Provides data and reports on mobility trends for: retail and recreation (e.g. restaurants, cafes, shopping centres), supermarkets, public transport or workplaces in 135 countries around the world. For some countries, data is also provided at subnational level.</p>	<ul style="list-style-type: none"> The role of informal actors in the food supply chain, especially in emerging markets, is still poorly understood. The quantitative data suggests that respondents were able to overcome physical restrictions to accessing food quite quickly. However, it is not understood exactly how the enforcement of lockdowns affected the operations of informal actors throughout the pandemic. Qualitative evidence could help shed light on this. Lockdown stringency data can be used to estimate the severity of mobility restrictions and therefore their impact on the availability of

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		OxCGRT Lockdown Stringency Index*	Provides a regularly updated stringency index over the period of the pandemic. The index consists of several sub-indices that are grouped into different types of measures, including restrictions on gatherings, stay at home requirements, restrictions on internal movement and international travel controls.	food. However, they do not necessarily capture adherence to or enforcement of those rules, especially in informal food supply chains. Combining this data with subjective data on trust in formal institutions may help overcome this issue, along with the supplemental use of qualitative data.
		CARI/VAM surveys and FAO-WFP early warning analyses	VAM Hunger Snapshot dashboards report number of households facing challenges accessing markets/ grocery stores, e.g. due to closures or travel restrictions. These restrictions are cited as an important challenge in 11 of the 35 countries covered: C.A.R., Chad, Colombia, Congo, Guatemala, Guinea, Haiti, Honduras, Iraq, Mozambique and Nigeria.	
		World Bank WGI Government Effectiveness*	Provides aggregate and individual governance indicators for over 200 countries over the period 1996-2019. The data can be used to judge the effectiveness and adherence to social distancing measures and other mobility restrictions that affect access to food.	
		World Bank LSMS high-frequency phone surveys	There are three sections of the survey that can help monitor supply chain disruptions: <ul style="list-style-type: none"> - For households that own non-farm businesses, the survey asks about challenges associated with operating the business. Examples include difficulty selling goods/services to customers or buying/receiving supplies. - For farming or livestock-keeping households, there are questions that ask whether they are able to sell their outputs, e.g. on local markets - For food consuming households, the surveys have a section on access to basic needs, including 	

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			<p>staple food items. Asked whether they are unable to buy staple foods, households can give reasons such as local markets not operating, limited/no transportation, or that shops have run out of stocks.</p> <p>Given the inconsistent design of the survey over time and between countries, it is difficult to draw conclusions from the data. However, it appears that non-farm activities were more disrupted than farming activities. At a household-level, physical restrictions to accessing food were more common at the beginning of the crisis, but were quickly replaced by economic restrictions (e.g. reduced household purchasing power, increasing prices). However, the results vary by country and time period.</p>	
		Other (qualitative)	<p>Evidence suggests that labour-intensive, small and medium-sized enterprises (SMEs) in urban areas were hit harder, threatening the food security of households in those areas who do not typically grow their own food (Reardon et al., 2020; F et al., 2021). In China, multiplier models and SME surveys show that employment in the agri-food sector has dropped and that enterprises have closed as a result of initial lockdowns (Zhang et al., 2020; Dai et al., 2021). 98% of market vendors closed or reduced business hours in Ethiopia, and 25% did so in Malawi (Béné et al., 2021).</p> <p>In Senegal, a study of food supply chains showed varied effects of Covid-19 on fresh fruits and vegetables (FFV). While smaller FFV actors in traditional, domestic supply chains saw disruptions to their supplies of labour and inputs (leading to reductions in area), larger export-oriented</p>	

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			companies did not have to reduce production (Fabry et al., 2021).	
	2.2 Rising input prices due to loss of remittances or trade and mobility restrictions leads to negative effect on coping strategies, especially for smallholder farmers	<p>AfricaFertilizer Covid-19 Africa Fertilizer Watch</p> <p>CARI/VAM surveys and WFP analyses</p> <p>CPAN Covid-19 Poverty Monitor</p>	<p>At present (May 2021), there was no shortage of fertilizer reported in West, East or Southern Africa. Fertilizer is treated as an essential product in most countries. In earlier stages of the pandemic, moderate impacts (<25% price increases) were being reported for Kenya and Tanzania according to the Africa Fertilizer Watch, in addition to low fertilizer availability in Liberia.</p> <p>VAM Hunger Snapshot dashboards report households' livelihood coping strategies, including whether they have reduced non-food expenses or consumed seed stocks. This could be used as a proxy for input affordability in some countries.</p> <p>FAO and WFP (2020b) have highlighted Zimbabwe, where more than half of farmers face difficulties accessing seeds due to high prices and unavailability in local markets, linked to shortages in foreign currency which hampers the import of agricultural inputs.</p> <p>CPAN poverty monitors have a section of fertiliser costs and availability (under food security), which are reporting challenges in accessing agricultural inputs such as fertiliser and seeds in Ethiopia, Nepal and Zambia. In Zambia, there have been delays to the Ministry of Agriculture's Fertiliser and Inputs Support Programme (FISP), which may affect yields. In Kenya, some effects of limited fertiliser use in the earlier stages of the pandemic (see previous updates of monitor) are being felt. Most rural households in Vihiga reported lower yields and the need to purchase food beyond their typical requirements due to rising fertiliser prices.</p>	<ul style="list-style-type: none"> There is generally little evidence of any major effects on crop production. Where inorganic fertiliser availability has been an issue, organic fertiliser has been used instead. However, current monitoring efforts should be maintained to monitor longer-term effects, especially in countries dependent on imports and suffering weak local currencies.

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		<p>World Bank LSMS high-frequency phone surveys</p>	<p>The surveys cover a range of questions on farming and livestock production activity. For instance, many farming households have expanded their production activities since the beginning of the pandemic. Livestock-keeping households have been more constrained, given lack of access to inputs such as feed, as well as lack of access to markets for selling their produce.</p> <p>They also provide data on input availability and use, further distinguishing between organic and inorganic fertilizer, paid labour or herbicides/pesticides. The use of inorganic fertiliser has generally gone up, while the use of inorganic fertiliser has gone down. For example, in Nigeria the share of crop farming households using organic fertiliser has more than doubled from 29% to 60% between 2018/19 and 2020/21. This may be due to limited access or affordability of inorganic fertilisers, as 72% of farming households that needed it were unable to access it according to the July 2020 update.</p> <p>Surveys also capture the effect of the pandemic on planting activities, showing whether farming households have expanded or contracted area. This could be combined with data on input access to show whether disruptions are having an effect on production.</p>	
		Other (qualitative)	<p>In India, agricultural input suppliers reported losing up to 75% of their business due to transport and contact restrictions preventing farmers from visiting their shops to buy inputs (Nandi et al., 2021).</p>	

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			In Colombia, shortages caused urea fertilizer prices to jump by 9.1% between March and April 2020 (Burkart et al., 2020).	
	2.3 Trade restrictions, including freight price hikes and livestock restrictions, lead to food supply chain disruptions	Agility Freight Capacities and Updates	Provides updates of airport, port, domestic trucking and customs operations and capacities in over 60 countries around the world. As of May 2021, a global map of capacity showed that road freight network capacities are largely available, but that constraints exist for air and sea freight capacity in much of East, South and Southeast Asia.	<ul style="list-style-type: none"> Since official trade statistics are often slow to be published and they do not capture ICBT, informal trade will require further monitoring. Existing initiatives are restricted to parts of East and West Africa and therefore need expanding to other regions where ICBT is common. This is linked to the limited understanding of the role of informal actors in the food supply chain of emerging markets.
		ECO ICBT FSNWG	The statistics suggest that informal trade of food increased from 752,000 to 1,230,837 tonnes between 2019/20 and 2020/21. Meanwhile, the informal trade of animals more than doubled from 505,975 to 1,110,575 tonnes over the same period.	
		FAO Data Lab Covid-19 tool	As of May 2021, access to the media scraper of supply chain disruptions (e.g. due to travel restrictions) is unavailable.	
		Freightos Container Index	Provides cost of container freight between certain destinations, as well as a global index: Freightos Baltic Index (FBX). Throughout the pandemic, the FBX has risen from ~\$1,500 to over \$5,000, and it is still rising. This was largely driven by routes out of China/East Asia, but recent rises have also occurred between North America and Europe. Price rises have partly been due to a lack of containers.	
		IFPRI Covid-19 Food Trade Policy Tracker	Provides map of food export restrictions, as well as its impact on imported calories elsewhere. As of May 2021, there were no more active export restrictions in place.	

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		IFPRI Covid-19 Policy Response Portal (CPR) Logistics Cluster UN IOM Human Mobility Impacts Other (qualitative)	<p>Provides overview of changes to trade policy, including import/export bans and import/export waivers in 33 emerging economies.</p> <p>Provides global cargo entry point updates for air, sea and road cargo, as well as travel and customs status.</p> <p>Snapshots and trends of global travel restrictions. The data captures whether airports, blue borders and land borders are fully operational, partially operational or closed.</p> <p>Reports of long delays, protests and other disruptions according to informal cross-border trade (ICBT) trackers such as FARM-TRAC.</p> <p>Although no export bans are in place, trade restrictions are in place for several African countries. Uncertainty over export duties on Russian wheat and Indonesian palm oil also appear to be having an effect on recent food price increases according to recent AMIS reports.</p>	
Pathway 3 Government capacity for social protection	3.1 Macro-economic risks such as lost export earnings from falling demand for goods and services causes currency depreciation, preventing countries from scaling up social protection programmes or importing food	Social Progress Index (SPI)* CPAN Covid-19 Poverty Monitor mVAM Currency Changes & Hotspots	<p>SPI captures 50 social and environmental indicators to create a picture of people's daily life, including nutrition, medical care, water, shelter or access to education.</p> <p>CPAN provides overview of programmes in place to mitigate impoverishment due to Covid-19. For example, Zambia provided a one-off cash transfer of \$107 and a mobile phone, whereas none of the respondents surveyed in Malawi had received any Covid-19 relief support. The reports also provide an overview of coping strategies, including drawing from savings, borrowing, using support networks or migration (e.g. in Kenya).</p> <p>Reports two measures of currency changes: (i) year-on-year depreciation of LCU against the USD greater than</p>	<ul style="list-style-type: none"> While Ugo Gentilini provides excellent, regularly updated data on social protection measures, scope exists to link these to the economic impacts of the pandemic on certain groups and sectors (Pathways 1 and 2), including the coverage of informal sector and migrant workers. Country-level Computable General Equilibrium (CGE) models would more accurately reflect Covid-19's impact on governments' fiscal space to manoeuvre via a range of

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			<p>25%; (ii) year-on-year <i>acceleration</i> of LCU against the USD greater than 10%. As of May 2021, Syria, Sudan and Suriname met both conditions. Venezuela, Zimbabwe, Ethiopia and Argentina met the first condition, and several other countries are on high alert: e.g. Libya, Tajikistan or Myanmar.</p> <p>mVAM country hunger snapshots also report headline and food inflation for most countries covered.</p> <p>IPC also estimates that 155 million people suffered food crises (IPC/CH Phase 3 or above) in 2020, an increase of around 20 million people from 2019. Economic shocks, including from Covid-19, became the primary driver for over 40 million, up from 24 million in 2019. Haiti, Sudan and Zimbabwe were particularly affected, as are people in the informal sector, where limited social protection programmes exist to buffer the impact of income shocks (FSIN, 2020; 2021; Feyertag et al., 2021).</p>	<p>mechanisms, including exchange rates, interest rates, lower tax intakes, food and other imports.</p> <ul style="list-style-type: none"> • Better understanding of social protection's coverage of the informal sector is required, as it is not only more likely to be affected by Covid-19 and associated macroeconomic shocks (see Pathway 2), but also includes vulnerable groups such as women, youth, elderly or IDPs. Over two billion people around the world work in informal sector (ILO, 2021).
		World Bank: Ugo Gentilini*	Shows exponential growth in social protection measures between March 2020 and May 2021, with a total of 3,333 measures planned or implemented in 222 countries. Cash transfers remain the premier instrument among social assistance measures, and have been implemented in 186 countries. Most social protection measures are provided as social assistance, especially in high income countries.	
		World Bank LSMS high-frequency phone surveys	<p>The surveys capture coverage of social assistance programmes (including cash or in-kind food transfers), in some cases even by sub-region in countries (e.g. Uganda).</p> <p>The surveys also ask about sources of income or social assistance over time, showing changes to inflows from</p>	

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			<p>different sources of social assistance (e.g. government, NGO, international organisations) or remittances. Again, there are no obvious or consistent patterns between countries, but in general the uptake of international and NGO social assistance has increased throughout the pandemic (e.g. in Burkina Faso).</p> <p>Data is also available on coping strategies, including reduced food or non-food consumption, assistance from family, remittances, drawing on savings or increasing borrowing. Loan uptake (which has generally gone up), the source of loans (which is dominated by family/friends) and purpose of loans (which has shifted from capital expenditure to consumption-oriented loans).</p>	
		OECD Policy Tracker	Provides overview of policy measures around the world, including fiscal and monetary initiatives as well as employment and social initiatives.	
		IMF C-19 Policy Response Tracker	Provides a regularly-updated overview of key policy responses in three areas: (i) fiscal; (ii) monetary and macro-financial, and; (iii) exchange rate and balance of payments. The tracker covers 197 countries.	
		IFPRI Covid-19 Policy Response Portal (CPR)	Provides overview and regular updates of social protection policies, business policies and farm policies in 33 emerging economies.	
		African Policy Monitor	This provides an excellent overview of fiscal and monetary policy responses in Africa. It captures overall volume of fiscal stimulus packages (US\$ and % of GDP) and monetary policy measures (policy rates), distinguishing between different types of policies (including food aid).	
		Other (qualitative)	The Democratic Republic of Congo (DRC), Sudan, Syria and Yemen have been identified as countries that rely	

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
			<p>strongly on food imports to cover consumption, and are therefore at greater risk from macroeconomic shocks (FSIN, 2020).</p> <p>Tonga, Haiti, Lebanon, South Sudan, Honduras, Lesotho and Yemen are highly reliant on remittance inflows to support foreign currency reserves.</p> <p>As oil prices have recovered, so too have the fortunes of many economies relying on oil and gas that were identified as vulnerable at the beginning of the pandemic (see e.g. FAO and WFP, 2020a).</p>	
	<p>3.2 Fiscal stability: Global economic impact disproportionately affects countries with high public debt, restricting capacity to protect food insecure</p>	<p>Credit rating agency scores (e.g. Fitch*, Moody's, S&P, DBRS)</p> <hr/> <p>World Bank: International Debt Statistics*</p> <hr/> <p>IFPRI Covid-19 Policy Response Portal (CPR)</p> <hr/> <p>UNCTAD World Investment Reports</p>	<p>Several financial internet platforms offer updated credit ratings for government debt, which can be used to gauge the creditworthiness of countries. E.g. Trading Economics</p> <hr/> <p>Provides annual data on net financial flows, including debt and equity. Debt statistics cover both long- and short-term inflows, as well as distinguishing between public and private creditors. Net equity flows distinguish between foreign direct investment and portfolio equity. In addition, data on reserves and workers' remittances are provided.</p> <hr/> <p>Provides updates to monetary and financial policies around the world, including deferred loan repayments, debt restructuring or interest rate changes.</p> <hr/> <p>Global FDI flows have dropped 35% from \$1.53 trillion to just under \$1 trillion. Most of this has occurred between developed economies (-58%), with Europe's inflows most affected (-80%). However, there were also strong declines to Latin America and the Caribbean (-45%) and transition economies (-58%). The only region to record rising FDI inflows was Asia (+4%).</p>	<ul style="list-style-type: none"> • There is only opaque public debt data available, especially from private lenders, Chinese lenders and at subnational level (e.g. in India or Mexico). • The long-term impact of reduce FDI inflows on social protection programmes and food security needs to be monitored.

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
		Other (qualitative)	<p>Upcoming ODI research shows that although ODA reached record levels of US\$201 billion in 2020, there is evidence that aid is going to be cut in 2021 or refocused on vaccine rollout. This may threaten the coverage and generosity of social protection systems, especially in LMICs.</p> <p>Evidence from Ethiopia shows that participation in the Productive Safety Net Program (PSNP) offsets nearly all the adverse effects of Covid-19. Food insecurity increased 11.7 percentage points among non-PSNP households compared to 2.4 percentage points for PSNP households between August 2019 and June 2020 (Abay et al., 2020).</p>	
<p>Pathway 4 Political risks</p>	<p>4.1 Aggravation of core socioeconomic grievances, social discontent and fragmentation</p>	<p>Political risk scores (e.g. Coface, Bertelsmann BTI, Credendo)*</p>	<p>Coface (2021) country risk assessments show the highest risk score (E) for Burundi, Eritrea, Libya, Sudan, Zimbabwe, Cuba, Venezuela, Afghanistan, North Korea, Iran, Iraq, Syria and Yemen.</p> <p>BTI shows several dimensions of political mistrust:</p> <ul style="list-style-type: none"> • Democracy status: shows 63 autocracies (42 of which are hard-line), 13 highly defective democracies and 44 defective democracies. The trend shows that the democracy status is deteriorating in 11 countries. • Governance Index shows that the quality of governance has failed in 15 countries and is weak in a further 31. The trend score suggests that the quality of governance is deteriorating in 13 countries. • Level of Difficulty score highlights 10 countries that face massive structural constraints on governance performance, and a further 37 facing substantial constraints. 	<ul style="list-style-type: none"> • It is not always clear whether the political instability that causes food insecurity is linked to Covid-19. However, it is likely that Covid-19 will lead to greater food insecurity due to its effects on political instability, and Herbert and Marquette (2021) have argued that more research on the politics of food security and state repression is needed. • A local perspective will always be needed to analyse and understand social and political dynamics within a country or subregion, and connect them to Covid-19. Qualitative reports from local NGOs and independent media outlets can provide that perspective. There have also

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
		<p>FAO-WFP early warning analysis of acute food insecurity hotspots</p> <p>Armed Conflict Location & Event Data Project (ACLED)*</p>	<p>Credendo shows several dimensions of political risk:</p> <ul style="list-style-type: none"> • Short-term political risks are at their highest level (7) in 19 countries • Long-term political risks are at their highest level (7) in a 42 countries • Political violence risk is at its highest level (7) in 8 countries (Afghanistan, C.A.R., Libya, Palestine, Somalia, South Sudan, Syria, Yemen) <p>These analyses (e.g. FAO-WFP, 2021) list 'political instability/unrest' as a risk factor affecting food insecurity. In the latest update, it is listed as a risk factor in Haiti, Lebanon and Somalia. The instability in Haiti and Lebanon appears to be directly linked to the effect of the virus on foreign exchange reserves and price inflation, and therefore on the cost of living as well as the ability of governments to implement social protection programmes. The instability in Somalia surrounds upcoming elections (see Pathway 4.3).</p> <p>Analysis of ACLED data shows that while demonstrations were initially interrupted as governments introduced lockdowns and movement restrictions (e.g. in India or Chile), protests eventually resurged. This initially took the form of direct responses to government management of the pandemic (e.g. access to protective equipment in Mexico, financial support in Japan, etc.). They eventually evolved into a continuation of social movements that had begun prior to the crisis, with previously held grievances exacerbated as a result of the pandemic's economic fallout and government (mis)management (e.g. Peru, Argentina). Some new demonstration movements emerged altogether, such as in Lebanon. The combined result is that</p>	<p>been a number of 'media scrapers' (e.g. FAO Data Lab) that have been developed to provide oversight of social discontent and fragmentation during the pandemic. However, it may be difficult to filter dis- and misinformation without having a perspective from the ground.</p> <ul style="list-style-type: none"> • Political risk scores (e.g. those used by RAPID-FS) can complement existing food security monitoring systems to take into account any increase in political risk as a result of Covid-19. Risk scores are however prone to subjectivity (especially regarding the risk-averseness of an agency), so average figures should be used where possible. Subnational risk scores can also help link political risk closer to food security, for instance if countries depend on certain provinces for food supply and/or transport.

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
	<p>4.2 Aggravation of existing political crises, increased fragmentation within ruling elites, and distrust in governments' handling of the pandemic</p>	<p>World Bank LSMS high-frequency phone surveys</p>	<p>demonstrations actually increased in 2020 compared to the previous year <i>because</i> of the pandemic (Kishi, 2021).</p> <p>The surveys cover a wide range of topics relating to trust in governments' handling of the pandemic. Examples include whether respondents are concerned that elites and authorities might misuse money allocated for the pandemic response, whether they intend to comply with government directives, or whether the thought that the government sufficiently met their needs.</p> <p>This shows erosion of trust in governments around the world. For example, regular surveys from Kenya show that the share of population that considers the Government to be trustworthy in handling the coronavirus crisis fluctuates between 50 and 80%, although political stability (and therefore food security) has remained stable.</p>	<ul style="list-style-type: none"> • Subjective data on trust in governments or adherence to lockdown restrictions (Pathway 2) could improve the predictive power of food security forecasting systems under Covid-19, particularly those that consider political risk a factor.

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
		Subjective data, e.g. from Gallup or NBER.	<p>NBER collected subjective data from over 110,000 respondents in over 170 countries as part of the Global Behaviours and Perceptions at the Onset of the Covid-19 Pandemic dataset. This shows widespread distrust in governments and their efforts to tackle the pandemic. On average, around 27% of people strongly distrust and another 17% somewhat distrust their government's ability to take care of its citizens.</p> <p>Gallup last collected data capturing people's trust in government immediately before the begin of the pandemic. However, the new data should be published soon and shed light on whether trust has been further eroded as a result of Covid-19.</p>	
		Armed Conflict Location & Event Data Project (ACLED)*	<p>Analysing ACLED, Kishi (2021) argues that overall, state repression has increased around the world. Democratic backsliding has resulted from some power holders introduced a wide range of new restrictions, bolstering their position and consolidating their authority. Examples include Uganda and West Africa (e.g. Guinea), Latin America (e.g. Venezuela, Bolivia) or North Africa (e.g. Egypt, Algeria). Others selectively enforced legislation or restrictions as a means to stifle opposition and to limit any challenge to power.</p> <p>Since January 2020, ACLED data shows over 1,000 reports of strategic developments taking place around the world, including politically motivated arrests, security</p>	

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
			measures and political recruitments have taken place. These peaked in March and April 2020.	
		ICNL Covid-19 Civic Freedom Tracker	Provides tracker that monitors government responses to the pandemic that affect civic freedoms and human rights, focussing on emergency laws. It distinguishes between measures that affect expression, assembly and privacy.	
		Other (qualitative)	Herbert and Marquette (2021) have urged more research on the politics of food security and state repression, highlighting how the military has suppressed hunger strikes in some countries (e.g. Chile or Honduras).	
	4.3 Covid-19 restrictions have delayed elections/referendums, increasing risk of unpeaceful transitions of power in 2021	Institute for Democracy and Electoral Assistance (IDEA) FAO-WFP early warning analysis of acute food insecurity hotspots	At least 78 countries having postponed national or subnational elections or referendums due to Covid-19 (IDEA, 2021). FAO-WFP (e.g. FAO-WFP, 2021) warn of food insecurity hotspots caused by political instability and unrest as a result of upcoming elections. In its recent forecast, it warns of food insecurity as a result of instability surrounding the upcoming elections in Somalia. Initially scheduled for January and February 2021, there has until been disagreement about when these should be carried out.	<ul style="list-style-type: none"> Maintain current monitoring efforts.
		Armed Conflict Location & Event Data Project (ACLED)*	Since January 2020, ACLED data shows over 43,000 reports of protests taking place around the world. These peaked in May 2020 but have remained high ever since. On average, 3% of these protests have been unpeaceful.	
		Other (qualitative)	Herbert and Marquette (2021) argue that there are too few data points to say anything conclusive about the	

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
			<p>pandemic's effect on unpeaceful transitions. However, there is cause for concern and more evidence is clearly needed (Birch et al., 2020). Where elections have been held despite Covid-19 (e.g. Togo, Guinea), they have likely involved a lower turnout, restricted campaigning and rallies, and less media scrutiny (de Bruijne and Bisson, 2020). Where countries have postponed elections (e.g. Ethiopia, Sri Lanka), there are concerns over looming constitutional crises.</p>	
<p>Pathway 5 Conflict dynamics</p>	<p>5.1 Trade and mobility restrictions disrupt access to natural resources, aggravating existing grievances</p>	<p>Armed Conflict Location & Event Data Project (ACLED)*</p> <p>ACCORD Covid-19 Conflict & Resilience Monitor</p>	<p>Conflict events have declined on aggregate compared to 2019, but political violence has increased in more countries than it decreased, exacerbating long-simmering tensions. Most conflicts have continued, with ceasefires called as a result of Covid-19 in Yemen, the Philippines or Ukraine were swiftly ignored. Violence in Somalia, India (Jammu) or Pakistan (Kashmir) has also continued. In some countries and regions, violence has increased, partly as a result of the pandemic changing incentive structures in favour of armed groups (see Pathway 5.2).</p> <p>Provides weekly analyses of how Covid-19 is affecting conflict on the African continent.</p>	<ul style="list-style-type: none"> The ACLED data is a pioneering tool for monitoring conflict dynamics, but there is potentially to link it more closely to food security indicators. For example, it could record incidents where food production capacity has been destroyed. Geospatial layers showing food production zones or livestock herding routes can also be added to highlight where conflict is likely to disrupt local food supply chains.

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
		<p>CARI/VAM surveys and FAO-WFP early warning analyses</p>	<p>Hunger Snapshots report whether market access (i.e. number of households reporting challenges accessing markets/grocery stores) is being disrupted by security concerns. Security concerns are cited as the most important barrier in Afghanistan, Cameroon, C.A.R., Mali, Niger and Nigeria.</p> <p>Early warning analyses by FAO-WFP (see e.g. FAO-WFP, 2021) shows countries and regions where conflict or insecurity is a risk factor affecting food insecurity. It is listed as a risk factor in Afghanistan, C.A.R., Central Sahel (Burkina Faso, Mali and Niger), D.R.C. Ethiopia, Mozambique, Sudan, South Sudan, Syria and Yemen.</p> <p>It is not always clear whether conflict or insecurity is a direct result of the pandemic. However, FAO (2020) has warned that the increased tensions between nomadic herders and sedentary farmers in the Sahel Region is at least in part due to mobility restrictions imposed to combat the pandemic. Ethiopia and Somalia have also been identified as being at increased risk of exacerbating inter-communal conflicts over resources, driven by atypical migrations in these areas (WFP & FAO, 2020).</p>	<ul style="list-style-type: none"> Herbert and Marquette (2021) suggest there is urgent need for research on the impact of Covid-19 on food security, particularly in areas where unrest related to Covid-19 is already a concern. This can help inform more conflict-sensitive food security responses.

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
		Other (qualitative)	<p>Bell et al. (2020) use an expert survey of 21 countries to show that while Covid-19 is not causing conflict, evidence so far suggests that it is exacerbating existing conflict fault lines and threats to peace processes in some locations. This is due to reduced conflict oversight and diverted attention to Covid-19-related issues, worsening economic conditions putting donor funds under threat, military withdrawal and strategic 'gaming' for conflict-related purposes. They also point to the difficulty of moving peace talks online or over the phone, since it limits the personal interaction required for successful negotiation and mediation processes.</p> <p>Herbert and Marquette (2021) use broader literature that suggests acute food insecurity cannot just increase, but also reduce conflict behaviour by reducing the capacity of militants to fight, or by limiting political participation as attention focuses on survival.</p>	

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
	<p>5.2 Non-state armed groups (NSAGs) take advantage of more permissive security environment to intensify operations and increase control, while capacity by governments and international coalitions to respond is reduced. High unemployment and political discontent attracts more people to illegal economies and NSAGs associated with them.</p>	<p>Armed Conflict Location & Event Data Project (ACLED)*</p> <p>Herbert and Marquette (2021)</p> <p>Ide (2020)</p> <p>Desmidt and Neat (2020)</p>	<p>Using ACLED data, Kishi (2021) argues that violence increased as armed groups seized the opportunity to ramp up their activity while state forces were preoccupied with the pandemic. In some cases, NSAGs tried to buy support of local populations, e.g. by handing out food. This has resulted in increased violence in some areas: e.g. Mozambique (Cabo Delgado), Pakistan/India, Turkey/Syria/Iraq, Myanmar or Israel/Palestine. On aggregate, violence has increased on the African Continent, e.g. in Mali and the Sahel, Libya</p> <p>The report highlights a number of cases where uncivil non-state actors, such as armed groups or organised crime gangs, appear to be gaining 'soft power' by filling gaps in state provision. For example, there is evidence that NSAGs are providing food, services and security to communities during lockdowns in Afghanistan, Myanmar and Colombia. However, evidence on this so far is limited, often highly context-specific and inconclusive. The authors argue that the data (e.g. ACLED) does not provide evidence that increases in political violence and of armed groups capitalising on the Covid-19 crisis are caused or exacerbated by Covid-19.</p> <p>Combines ACLED data from January to April 2020 to show that Covid-19 had differential impacts on conflict in 9 countries. In 3 of them, the author notes that temporary decreases in armed conflict were due to strategic decisions by armed groups to account for (Covid-19 related) impeded logistics and increase their popular support.</p> <p>In an analysis of 9 countries, Desmidt and Neat (2020) demonstrate that armed conflict increased in 5 countries and decreased in 3. Where such events increased, they were due NSAGs manipulating the pandemic for</p>	<ul style="list-style-type: none"> There is evidence that the pandemic is leading to increased recruitment opportunities for NSAGs, which will require further monitoring using both quantitative and qualitative data.

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
		WFP updates	<p>propaganda support. Examples include the Taliban in Afghanistan, the Barisan Revolusi Nasional (BRN) in Thailand, and the Ejército de Liberación Nacional (ELN) in Colombia. However, for Africa they argue that emerging evidence does not show conclusively that the pandemic has led to a widespread increase of conflict across fragile and conflict affected region.</p> <ul style="list-style-type: none"> • Mali is experiencing an increase in armed violence, depriving vulnerable communities of essential services. • Burkina Faso is experiencing recurrent fights between armed groups, in part driven by high levels of food insecurity, which in turn exacerbates vulnerabilities. • In Mozambique, non-state armed groups retain control of strategic locations in Cabo Delgado, which has experienced some of the highest Covid-19 infection rates and is suffering an alarming increase in IS-affiliated insurgency attacks. The number of IDPs has tripled since the start of the Covid-19 pandemic. 	
		Other (qualitative)	<ul style="list-style-type: none"> • There has been an upsurge in armed conflict activity in the Sahel region, displacing 3.3 million people and pushing them into acute food insecurity in Burkina Faso alone (UN Security Council, 2020) • Blanc and Brown (2020) argue that although the pandemic did not affect hostilities in Yemen, the Houthi movement used the pandemic as a recruitment opportunity. • In Chad, a report by UNICEF (2021) shows that 60% of children are separated or unaccompanied, exposing them to the risk of recruitment into armed forces and exploitation. 	

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
			<ul style="list-style-type: none"> • Covid-19-related troop withdrawal may have opened up opportunities for increased rebel activity in various locations (Mehrl and Thurner, 2020). For example, in Iraq some communities have looked favourably on armed groups and security actors that supported them during Covid-19, including jihadist groups such as ISIS, the Taliban and al-Qaeda (Phillips, 2020). • An expert survey of 100 security practitioners suggests that terrorists appear to have made limited practical gains from their Covid-19 activities in the Indo-Pacific region (Mullins, 2020). 	
	5.3 Discrimination against certain ethnic or religious groups blamed for transmitting virus	Herbert and Marquette (2021)	Although there is mixed evidence on whether Covid-19 is exacerbating fissures in social cohesion in conflict settings, it is widely considered a risk factor with heightened stigmatisation and scapegoating, tensions over access to resources and power, as well as strains on economic development and food security. However, there have also been examples of civil society organisations (CSOs) mobilising to provide food to migrant workers in China, Iraq, Malaysia, Thailand or the UK.	<ul style="list-style-type: none"> • At present, there is no compelling evidence to show that Covid-19 is increasing food security as a result of stigma or discrimination against groups blamed for transmitting the virus.
		Other (qualitative)	According to UNHCR, there are reports of armed groups targeting Malian refugees in Burkina Faso. The World Bank has argued that food security caused by the pandemic could spur broader migration pressures that could be a source of conflict (World Bank, 2020c).	
	5.4-5.5 Demands of pandemic divert international attention and	Africa Watch African Policy Monitor	The monitor has a section on financial support that has been announced to Africa from major development partners, ranging from the IMF (\$26,608 million) to USAID (\$61 million). It also splits IMF and World Bank funding by	

Pathway	Covid-19 effects	Data resources	Summary of evidence and/or description	Recommendations
	resources away from conflict prevention and mediation, reshaping stakeholder engagement.	<p>Covid-19 Financial Assistance and Debt Service Relief</p> <p>Other (qualitative)</p>	<p>country and project, and has a separate table for philanthropic and corporate giving (e.g. by the Bill & Melinda Gates Foundation, Jack Ma, Al Mada or the Elma Group of Foundations).</p> <p>The IMF provides an overview of countries receiving assistance and debt service relief.</p> <p>Bell et al. (2020) argue that the pandemic has, in some cases, diverted attention to Covid-19, reduced conflict oversight and put donor funds under threat. This has led to military withdrawal in some areas and increases in violence in others.</p>	

* indicates that the data source is used by RAPID-FS

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