



Impacts of the Covid-19 Pandemic and Associated Policy Responses on Food Systems in Sub-Saharan Africa

A SYNTHESIS OF EVIDENCE

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Executive Summary

The Covid-19 pandemic, inclusive of associated policy responses, has affected food systems in sub-Saharan Africa (SSA) through numerous avenues. As of late 2020, the most striking impacts are felt through the policies aimed at preventing the spread of the virus through restrictions on movement and economic activity. These include, *inter alia*, directives to remain at home with exceptions made for limited essential activities; social distancing requirements in public spaces including markets and public transportation; the closure of markets and workplaces where social distancing cannot be ensured; the closure or heightened security of borders and inter-state roads; and the closure of schools. Governments in SSA have also introduced some social protection policies to mitigate the harm caused by the Covid-19 pandemic, including food assistance, cash transfers, and tax postponements. In addition to these policy responses, the Covid-19 pandemic has affected food systems in SSA through a global recession, which has shifted international demand for agricultural products and broadly reduced the flow of international remittances.

Commentary and analyses regarding the impacts of the Covid-19 pandemic on SSA food systems have proliferated since early 2020. Yet no broad evidence synthesis has been undertaken to unpack the complex impacts of the crisis, particularly with respect to domestic food value chains, regional/international food trade, and food and nutrition security. This report applies a systematic literature review methodology to comprehensively survey the evidence on this topic. In September – November 2020, a literature search was conducted to identify studies that met pre-specified inclusion criteria for this evidence synthesis, including the requirement that studies evaluate the impact of the Covid-19 pandemic on food systems or food security in SSA and that they be based on empirical data. A total of 57 studies were found to meet these criteria. It should be emphasized that although this report endeavours to be comprehensive at the time of writing, the literature on this topic will surely grow over the coming months.

The existing evidence comes largely from the grey literature (75%), which is generally non-peer reviewed and hence not fully vetted by experts. However, grey literature has the distinct advantage of being available more quickly to guide policy discourse, which is critical during a crisis requiring rapid policy response. These trade-offs warrant consideration of processes to make high-quality, peer-reviewed research available more quickly to respond to future fast-moving crises.

Most of the studies reviewed in this synthesis use quantitative methods (86%), and among these, most are *ex post* analyses, though some are *ex ante* models of national economies. Across the 57 studies, about three quarters (74%) of the policies that are discussed relate to restrictions on populations, often in the form of stay-at-home decrees/lockdowns, market closures, and national mandates for social distancing. It is far less common to find attention given to policies that aim to protect food supply, bolster food production, or stimulate employment and/or the economy. Nevertheless, many SSA governments have sought to protect food systems through nuanced policies that place limits on most parts of the economy but carve out exceptions for the agri-food sector. In this body of literature, the measured impacts of the Covid-19 pandemic are overwhelmingly negative, spanning declines in agricultural production and farmer incomes; declines in the income of other actors throughout the food value chain, such as food vendors; and declines in food security among consumers.

Within domestic food value chains, the studies included in this synthesis reveal impacts on input supply—with some evidence of decreased supply and increased prices, at least partly due to trade restrictions—and domestic agricultural production. Such disruptions were observed particularly in places where small-scale farms were not considered to be “essential”, thus impeding farmers’ access to their fields. The literature also documents impacts on transport, with movement restrictions making it difficult for farmers, transporters, and processors to move agricultural inputs to farmers and agricultural outputs to the market. In addition, the informal food sector has been singled out by policy responses to the Covid-19 pandemic, as several SSA countries enforced closures of informal and open-air (“wet”) markets based on relatively high perceived risks, such as high density and an inability

to reduce crowding. Such policies necessarily affect the livelihoods of informal food vendors and retailers and restrict consumers' options for acquiring food.

In terms of regional and international food trade, the most noticeable impact has come through temporary bans and restrictions on exports and through road and border closures. However, pervasive impacts are also felt through additional inspections at the border, reduced hours of operation for trading, and increased transport costs. Logically, these bans and restrictions should have resulted in higher marketing costs, lower prices received by farmers, and/or higher prices paid by consumers, though empirical evidence is as yet too sparse to discern the magnitude and incidence of these outcomes. Several studies document a sharp decline in regional trade between neighbouring countries, with roadblocks and checkpoints particularly affecting value chains of perishable products, such as fruits, vegetables, and dairy, which cannot withstand an extended delay *en route*. The contraction in regional trade necessarily affects the livelihoods of informal cross-border traders, a large majority of whom are women and youth.

Covid-19-related restrictions on economic activity have especially affected the demand side of food markets in SSA. The studies included in this evidence synthesis show some stability in the availability of staple foods, though perishable items have been less available to consumers. However, of the three facets of food access (economic, physical, and social), all have been negatively affected by the Covid-19 pandemic and its associated policy responses. Consumers have experienced diminished *economic access* through lost income, reduced remittances, and higher food retail prices; they experienced reduced *physical access* with the closure of (particularly informal) markets and restrictions on public transportation; and they experienced reduced *social access* because social networks and informal safety nets have been disrupted in such a widespread shock. There is also evidence that households in SSA have responded to the pandemic by shifting their consumption from more expensive and nutritious foods toward staple foods, which are a poor source of micronutrients.

Policies that restrict movement or economic activity in response to Covid-19 have been far more common in SSA than policies aimed at economic support and social protection. It is possible that most SSA governments simply do not have the fiscal latitude to offer economic support. Even in countries in which the government sought to provide social protection, this evidence synthesis shows that few people received assistance. The main challenges associated with social protection policies seem to be limited funding and poor timing of delivery. However, three out of the 57 studies in this synthesis demonstrate that social protection initiatives, such as lump sum cash transfers or continuous income support, can have a positive impact on food security, health, and conflict outcomes during the Covid-19 pandemic.

The pandemic has revealed both strengths and weaknesses of food value chains in SSA. One lesson gleaned from this study is the critical role of informal markets in the food security of (primarily but not only) the urban poor. The policy reflex to close or restrict informal markets has been detrimental to market vendors and consumers, and this underscores how these markets are (in normal times) nodes of food value chain resilience. With respect to restrictions on mobility and transport, horticulture and other perishable products stand out as being vulnerable to such measures. This suggests an urgent need for cold storage systems to make the value chains of perishable products more resilient to disruptions. To the extent that SSA food systems are reliant on global food value chains, the region is vulnerable to external shocks. However, a more robust system of intra-Africa trade would render SSA more resilient in the face of global shocks.

This report concludes with a set of policy recommendations drawn from the evidence synthesis. For example, policy makers should acknowledge the importance of informal markets and, during a public health crisis like the Covid-19 pandemic, should find better ways to engage with those whose livelihoods and food access depend on such markets. In the event of another such crisis, it is imperative to support the continuous functioning of local food markets; to improve their sanitary conditions; to collaborate constructively with market leadership and trader associations to build capacity to adhere to social distancing guidelines; and to be patient as markets and shopkeepers adjust. In addition, policy attention to secure and strengthen food value chains in the Covid-19 era should be directed to actors beyond “farm” and “plate”, including input suppliers/transporters and food

transporters, processors, traders, and retailers. Even when it is necessary to restrict movement in order to reduce the spread of the virus, it is imperative that food value chains continue to function (albeit with safeguards, such as the distribution of personal protective equipment to reduce the risk of spreading disease). Finally, policy commitments to strengthen intra-Africa trade, building on the momentum of the African Continental Free Trade Area (AfCFTA), are essential to make SSA food systems more resilient to current or future shocks.

1. Introduction

The Covid-19 pandemic arrived on the world stage in early 2020 and, as of the time of this writing, shows little sign of abating. Thus far, countries in sub-Saharan Africa (SSA) have mostly evaded an intense, direct public health effect of Covid-19, and this is indeed something to celebrate. However, the Covid-19 pandemic, inclusive of the associated policy responses,¹⁰ has affected food systems in SSA through numerous other avenues. The pandemic triggered a global recession, which in turn has negatively affected international supply and demand for some agricultural imports and exports and broadly reduced the flow of international remittances into lower-income countries. In addition, within SSA, policies have been adopted to prevent contagion or provide social protection. Restrictions on movement and economic activity vary across countries and span the closure of borders, directives to remain at home with exceptions made for limited essential activities, social distancing requirements in public spaces including markets and public transportation, and the closure of schools. Social protection policies implemented by governments and multilateral organizations to mitigate the harm caused by the Covid-19 pandemic include, among others, income support and food assistance. Such policies have myriad effects on actors throughout the food system, including producers, traders, transporters, processors, wholesalers, retailers, and consumers.

Commentary and analyses regarding the impacts of the Covid-19 pandemic and associated policy responses in SSA have proliferated over the past year. Yet no broad evidence synthesis has been undertaken to unpack the complex impacts of the crisis, particularly with respect to domestic food value chains, regional/international food trade, and food and nutrition security (Porciello et al., 2020). This report applies a systematic literature review methodology to comprehensively survey the evidence on this topic. The objectives of this report are to:

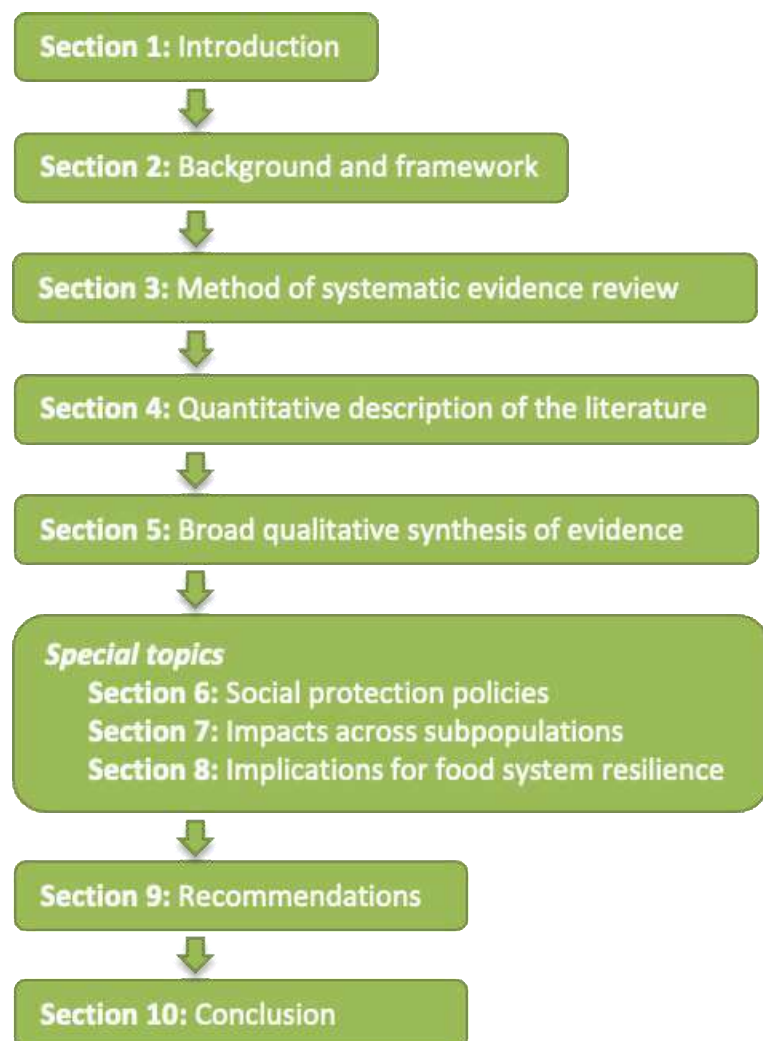
- Provide a synthesis of the impacts of the Covid-19 pandemic (inclusive of associated policy responses) on domestic food value chains, regional/international food trade, and food and nutrition security in SSA.
- Synthesize evidence of the gendered impacts of the Covid-19 pandemic on food system actors and assess the implications of the crisis for food system resilience.
- Identify what has been effective among the various measures put in place to address the impacts of the pandemic (to the extent that this is captured in the evidence base).
- Identify gaps in what is known on this topic.
- Provide policy recommendations to strengthen domestic food value chains, address regional/international food trade bottlenecks, and improve food security during and after the Covid-19 pandemic.

It bears emphasizing that this report does not cover the health aspects of Covid-19, such as morbidity among workers or patterns of virus transmission associated with trade or migration. Rather, the focus is on the indirect avenues through which the pandemic has affected food systems and food security.

¹⁰ These policy responses include those undertaken by governments and by international organizations.

The remainder of this report is structured as follows (Figure 1). A summary of policy responses to the Covid-19 pandemic is provided in section 2, along with a framework for understanding the multifaceted impacts of this shock. Section 3 lays out the method used to gather evidence on the impacts of Covid-19 on food systems in SSA. A quantitative description of the literature is provided in section 4, while a broad qualitative synthesis of the evidence is found in section 5. Sections 6 through 8 then delve into a few themes relevant to the above research objectives in greater detail. Section 6 discusses social protection policies, section 7 discusses the impacts of Covid-19 across different subpopulations, and section 8 discusses the implications of the crisis for food system resilience. Section 9 includes recommendations for both policy makers and analysts, and section 10 concludes.

Figure 1. Report structure



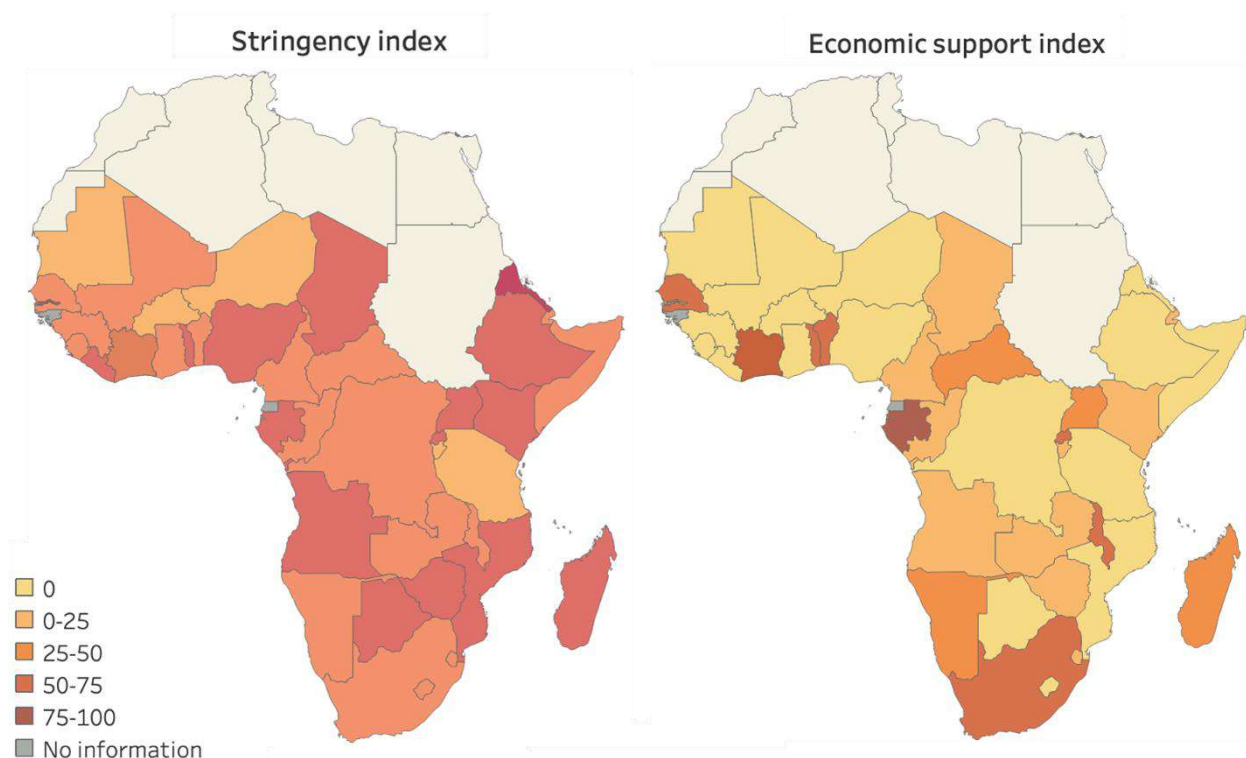
2. Background and Conceptual Framework

As noted in section 1, numerous measures have been introduced in SSA in response to the Covid-19 pandemic to control the spread of the virus and, less commonly, to offer social protection to those harmed by the public health measures and the associated economic contraction. Public health policy responses aiming to flatten the Covid-19 curve range from the imposition of curfews to discourage physical/social interactions in the evening hours, to barriers to domestic travel, public transportation restrictions, and limitations on working hours. Such policies also include the closure of schools, “non-essential” businesses, open-air food markets, supermarkets, other shops, restaurants, and street food vending. The severity of these policy measures (both *de facto* and *de jure*) and the length of time over which they have been enforced vary from country to country and across regions and municipalities within countries.

The Oxford Covid-19 Government Response Tracker (OxCGRT) gathers information on policy responses from many countries in the world, including 44 of the 48 countries in SSA (Hale et al., 2020). This information has been used to create a composite measure of the ‘strictness’ of government policies to control the pandemic. For SSA, these are mapped in Figure 2, showing moderate dispersion in the extent to which governments responded to the public health emergency with efforts to combat the spread of the virus. Several of the indicators that comprise the Government Response Stringency Index are depicted in Figure 3, revealing that almost every country in SSA (except for Burundi, Cameroon, Malawi, and Tanzania) introduced some level of restrictions on internal movement. Note that these are not inclusive of recommendations, but rather connote mandatory limits on internal movement. Somewhat fewer SSA countries introduced stay-at-home (or “shelter-in-place”) requirements. These could be less strict (making exceptions for daily exercise, grocery shopping, and other “essential” trips) or stricter (with more limited exceptions for one household member at a time or one trip per week). It was less common for SSA countries to close public transport, though some countries avoided closures by reducing the volume of public transport via social distancing requirements.

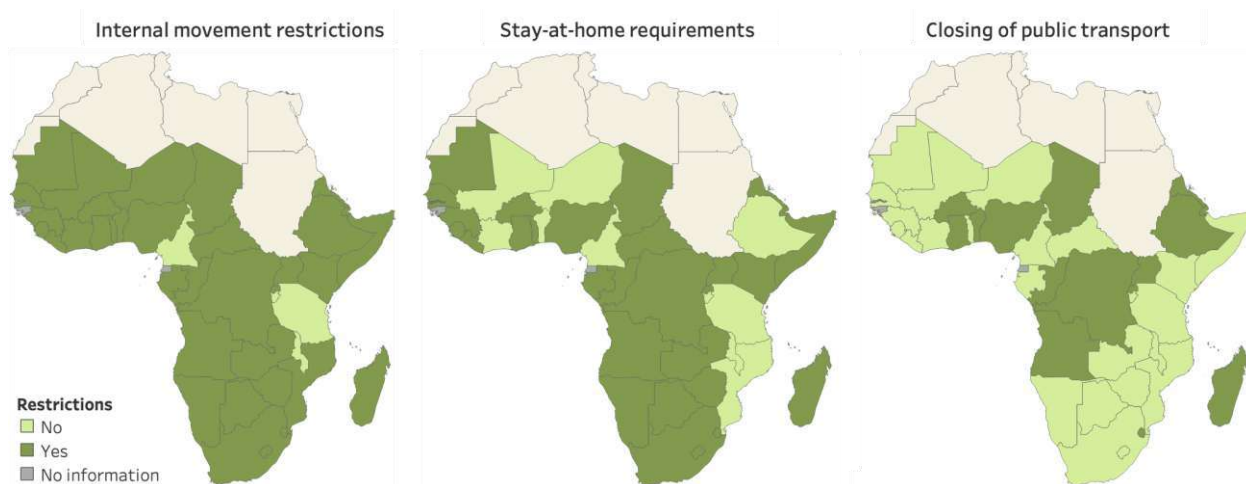
Information collected in the OxCGRT is also used to create a measure of economic support intended to lessen the hardships experienced due to the Covid-19 pandemic (Figure 2). These index values tend to be much lower than the index of government stringency, with 18 countries having a value of 0 (indicating no economic support offered whatsoever). Several countries stand out in terms of offering more support at the national level, including Gabon, Senegal, South Africa, and Togo. Some indicators that comprise the Economic Support Index are depicted in Figure 4, revealing that few countries have been able to offer actual income support. However, it is more common for countries to offer debt/contract relief to households: for example, when the government continues to provide services such as water, electricity, and public housing regardless of whether the customer keeps up with payments. Information on Covid-19-related policies for a selection of countries is also collected in the IFPRI Covid-19 Policy Response Portal (IFPRI, 2020). Figure 4 focuses on welfare-related farm policies, welfare-related business policies, import waivers, and social protection policies, broadly defined—all intended to alleviate the economic pain of the Covid-19 crisis. Across 13 SSA countries, the most common of these policies are around food aid, cash transfers, and support for businesses (including financial and in-kind support and VAT waivers). For example, Kenya has used an existing cash transfer program to increase payments to those affected by the pandemic (GAIN, 2020), and in Ghana, the government covered the cost of water supply to all Ghanaians from April to June 2020 (Asante & Mills, 2020). Six of the 13 SSA countries waived the duties on imports to compensate for the burden of stricter border clearance protocols.

Figure 2. Government Response Stringency Index (left) and Economic Support Index (right) across SSA



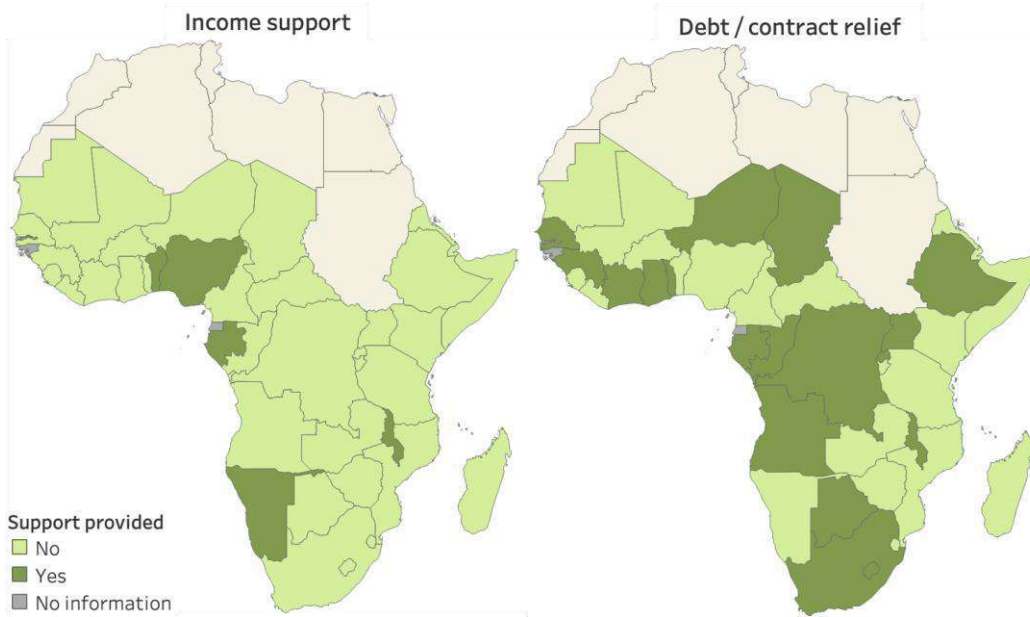
Source: Oxford Covid-19 Government Response Tracker (OxCGRT), as of November 9, 2020; Maps created by authors. Note: These indices are scaled to range from 0 to 100 (stringency index: 0 = least strict, 100 = strictest; economic support index: 0 = least support, 100 = greatest support). Information on the construction of these indices can be found in Hale et al. (2020). The delineation of sub-Saharan Africa in this report conforms to the model used by the United Nations Statistics Division (UN 2020b). South Sudan, which is considered part of SSA and covered by OxCGRT, is not depicted in this map because an updated shapefile of Africa was not available.

Figure 3. Indicators of Covid-19-related public health policies across SSA



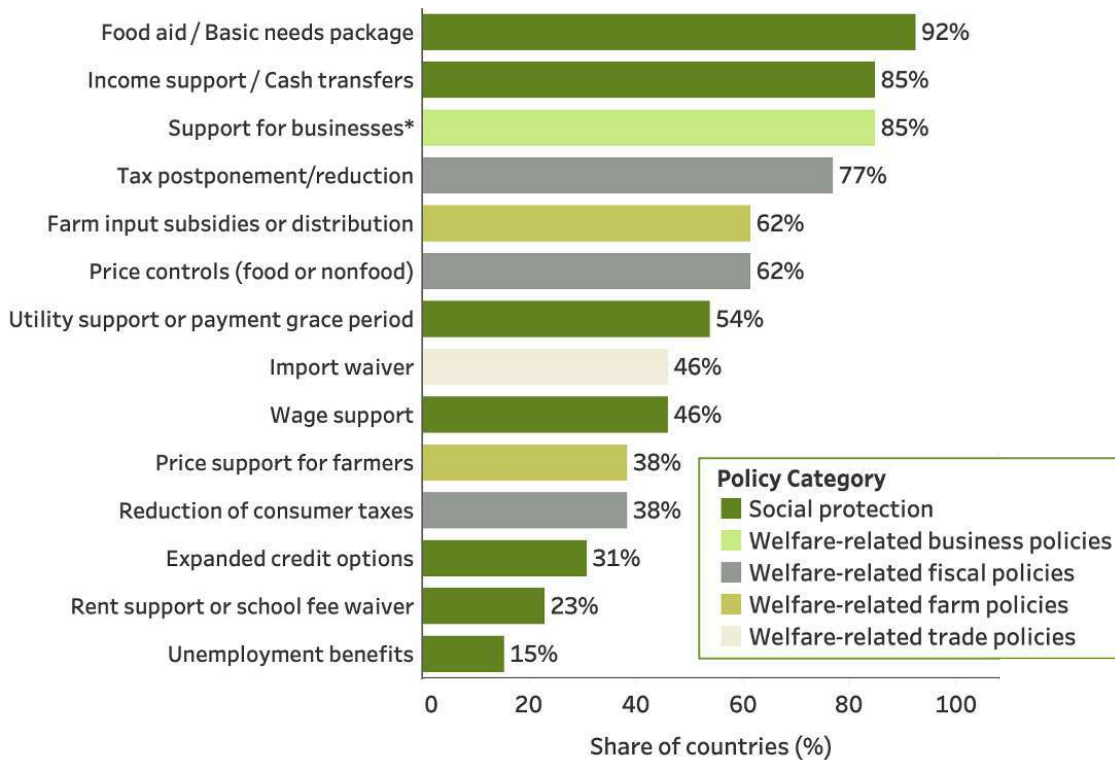
Source: OxCGRT 2020

Figure 4. Indicators of economic support policies across SSA



Source: OxCGRT 2020

Figure 5. Policy measures applied by 13 SSA governments in response to the Covid-19 pandemic



*Support for businesses is inclusive of financial and in-kind support and VAT waivers.

Source: IFPRI Covid-19 Policy Response Portal, as of November 9, 2020

Note: Data pertain to Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Sudan, Uganda, and Zambia. Policies considered here include welfare-related farm policies, business policies, fiscal policies, trade policies (import waivers), and social protection policies, broadly defined.

The duration of implementation of the policy responses detailed in Figures 1 through 4 have varied across countries. In some SSA countries, the most severe stay-at-home mandates were introduced

in March and lifted by April–July 2020 (IFPRI, 2020). Limits on transportation have likewise been enforced for varying lengths of time, lifted by the end of April in Burkina Faso but are still being implemented, as of November 2020, in Kenya and elsewhere. Most social protection efforts seem to have taken place in April–July 2020.

This evidence synthesis adopts a food systems approach to understanding the impacts of the Covid-19 pandemic in SSA. According to the Committee on World Food Security, a food system encompasses “all the elements (environment, people, inputs, processes, infrastructures, and institutions) and activities that relate to the production, processing, distribution, preparation, and consumption of food, and the output of these activities, including socio-economic and environmental outcomes” (HLPE, 2017). This perspective therefore covers all activities involved in food production, acquisition, and consumption, with attention paid to how a change in one component affects other components (Béné 2020; Devereux et al. 2020). While our synthesis does not give specific attention to some elements of the food system, such as environmental outcomes or infrastructure networks, it aims to capture the Covid-19 impacts on a wide set of interdependent actors and activities within SSA food systems.

It is possible for Covid-19 to manifest as a direct health threat to food system actors in SSA—though this had not been observed in most countries at least through the end of 2020; as of January 2021, this may be changing. Public health policy responses to the Covid-19 pandemic constitute a source of profound stress on food systems in SSA, while social protection policies work to counteract this impact. However, these are not the only sources of pandemic-related stress on food systems in SSA, as illustrated in Figure 6. The broader global economic contraction that began in early 2020 also has implications for food systems and the welfare of food system actors within SSA. Specifically, this affects demand and prices for agricultural and other exports from SSA countries, most likely manifesting as a decline in demand and slowdown in international trade. Likewise, global economic trends could affect the availability and price of agricultural inputs (such as fertilizer) that are imported, as well as food imports. Though a large majority of food consumed in SSA is from domestic production, some countries are relatively more reliant on food imports to meet their food needs and stabilize food prices. The global uncertainty that has prevailed in 2020 may also result in reduced foreign direct investments in SSA, especially in the construction, transportation, and energy sectors (Morsy et al., 2020a).

The global economic contraction brings another source of economic pain for SSA countries in the form of the marked decline in remittances sent from abroad. Such remittances have long been an important source of financing, and some countries derive an especially high share of their GDP from remittances, including Liberia (at 31%) and the Gambia (at 22%) (Bisong et al., 2020). The World Bank has estimated that SSA would experience a 23% decline in remittances in 2020 (ibid). Yet another pathway through which the Covid-19 pandemic negatively affects SSA food systems is a sharp decline in international tourism, an impact that may be negligible in some settings but significant in others.

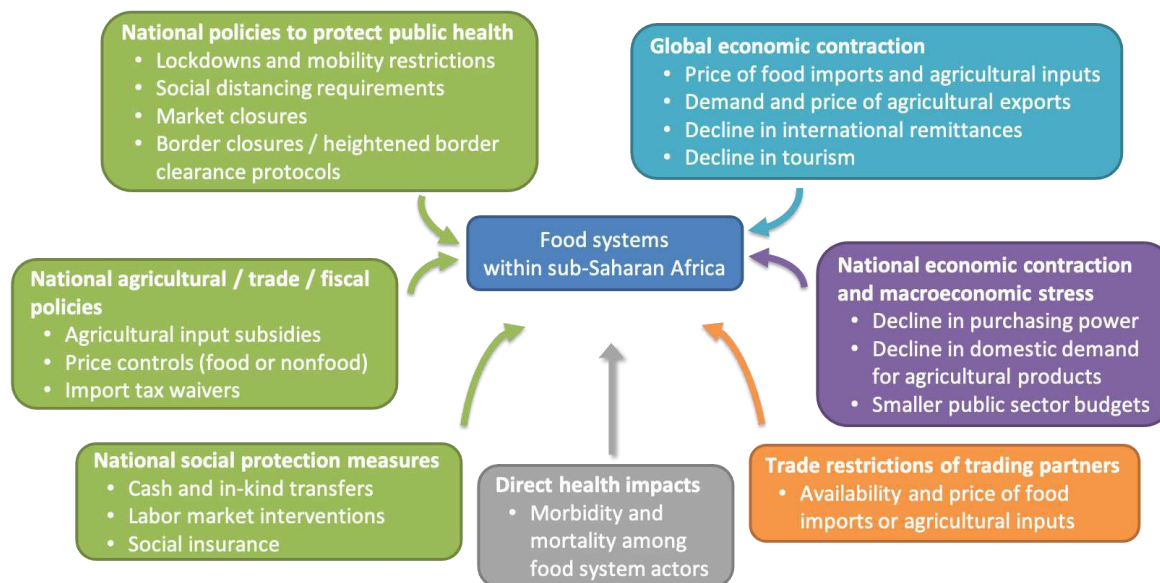
The Covid-19 pandemic also spurred some countries to instate export restrictions on food or agricultural inputs to reserve stocks for domestic consumption. Examples include some major rice-exporting countries that briefly banned or limited rice exports in mid-2020 (Kathiresan et al., 2020), or Burkina Faso which temporarily banned seed exports (Porciello et al., 2020). This would impact SSA countries that are importers of such products.

As part of the global economic contraction, SSA countries themselves have exhibited national economic contractions. This is likely linked to national policies to preserve public health, though it could also have broader causes (with precise causality difficult to establish). Nigeria, for example, was found to be in a national recession in November 2020, and this is due to both the Covid-19 pandemic and a decline in oil prices that may be partly attributed to the economic slowdown triggered by the pandemic but is also attributed to unrelated factors. Such an economic contraction has the effect of reducing the purchasing power of food buyers, with implications for food and nutrition security. The decline in domestic demand for agricultural products sends ripple effects up the food

value chain to affect the welfare of producers and all midstream actors, such as transporters, vendors, and other service providers.

A final pathway through which the Covid-19 pandemic can negatively affect food systems within SSA is macroeconomic stress. As public sector budgets are redirected to address the public health threat of Covid-19 or provide social protection in the short term, and as national tax revenues decline with a broad economic contraction, it is likely that spending on agriculture will be squeezed. For example, cuts may be made to extension and farmer training services (Willy et al., 2020). This could negatively impact the domestic food value chain over the coming months and years, an effect that would manifest in the longer term.

Figure 6. Pathways of impact of the Covid-19 pandemic on food systems in sub-Saharan Africa



Source: Authors

It is clear from Figure 6 that the sources of stress on SSA food systems are numerous and diverse, with effects likely to be found throughout the food system. This evidence synthesis will be three-pronged, focusing on domestic food value chains, regional and international food trade, and food and nutrition security in SSA countries (Figure 7). Within domestic food value chains, attention will be given to the availability and prices of agricultural inputs (excluding labour); impacts on agricultural production (including access to labour, decisions around production, ease of finding buyers or accessing markets, and incomes of food producers); impacts on domestic trade, transport, processing, and storage; the experiences of wholesalers and those who work in markets, including retailers and vendors; and the prices received by producers and food sellers. This report distinguishes between regional food trade (within Africa, often between neighbouring countries) and international food trade (between SSA and other continents). Under the heading of regional/international food trade, this evidence synthesis will consider impacts on the magnitude and direction of trade flows (including both structured and informal cross-border trade); the prices of imports and exports; and impacts on cross-border traders.

This report considers the term 'food and nutrition security' to encompass four dimensions, namely food availability, food accessibility, food utilization, and stability (FAO, 2020c). Accordingly, food and nutrition security is determined by whether there is enough food available locally; whether people have physical, economic, and social access to that food; whether people can access a diet of suitable nutritional quality for an active and healthy life, along with access to clean water, sanitation, and health care; and whether people are able to meet their food needs consistently. Under the heading of food and nutrition security, this evidence synthesis will consider metrics of food security, as well as the three dimensions of availability, access, and dietary quality. Regarding economic food access,

attention will be given to broad impacts on incomes and livelihoods and the retail prices faced by food consumers.

Figure 7. Three-pronged analysis of food systems



Source: Authors

3. Methodology of Evidence Synthesis

Overview

This evidence synthesis follows in the spirit of the rigorous systematic review protocol suggested by Porciello et al. (2020). These authors note that, as evidence on the topic of agricultural development in SSA proliferates, there is a need for systematic reviews to inform evidence-based policy making and identify gaps in knowledge or evidence. To avoid bias, the body of literature that is being synthesized should be analysed using inclusion and exclusion criteria that have been previously agreed upon in an *a priori* protocol. Our protocol fits neatly within the definition of a ‘systematic review’ (Grant & Booth, 2009), as it seeks to systematically search for, appraise, and synthesize research evidence, adhering to guidelines on the conduct of a review; it aims for exhaustive, comprehensive searching; a quality assessment is included among our inclusion and exclusion criteria; and the evidence synthesis is of a narrative form with a tabular accompaniment. Furthermore, our analysis is focused on what is known, recommendations that can be gleaned from the evidence, what remains unknown, and recommendations for future research.

This evidence synthesis was conducted in September – November 2020, and the steps taken are outlined in Figure 8. Before the literature search, a set of clear inclusion and exclusion criteria (detailed in section 3.2) were specified. The goal was to comprehensively gather all the evidence that had been found through rigorous studies on the topic of Covid-19 impacts on food systems in SSA. The research team then searched the literature using both computerized and manual methods, gathering items that seemed to meet the inclusion criteria. In the literature screening step, each document was assessed to confirm whether it met the inclusion criteria, leaving us with 57 studies. Each study was then coded to extract data on the content and findings, and this data set was used for the next steps of the evidence synthesis, namely a quantitative description of the literature, a narrative (qualitative) synthesis of the evidence, and the drafting of a set of policy recommendations to address the challenges of the Covid-19 pandemic (as well as future crises) and build more resilient food systems in SSA.

Figure 8. Steps of evidence synthesis



Source: Authors

Inclusion and Exclusion Criteria

Before beginning the literature search, a set of inclusion and exclusion criteria were specified as follows.

Studies were included if:

- (a) They evaluated the impact of the Covid-19 pandemic on the local population, specifically around food systems (production, value chains, and regional/international trade) or food security (inclusive of impacts on income and employment). This was inclusive of studies that evaluated the impact of a policy response to Covid-19.
- (b) They were based on either empirical evidence (*ex post*) or *ex ante* modelling using empirical data.
- (c) They were based on either quantitative or qualitative data. For qualitative studies, the method of data collection and analysis should reflect well-known qualitative research methods.
- (d) They discussed government policies or policies of relevant international agencies.
- (e) They were peer-reviewed, were preprints in the process of peer review, or were from the grey literature.
- (f) They were focused on countries in sub-Saharan Africa.
- (g) They were published in English, French, or Portuguese.
- (h) They were published on or before October 19, 2020.

Documents were excluded if:

- (a) They discussed (in the form of commentary) *likely* impacts of a policy without analysis of data.
- (b) They focused only on the health impacts of Covid-19.
- (c) The impact evaluated was broadly around government revenues but not on the food system or the welfare of the population.
- (d) There was no explanation of the source of the data being used, or the explanation offered would not reasonably be accepted in an academic setting (i.e., the paper's conclusions are not supported with evidence).

Process of Identifying, Screening, and Coding Studies

To identify documents that could potentially meet our inclusion criteria, the evidence synthesis team undertook several search steps concurrently. These included:

- (a) A search of two library databases (Scopus and CAB Abstracts) for peer-reviewed publications with keywords including Covid-19, the names of countries in SSA, and keywords associated with food systems and food security.¹¹ Additionally, a similar search was conducted in Google Scholar.¹²

¹¹ The search string employed was (TITLE-ABS-KEY(Covid-19 or Covid or coronavirus) AND TITLE-ABS-KEY(food or "food system" or agriculture or agricultural or "food security" or hunger)AND TITLE-ABS-KEY(Africa or "sub-Saharan Africa" or Angola or Benin or Botswana or "Burkina Faso" or Burundi or Cameroon or "Central African Republic" or Chad or Comoros or Congo or "Cote d'Ivoire" or Djibouti or "Ivory Coast" or Eritrea or Ethiopia or Gabon or Gambia or Ghana or Guinea or Guinea-Bissau or Kenya or Lesotho or Liberia or Madagascar or Malawi or Mali or Mauritania or Mauritius or Mozambique or Namibia or Niger or Nigeria or Rwanda or Senegal or Seychelles or "Sierra Leone" or Somalia or "South Africa" or "South Sudan" or Tanzania or Togo or Uganda or Zambia or Zimbabwe)).

¹² The search of Google Scholar extended over the first 800 (80 pages of) search results.

- (b) A search of the websites of the following organizations: African Development Bank, Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, United Nations, World Bank, and World Food Program.
- (c) A search of the websites of relevant CGIAR Centres.
- (d) A general internet search for materials from specific geographies, including Lusophone Africa, Francophone Africa, and several large countries, including Ethiopia, Nigeria, and South Africa.

The literature search was conducted between September 20 and October 19, 2020. Documents that appeared to meet the pre-specified inclusion criteria were gathered and de-duplicated. These documents were then rigorously screened to determine whether they met each of the inclusion criteria and did not fall within the exclusion criteria. At least two reviewers independently screened each document. If the first two reviewers disagreed on whether a document met the criteria for inclusion, a third reviewer was engaged, and the paper was included in this review if two out of the three reviewers approved.

A total of 57 studies were found to have met the criteria for inclusion in this evidence synthesis (listed in Box A1 in the annex). Each document was then coded to extract data from the study. These data points include the geography of focus; type of analysis (quantitative or qualitative; *ex ante* simulation or *ex post* analysis); level of rigor; type of policy maker (where relevant); policy intent; policy type; specific policy actions; policy effectiveness; subpopulations evaluated; outcomes evaluated; and impacts. The complete coding framework is provided in Table A1 in the annex of this report.

It should be emphasized that although this report endeavours to be comprehensive at the time of the literature search, the literature on the topic of Covid-19 will surely increase over time.

4. Description of the Literature

This section presents a quantitative characterization of the body of literature that contains evidence on the impacts of the Covid-19 pandemic on food systems and food and nutrition security in SSA.

Geographic focus and general characterization of the literature

The geographic coverage of the 57 studies that met our inclusion criteria is presented in Figure 9, showing that evidence on our topic is available across all regions of SSA. Specifically, the evidence spans 20 of the 48 SSA countries. Of note, several countries that rank lowest in terms of the Human Development Index (UNDP, 2019) are absent from this body of literature, including Niger, the Central African Republic, Chad, South Sudan, and Burundi. Some other countries that were found to have the lowest Government Policy Response Stringency Index (in Figure 2), such as Burundi and Tanzania, are also not covered in this literature. A large majority (88%) of the documents were published in English, while 6% were in French and 6% were in Portuguese.

Figure 9. Geographic coverage of the empirical literature on Covid-19 impacts on food systems in SSA



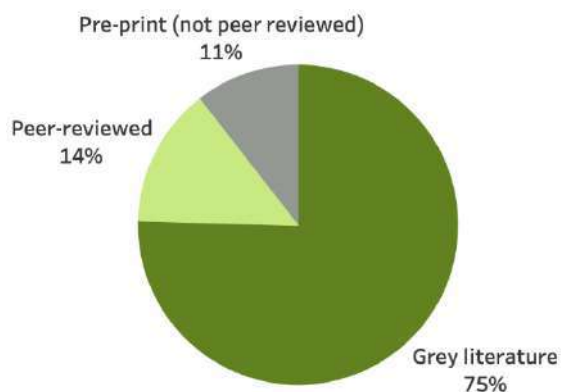
Source: Authors

Three quarters of the studies that met our inclusion criteria are found in the grey literature (inclusive of organizations and research institutes) (Figure 10). This is likely a reflection of the timeline of this evidence synthesis relative to the timeline of the peer review process, and it underscores the important role of grey literature in rapidly disseminating new knowledge during a crisis. Eleven percent of the studies are pre-prints that have not been peer-reviewed (usually authored by academic scholars). Just 14% of the studies that were published by October 19, 2020 are in the form of peer-reviewed journal articles.

The number of studies that met our inclusion criteria peaked in May and July but then declined in September and October 2020. There are several possible explanations for this pattern. Many of the studies seem to be focused on the most intense period of lockdown orders, and these had mostly been lifted by September 2020. Along the same lines, many of the earlier studies were rapid assessments of non-academic organizations at the start of the crisis; it is expected that the peer review process will produce more output on this topic later. A final possible explanation is that attention may have shifted away from this topic by late 2020 if the impacts captured in the literature were not as severe as had been initially feared. Note that the studies conducted in April–June necessarily captured only the immediate or short-term impacts of the Covid-19 crisis, some of which may have dissipated (while some may have intensified) after the date of publication.

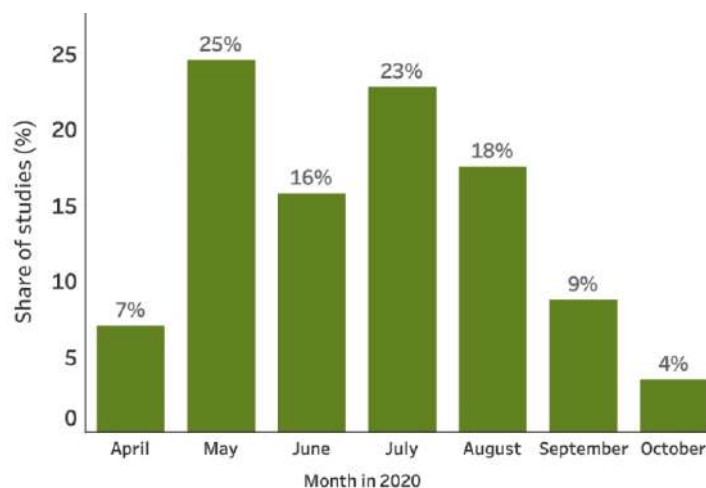
Across the 57 studies in our review, a large majority (86%) are quantitative in nature (Figure 12). Among these, most studies are *ex post*, using data gathered through surveys or other data collection avenues. A much smaller share of studies (16%) are *ex ante*, modelling the likely impacts using a Social Accounting Matrix (SAM) / Computable General Equilibrium model.

Figure 10. Distribution of publication types



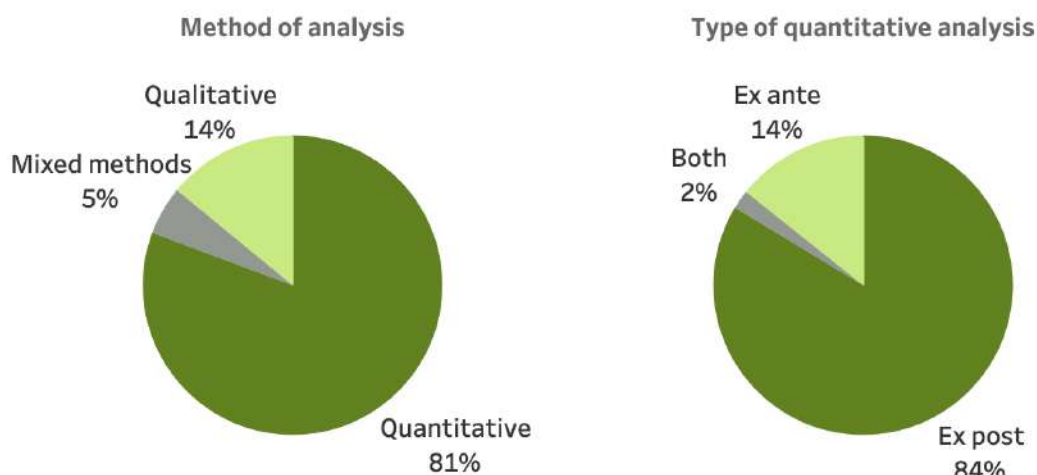
Source: Authors

Figure 11. Distribution of publication dates



Source: Authors

Figure 12. Distribution of methods of analysis and types of quantitative analysis



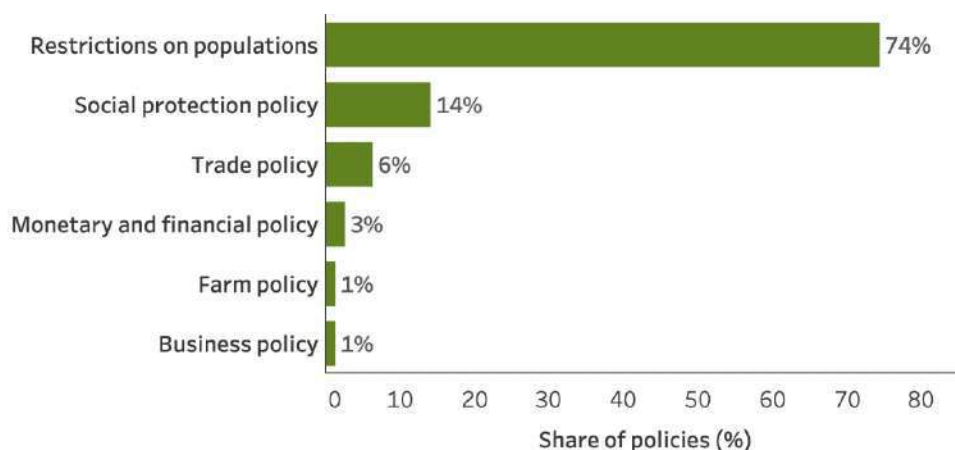
Source: Authors

Distribution of Topics Explored in the Literature

For each study, the research team gathered information on up to three main policies that are evaluated or implicitly understood to cause a measured impact on food systems. Because a given study could cover multiple policies, there are 80 Covid-19 response policies among the 57 studies that met our inclusion criteria. Almost three quarters (74%) of the policies discussed relate to restrictions on populations, often in the form of stay-at-home decrees/lockdowns, market closures, and national mandates for social distancing (Figure 13). Along these lines, 74% of the policies have the intention to protect public health and limit the spread of the virus (Figure 14). In this literature, it is far less common to find attention given to policies that aim to protect the food supply, bolster food production, protect workers, or stimulate the economy. The reasons for this may be twofold. First, as seen in

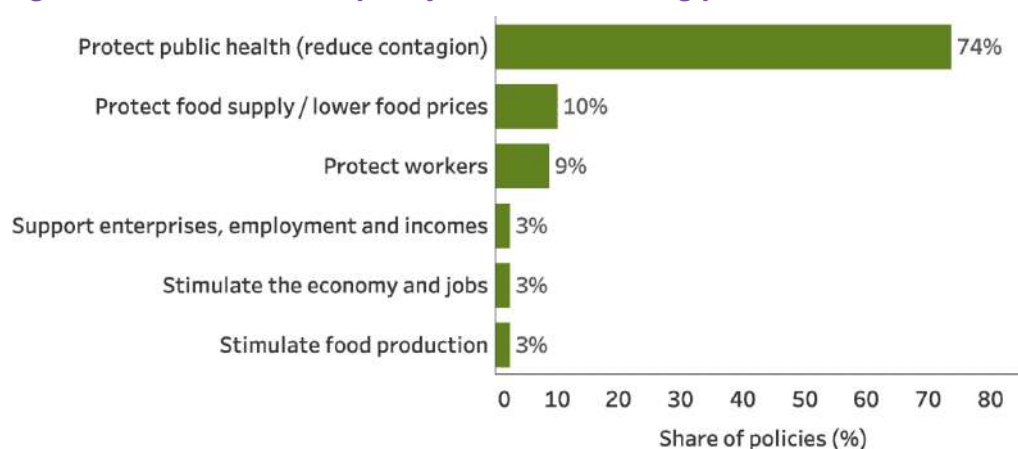
Figure 2, it seems that public health policies that restrict movement or economic activity have been far more common in SSA than policies aimed at economic support and social protection. It is possible that most SSA governments simply do not have the fiscal latitude to offer economic support. Second, SSA governments have largely sought to protect food production through nuanced public health policies, thus placing limits on most parts of the economy while carving out exceptions for the agrifood sector. However, these are not assessed by authors as being types of social protection, relative to a counterfactual of a stay-at-home order with no exceptions. The implications of this framing will be discussed further in section 9.2 in a discussion of knowledge gaps.

Figure 13. Distribution of policy types among policies discussed in the literature



Source: Authors

Figure 14. Distribution of policy intentions among policies discussed in the literature



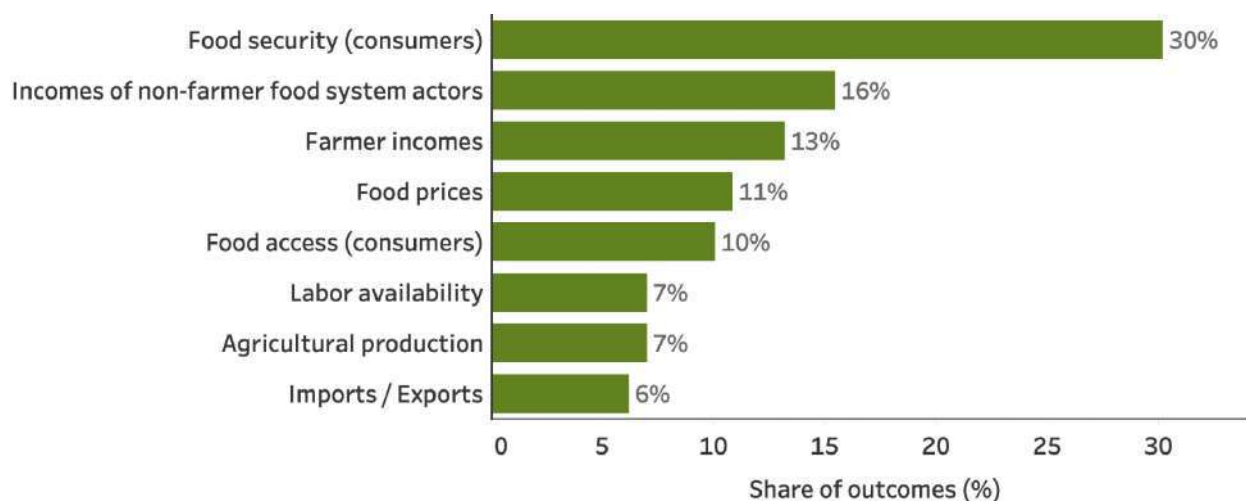
Source: Authors

Information was also collected on whether the analysis in each study is disaggregated to report the impacts experienced by men and women separately. As many of the studies are based on household-level surveys, just 14% of studies seem to disaggregate the findings according to gender. A higher share of studies (49%) either disaggregate their findings by the rural or urban residence of survey respondents or focus specifically on one of these settings. It is therefore likely that the literature offers a clearer understanding of the differential impacts of the Covid-19 pandemic across rural and urban populations, as compared to the differential impacts according to gender.

For each study, the research team also recorded up to three outcomes related to food systems or food and nutrition security. Because a given study could report on multiple outcomes, there are 129 outcomes evaluated across the 57 studies that met our inclusion criteria. As seen in

Figure 15, a large focus of this literature is on food security, and 40% of all outcomes are of overall food security or food access of consumers. About 16% of outcomes relate to the incomes of non-farmer food system actors, while 13% relate to farmer incomes and 7% to agricultural production. Just 6% of outcomes seem to relate to imports or exports. This may reflect the availability of different types of data for studies that were conducted with speed and urgency. However, as will be discussed in section 9.2, it leaves gaps in what is known about the Covid-19 impacts on regional/international food trade in SSA.

Figure 15. Distribution of outcomes evaluated in the literature



Source: Authors

Limitations of Analyses of Causality Associated with Covid-19 Policy Responses

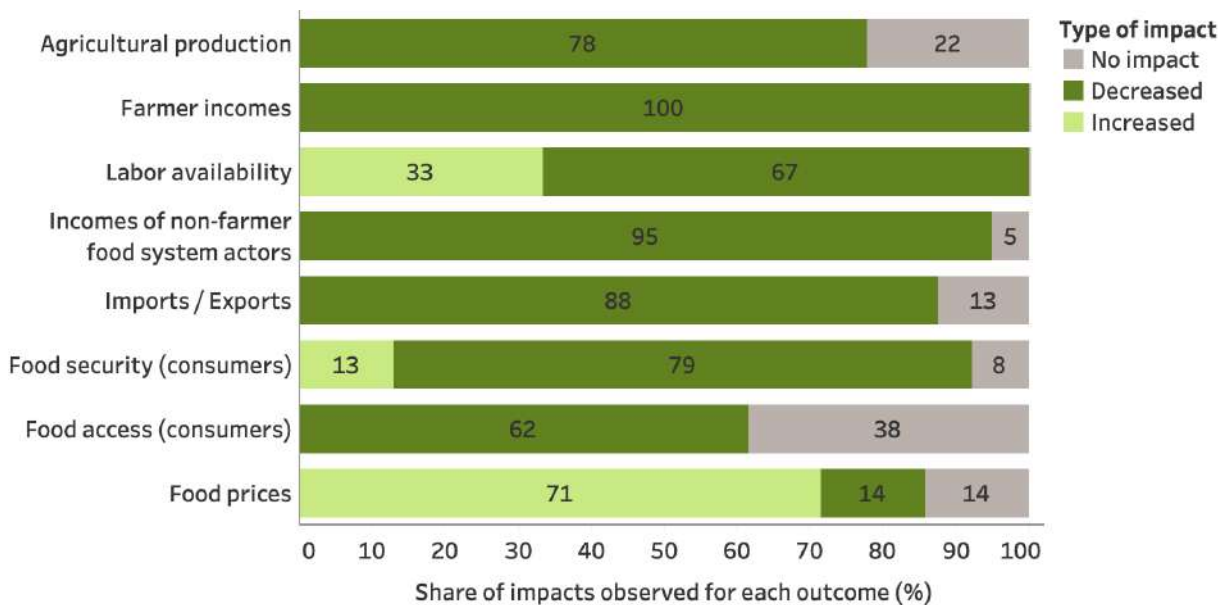
Limitations of this evidence synthesis should be acknowledged. Much of the relevant literature currently is descriptive and does not attempt to disentangle the impacts across, for example, policy responses to Covid-19 versus macroeconomic stress resulting from the Covid-19 pandemic.¹³ Furthermore, even quantitative studies at this point often rely on respondents to report their *perceptions* of how they have been affected by the Covid-19 pandemic, rather than rigorously measuring its impacts. The literature on policy responses also does not attempt to measure the impact of policies relative to a counterfactual of the Covid-19 pandemic in the absence of any policy responses. In other words, analysts tend not to consider a scenario without any policy response but with self-induced changes in behaviour as some people choose to follow social distancing guidelines even without any policy directive. Nor do analysts seem to evaluate the impact of specific nuances within larger policies. For example, the impact of exempting the agricultural sector from economywide restrictions is not evaluated on its own, relative to a counterfactual of not exempting the agricultural sector. Thus, the precise impacts of policy nuances have, so far, rarely been isolated in the literature.

¹³ One exception is the analysis of Amare et al. (2020) who exploit spatial variation in lockdown measures across Nigerian states to effectively isolate the impact of lockdowns on food security.

Distribution of Impacts of the Covid-19 Pandemic

Figure 16 displays the distribution of directions of impacts on the outcomes evaluated in the literature. Across the eight studies that evaluate the impact of the Covid-19 pandemic on agricultural production, 78% record a decrease in production, and 22% record no impact. Across all studies that evaluate the impact on farmer incomes, 100% record a decrease in income. Note that this could be due to lower prices received for agricultural outputs and/or a lack of non-farm income-generating options. Across the 10 studies that evaluate the impact on agricultural labour availability, two-thirds record a negative impact and one-third documents a positive impact. Twenty studies evaluate the impact of the Covid-19 pandemic on incomes and livelihoods of non-farmer food system actors, such as market vendors or agro-dealers. The impact is found to be negative in 95% of these cases. Overwhelmingly negative outcomes are also documented with respect to the flow of imports/exports and the food security of consumers. Of the 14 studies that consider food prices as an outcome variable, 71% record price increases. Overall, this tells a story of loss for actors all along the food value chain in SSA countries. This impact can reasonably be attributed to the Covid-19 pandemic and often to the policy responses aimed at protecting public health.

Figure 16. Distribution of impacts observed for each outcome evaluated



Source: Authors

5. Impacts of the Covid-19 Pandemic on Food Systems and Food Security in sub-Saharan Africa

Domestic Food Value Chains

Approximately 75–90% of all food consumed in Africa is supplied by domestic food value chains (Reardon & Swinnen, 2020). These are comprised of ‘vertical chains’ that link farmers to consumers and ‘lateral chains’ comprised of the materials, labour, logistics, and other complementary services that support each node of the vertical chain (Liverpool-Tasie et al., 2020). Furthermore, across six African countries, 20% of rural employment and 25% of urban employment is found within post-farmgate food value chains (Dolislager et al., 2020). In various ways, the Covid-19 pandemic has affected the entire length of these value chains (Table 1).

Input Supply and Prices

The pandemic has imposed constraints on input supply, which is particularly damaging for sub-sectors which rely on imported inputs, including fertilizer, seed, and agrochemicals. As an example, some seed companies source breeder and foundation seed from surrounding countries, and this supply line is hampered by slow border clearance or export restrictions (Porciello et al., 2020; Willy et al., 2020).

A number of studies included in this synthesis show some evidence of a decline in the supply of agricultural inputs, an increase in prices, and a reduction in domestic purchasing power. For instance, a reduction in fertilizer supply and higher fertilizer prices were observed in western Kenya and the Rift Valley, leading farmers to resort to substitutes, while the supply of post-harvest handling equipment was also hampered in the drier areas of eastern Kenya (WFP, 2020). In Senegal, most households experienced limited access to inputs, such as seed and fertilizers (IPAR, 2020). Agro-dealers also reported a decline in the number of customers as most farmers saw their incomes decline and therefore had fewer resources with which to purchase agricultural inputs. It was further reported that suppliers increased the wholesale prices of inputs, compelling retailers to raise input prices for farmers. In Nigeria, farmers who purchased inputs also reported a surge in input prices (PAD 2020; World Bank, 2020b).

Producers and Agricultural Production

The policy response to Covid-19 is likely to have a negative effect on 2020 agricultural production and producers’ incomes. On one hand, Barrett (2020) notes that as of spring 2020, most harvests were undisturbed by Covid-19, and forecasts predicted good harvests for the main crops in locations where the growing season was ongoing. The March/April cultivation time in Eastern Africa (Ethiopia, Kenya, Rwanda, Tanzania, and Uganda) was minimally affected since most farmers had prepared their land and purchased inputs before the advent of Covid-19. Even in West African countries (Burkina Faso, Côte d’Ivoire, Ghana, Nigeria, and Senegal) where the planting season was approaching when the pandemic began, minimal disruptions were expected (Moseley and Battersby, 2020; Willy et al., 2020).

On the other hand, among the 57 studies in this synthesis, there is evidence of disruption to agricultural production. In Mozambique, the disruption of international input supply chains led to a 40% reduction in the use of inputs required for agricultural production and a halt in the purchase of agricultural outputs from small farmers by exporting companies (CTA, 2020). A reduction in production is also likely in Zimbabwe and Cape Town, South Africa, as small-scale farms were not considered “essential”, leading to farmers being deprived of access to their farms and markets (Paganini et al., 2020). Severe lockdowns in some parts of Mozambique, South Africa, and Zimbabwe limited

smallholder production capacity in the informal economy and exacerbated their food insecurity (Paganini et al., 2020; FEWS NET, 2020).

Food production requires labour and, even on modest-sized farms, contract workers provide that labour at certain points throughout the crop production cycle. Devereux et al. (2020) predicted disruptions in hired labour caused by restrictions on movement or an unwillingness on the part of workers to travel to a workplace. Indeed, there is some evidence of this among the studies included in this synthesis. In Ethiopia, labour markets suffered a dramatic impact, with a shortage of daily workers alongside rapid wage increases in key production areas, which significantly disrupted the regular production patterns of farmers (Minten et al., 2020). Disruptions to domestic labour markets and reduced family work time on farms have also been reported in Ghana, Kenya, Malawi, and Rwanda (Carreras et al., 2020; Chadza et al., 2020a; Fransesconi et al., 2020; PAD, 2020). At the same time, producers in Nigeria, Tanzania, and Zimbabwe report that they have been able to contract both temporary and permanent workers since the onset of the pandemic (Carreras et al., 2020).

Another avenue through which producers could potentially be affected is the interruption of agricultural extension and advisory services because of mobility restrictions, thus limiting farmers' access to information (Arouna et al., 2020; FAO, 2020a). This was not discussed by any of the 57 studies included in this synthesis.

Trade, Transport, Processing, and Storage

In transitional supply chains in Africa, informal small and medium enterprises in the food sector are dominant. These enterprises tend to depend on labour rather than on mechanization for activities such as processing, transportation, and storage. The viability of their businesses is thus particularly jeopardized by restrictions on workers' movement. Further down the food value chain, traders and transporters could be affected by policy responses to Covid-19 if mobility restrictions lead to logistical difficulties, causing supply delays. In Ethiopia, decreases in either international trade or domestic trade between subnational regions appear to have contributed to unusually high volatility in agricultural prices. This decline in long-distance trade has produced winners and losers, as farmers who previously faced international and regional competition in marketing their products apparently benefited as trade disruptions lowered supply, resulting in price increases. Conversely, farmers producing crops that had previously been exported to other regions lost out due to declining demand, which led to excess supply on the local market and decreased prices (Hirvonen et al., 2020a).

As noted by the United Nations Economic Commission for Africa (2020), travel bans and limitations on public transport have adversely affected the transportation sector, which has seen a substantial decline in traffic, resulting in revenue losses. Specifically, by May 2020, rail and truck volumes in Southern Africa probably fell by half due partly to the reduced flow of international goods. Transport bans and quarantine measures are further capable of impeding farmers and fishermen from accessing output markets (Calderon et al., 2020). For example, among the 57 studies of this synthesis, there is evidence that restrictions on transport services and logistical difficulties associated with transporting food to markets in Ethiopia, Mozambique, and Nigeria had an impact on food availability and therefore on food prices (GAIN, 2020). In Uganda, challenges were also reported around the transport of products for processing, such as bringing rice to the mill (Francesconi et al., 2020). In Addis Ababa, Ethiopia, a majority of wholesalers and retailers reported a decline in choices for transportation, along with an increase in associated costs (Hirvonen et al., 2020a). And in Nigeria, a patchwork system of inconsistent restrictions across states, characterized by roadblocks and checkpoints, limited the prospects for suppliers to connect with customers and opened the opportunity for extortion on the part of police (Liverpool-Tasie et al., 2020).

Processors may also be impacted by policy responses to Covid-19, particularly by restrictions on the circulation of goods and people that may complicate the logistics of collecting agricultural products and transferring them to buyers further down the value chain. Processors dealing with informal traders (instead of those who coordinate with farmers via contract farming (vertical coordination) or organize their own agricultural production (vertical integration)) could be especially affected (Arouna et al., 2020). In Malawi, 40% of processors (including half of maize and soybean processors) reported that

Covid-19 measures caused a decline in the demand for processed commodities (Chadza et al., 2020b).

Wholesalers and Retailers

Food traders, including wholesalers¹⁴ and retailers, are essential for the functioning of agricultural value chains and the agri-food system. However, Covid-19 has negatively affected the performance of the wholesale and retail food sector of many SSA countries. For example, in Malawi, among wholesalers and retailers, 89% of the respondents reported that the food sourcing side of their business has been adversely affected by Covid-19, either due to high prices or difficulty finding a supplier (Chadza et al., 2020b).

As for the food selling side of the business, in most SSA countries, the formal retail trade of essential food, hygiene, and medical products were permitted during periods of lockdown (Arndt, et al., 2020). Yet social distancing measures have affected sales indirectly. For example, in Ethiopia, dairy shops, coffeehouses, and pastry shops located near universities saw less business when students were sent home (Tesfaye et al., 2020). In Uganda and Zimbabwe, food vendors that were mostly patronised by schoolchildren and workers in various workplaces also experienced a drop in customers due to school closures and restrictions on non-food economic activity (Trotter et al., 2020). In Malawi, it has been estimated that the monetary size of the food services sector experienced a decline of 73% due to the closure of restaurants and other food outlets during two months of social distancing (Baulch et al., 2020).

At the same time, the informal food sector has been singled out by policy responses to the Covid-19 pandemic, as a number of SSA countries responded to the pandemic by enforcing closures of informal and open-air (“wet”) markets based on relatively high perceived risks, such as high density and an inability to reduce crowding or enforce social distancing. Such policies obviously affect the livelihoods of informal food vendors and retailers, cutting off all income. In South Africa, this sector —made up of small-scale owner-operated enterprises who sell food of various kinds— employs more people than the formal food and grocery sector (Wegerif, 2020). According to Wegerif (2020), governments’ responses have reflected an “anti-informality bias,” reflecting “a continued undervaluing and undermining of this sector to the detriment of the traders themselves, their suppliers, and their customers.” In Ghana, this sometimes took the form of police brutality toward urban traders during the lockdown (Asante & Mills, 2020).

Among small and medium enterprises in the SSA food system, there have been widespread reports of decreased sales, difficulty paying staff, and difficulty accessing inputs; most of the enterprises surveyed in one study (GAIN, 2020) had reduced their production volumes since the pandemic began. In Liberia and Malawi, market activity for informal players was severely disrupted and large income declines were observed among market vendors; food vendors’ monthly profit declined by about 42% in Malawi and 52% in Liberia (Aggarwal et al., 2020). In Ethiopia, there has been a decrease in activities by small informal distributors of raw milk who sell their product to urban residents. Customers indicated that they feared buying from such vendors due to perceived Covid-19 risks from the high number of visits the traders make to different houses, their lack of health precautions, and the fear of contamination of utensils used by collectors, milkmen, or vendors across the raw milk marketing chain (Tesfaye et al., 2020).

It should be noted that, while informal market closures are deleterious for their vendors, this policy would be beneficial for formal markets which may claim a larger market share, even after informal market closures are ended.

¹⁴ A food wholesaler is a business that sells food products to other businesses, usually in bulk and at prices lower per unit than retail prices (Chadza et al., 2020b).

Prices received by Producers and Processors

Covid-19 has brought mixed effects on the prices received by producers and processors. As of early June 2020, global food prices had shown relatively little change (World Bank, 2020b), partly because of good grain harvests in key suppliers such as Brazil and partly because the fall in oil prices reduced the cost of transporting food. In Rwanda, as of March 2020, the Government imposed price controls to restrict price increases of goods (Bizoza & Sibomana, 2020).

However, the 57 studies included in this evidence synthesis do reveal some price fluctuations. In Ethiopia, all but one respondent to a survey reported increases in prices and changes in availability for at least some items; in most cases, price increases were reported to affect just a small number of items (GAIN, 2020). In the same survey, it was also found that there was little impact on urban retail prices of vegetables – though farmgate prices were simultaneously declining due to low demand (ibid). In Malawi, it was noted that the price paid by buyers for agricultural produce had fallen significantly, and larger buyers, such as the National Smallholder Farmers' Association of Malawi, had paused their buying activities (Francesconi et al., 2020). Farmers were therefore concerned that traders would take advantage of the limited number of outlets available to farmers to offer lower prices (Chadza et al., 2020b). In Uganda, respondents indicated that buyers in the village offered lower prices for farm produce compared to before the pandemic, and in Madagascar, a lack of public transport options has meant that villagers travel to the market on foot to sell their produce at a lower price than normal (Francesconi et al., 2020). Prices paid by consumers will be discussed in more detail in section 5.3.

Regional and International Food Trade

Countries in SSA, as elsewhere, rely on agricultural trade to earn foreign exchange, meet their food needs, and stabilize food prices. The Covid-19 pandemic has affected trade—most noticeably through temporary bans and restrictions on exports and through road and border closures. For example, several Asian countries, including Vietnam, Myanmar, India and the Philippines, briefly placed restrictions on rice exports at the start of the Covid-19 crisis, prompting concern for rice availability and prices in SSA countries that rely on rice imports (Kathiresan et al., 2020). Food imports in Africa are comprised mainly of staple cereals (maize, rice, and wheat), dairy products, and meat, making these critical to food security (Willy et al., 2020). Pervasive impacts have also been felt through additional inspections at the border, reduced hours of operation for trading, and increased transport costs (Banga et al., 2020). Trade is also affected by shifts in demand, particularly related to the global economic contraction that was triggered by the pandemic (see Figure 6). Reductions in both regional and international trade¹⁵ therefore affect food availability and food prices for consumers, employment for those involved in import/export activities, and incomes (especially of farmers).

Trade Flows

Among the 57 studies in this evidence synthesis, eight discussed imports and exports, whether of regional or international trade. With respect to regional trade between neighbouring countries, several of the studies document a sharp decline. For example, maize flows from Uganda to Southern Sudan decreased by 30–50% in response to stricter border clearance protocols, including Covid-19 testing of truck drivers, which resulted in extreme road congestion at the border crossing (WFP, 2020). Roadblocks and checks on the Kenya-Ethiopia border similarly impeded the movement of goods, particularly affecting fruit and vegetable value chains that cannot withstand an extended delay *en route* (ibid). Between January (pre-crisis) and March 2020, average cross-country cargo transit times in Kenya rose from 4 to 12 days. Overall, Kenyan exports to Uganda, Tanzania, and Rwanda fell sharply (Mold & Mveyange, 2020). In Burundi, the cross-border flows of food items such as sugar and

¹⁵ Recall that this report distinguishes between regional food trade (within Africa, often between neighbouring countries) and international food trade (between SSA and other continents).

cheese were also disrupted (WFP, 2020). Ugandan exports and imports declined by 36-37% from March to May 2020, a time during which cross-border small-scale trading was completely prohibited (Mold & Mveyange, 2020). Regional trade was also especially volatile over this time period, with both spikes and troughs in re-exports (international imports that pass through a country to enter the regional trade network). Thus, from March to May 2020, re-exports of goods passing through Kenya declined by 23% (ibid).

There is also some evidence of suppressed international trade. Regarding exports from SSA, lower growth projections in China, the United States, and the European Union resulted in lower commodity prices and export revenues for commodity dependent SSA countries (UN 2020a). For example, Kenyan exports were temporarily disrupted by the suspension of international flights and a decrease in demand for Kenyan goods in the United States and the Netherlands (Mold & Mveyange, 2020). In Mombasa, Kenya, social distancing requirements at the port resulted in delays in cargo clearance for imports (WFP, 2020). Overall, domestic imports in Kenya declined by 25% from March to May (in year-on-year terms).

Prices of Imports and Exports

The contraction in regional and international trade has had implications for the prices of imports and exports. On one hand, the closure or narrowing of border crossings means price increases in importing countries. For example, while Ethiopia would typically import onions from Sudan, the lengthy pause in imports led to an onion shortage and higher prices in Ethiopia (Minten et al., 2020). Nigeria, which relies on rice and wheat imports to meet its food needs, saw prices for these items climb in 2020 (Amare et al., 2020). Similarly, while most food retail prices in Mali remained stable, prices increased for imported food items, such as dairy, sugar, and cooking oil (WUR, 2020).

Waning demand for exports is also noted as a threat to some states in Southern Africa. For example, the prices for soybeans and cotton declined in 2020, particularly due to diminished demand in China, and this is expected to translate into lower revenues for farmers in South Africa, Malawi, Mozambique, Zambia, and Zimbabwe (United Nations Economic Commission for Africa, 2020). Maize and wheat prices also declined, though their prices have been volatile (ibid), and the international price for cashews that are typically exported from Côte d'Ivoire fell in 2020 (Ouattara et al. 2020). Nevertheless, an examination of the international commodity prices for some key agricultural exports does not seem to reveal a noticeable "jolt" in these prices in 2020, relative to earlier years (see Figure A1 in the annex). This suggests that prices of goods that are traded within the Africa region (i.e., regional trade) may have been more severely affected by trade disruptions—at least initially—than goods sold on the international market.

Impact on Traders

The contraction in regional and international trade necessarily affects those whose livelihoods are entwined with imports and exports, particularly informal cross-border traders (ICBTs). ICBTs are instrumental to SSA food systems, balancing supply and demand and ferrying goods to remote settings. It is noteworthy that women and youth comprise a large majority of ICBTs and would therefore experience high levels of unemployment with trade disruptions (Parshotam, 2020; Porciello et al., 2020; United Nations, 2020a). In Uganda, women and youth ICBTs were particularly affected when cross-border small-scale trading was prohibited (Mold & Mveyange, 2020). Disruptions in trade also affect other actors along the food value chain, including buyers and transporters. For example, in Malawi, the closure of borders left buyers uncertain of whether they would be able to access export markets (Chadza et al., 2020a).

Food and Nutrition Security

Food and nutrition security have been adversely affected by Covid-19 and the associated restriction measures. Due to income losses and price increases resulting from restriction measures, the demand side has been more impacted than the supply side of the market for food. Consequently, households have experienced problems with food availability and access that have pushed them toward coping strategies such as shifting to less expensive but also less nutritious food.

Availability

The 57 studies in this evidence synthesis reveal that Covid-19 impacts on food availability vary according to food type and origin. Disruptions to the food supply in markets, mainly with respect to imported and perishable foods, have been observed in countries across East, South, and West Africa (Ethiopia, Kenya, Rwanda, Tanzania, Mozambique, and Nigeria) (GAIN, 2020). Carreras et al. (2020) found that approximately 30% of the respondents across several countries (Ghana, Kenya, Malawi, Nigeria, Tanzania, and Zimbabwe) reported less availability for grains and white roots, tubers, and plantains. Most of the respondents in Kenya also reported that dark green, leafy vegetables and fruits were significantly less available during the time of Covid-19. In Senegal, IPAR (2020) found that although most households did not have cereal stocks at the time of the survey, many reported that they did not have difficulties in accessing cereals within seven weeks of the introduction of restrictions on movement and economic activity. However, some parts of the country did seem to experience acute difficulty accessing food. In Mali, a normal food supply in the main markets and stable availability of cereals has been largely sufficient to meet demand (WUR, 2020). However, the availability of animal proteins (meat and dairy) has decreased. The study also finds that although 28% of respondents had experienced a lack of food in their households between April and May 2020, the reason given was a loss of income and food price increases. Just 0.3% of respondents reported a lack of food availability in the local markets, suggesting that availability was not particularly a problem in Mali.

Access

Covid-19 and associated policy measures can affect the supply side of the food value chain, particularly production, processing, and marketing (Devereux et al., 2020). However, the most concerning impacts of Covid-19 and policy measures on food security are on the demand side (Barrett, 2020; Mogues, 2020), particularly around economic, physical, and social access to food (Devereux et al., 2020).

Concerning *economic access*, restrictions on movement and economic activity due to the Covid-19 pandemic have had implications for households' ability to purchase food, due to both reduced income and increased food prices. Several studies have shown (i) a decrease in incomes due to lost jobs or restricted economic activity (Abate et al., 2020; Balde et al., 2020; Buonseno et al., 2020; Devereux et al., 2020; FAO, 2020b; Francesconi et al., 2020; Kansime, et al., 2020; Le Nestour et al., 2020; Shupler et al., 2020; Teachout & Zipfel, 2020), (ii) a decrease in cash availability from remittances (Carreras et al., 2020; WUR, 2020), and (iii) an increase in food prices (Akinyele et al., 2020; Amare, et al., 2020; Erokhin & Gao, 2020; Fransesconi et al., 2020; Mahmud et al., 2020; Matsungu & Chopera, 2020; WUR, 2020). Some studies show that these effects are stronger for informal workers and women (Balde et al., 2020; Fall et al., 2020) and among the poorest sections of the population. On the other hand, Mahmud et al. (2020) found that the negative effects of the lockdown in rural Uganda were higher for wealthier households because they depend on "enterprise and salaried income". Despite the largely negative effects of Covid-19 and accompanying policies to control the pandemic on incomes and food prices, Aggarwal et al. (2020) report a reduction in food prices in Malawi, while FAO (2020b) and WUR (2020) observe largely stable food prices in Mali.

As examples of the effect of reduced income/cash availability on food security, PAD (2020) found that over 80% of farmers interviewed in Kenya were struggling to purchase food, while 50% reduced the amount of food they consumed due to a lack of resources. In Uganda, Mahmud et al. (2020) report

that rural households reduced their expenditure on food per adult equivalent by 40% due to an income decline attributed to lockdown measures. In their study of an informal settlement in Nairobi, Kenya, before and after lockdown measures were imposed, Shupler et al. (2020) found that 88% of the households were unable to satisfy their food needs because of reduced income, with over half reporting that they cooked less frequently.

Physical access to food has also been reduced. Indeed, bans or restrictions on markets and street vending have been widely adopted across Africa and have significantly impacted food access. The informal sector enables consumers to purchase food in small quantities and at lower prices than what is found in supermarkets or formal vendors, and further allows consumers to pay in cash or credit (Battersby, 2020). Bans or restrictions that disrupt business operations in the informal sector of the food system may therefore be especially disruptive in terms of physical food access for poor consumers. In Rwanda, for example, the closure of open-air markets prevented people from buying food at low prices (Francesconi et al., 2020).

The covariate nature of the shocks brought about by the Covid-19 pandemic has also reduced *social access* to food. Thus, social networks that are conventionally used to access food or other basic needs in times of hardship are now less available, due partly to measures related to social distancing (Moseley & Battersby, 2020) and partly because much of society is suffering at the same time. The aforementioned decrease in international remittances has further reduced the likelihood of receiving help through social networks (Bisong et al., 2020). School closures have also prevented children from receiving food through school feeding programs, an important social safety net in normal times (Devereux et al., 2020). Tsimpo et al. (2020) found that in Burkina Faso, about 1 in 4 households reported that at some point, they were unable to access key staple foods, with a higher proportion of poor (30%) compared to non-poor (22%) reporting difficulties in accessing food.

Households have adopted several coping strategies to manage reduced access to food, including drawing on their savings (Abate et al., 2020; Kansiiime et al., 2020; PAD, 2020). In Ethiopia, for example, Abate et al. (2020) argue that the effect of the pandemic on food security was not alarming compared to the period just before the outbreak because households resorted to using their savings as a means to buffer food consumption. However, this strategy cannot be relied on for the long term.

Dietary Quality

To ensure a healthy and balanced diet, staple foods should be complemented with nutrient-dense foods such as fruits, vegetables, and animal-sourced foods. However, to manage both physical and economic challenges associated with access to food, households have adopted coping strategies that might negatively affect the nutrition quality of the foods they consume. Indeed, households have tended to consume less of more expensive foods such as fruits and dairy products, which have better nutritional value (Abate et al., 2020; Calderon et al., 2020; Chege et al., 2020; Devereux et al., 2020; GAIN, 2020; Mogue, 2020; Hirvonen et al., 2020b). According to Trotter et al. (2020), some food supply chains such as matooke and fish in Uganda or tomatoes and lettuce in Zimbabwe have largely collapsed, partly because of declining demand for perishable products. Along these lines, GAIN (2020) notes that consumers in SSA have tended to eat fewer perishable goods and more staple foods, which are a poor source of micronutrients. Kansiiime et al. (2020) report an increase in the number of food insecure households in Kenya (by 38%) and Uganda (by 44%), as well as reduced frequency (by 30%) of consumption of fruits during the pandemic. Some households have coped by consuming less diverse diets, skipping meals, and reducing portions of food consumed. In Uganda, another study found that residents of an urban informal settlement in Kampala reduced their number of meals from 2.4 to 1.3 per day, on average, while respondents from rural areas indicated a reduction from an average of 2.5 to 2.2 meals per day (Trotter et al., 2020).

These types of coping strategies were also observed in West Africa. In Senegal, for example, Le Nestour et al. (2020) report a reduction in the size of meals mainly in villages and among the poor, and a reduction in the number of meals mainly in the capital city Dakar. In Mali, WUR (2020) report that among households that had experienced hunger over the months of April and May 2020, 69% had gone a whole day without eating anything at home. Approximately 53% of respondents had

experienced situations where their household was worried about not having enough to eat because of the lack of resources or money. In Malawi, the World Bank (2020d) reports that the prevalence of moderate or severe food insecurity among the adult population remains high; about 66% of households in the study had at least one adult in the household skipping a meal, 52% of households ran out of food, and 23% had an adult spending an entire day without eating anything.

Table 1. Evidence of impacts of Covid-19 and associated policy responses on food systems in SSA

Domestic Food Value Chains	
<p>Agricultural inputs</p> <ul style="list-style-type: none"> Some evidence of decline in supply, increase in prices, and reduction in domestic purchasing power among potential buyers. <p>Producers and agricultural production</p> <ul style="list-style-type: none"> Some evidence of disruption to agricultural production, especially where farmers were limited by mobility restrictions. Mixed evidence regarding labor availability. Some evidence of fewer traders/buyers and lower farmgate prices. Volatility in agricultural prices due to mobility restrictions, producing both winners and losers. 	<p>Trade, transport, processing, and storage</p> <ul style="list-style-type: none"> Evidence of decline in transportation options and increase in transport costs due to mobility restrictions. Roadblocks extend the time spent in transport, which is especially detrimental to perishable products. Evidence of difficulties in moving food between farm, processor, port, and market, affecting food supply and retail prices. <p>Wholesalers and retailers</p> <ul style="list-style-type: none"> Evidence of difficulties sourcing food due to high prices or few suppliers. Closures of, or restrictions on, informal markets lead to massive income disruptions for retailers and food vendors. Decline in business due to social distancing requirements or restrictions on non-economic activity that reduced foot traffic.
Regional (intra-African) and international food trade	
<p>Trade flows</p> <ul style="list-style-type: none"> Evidence of declines (and/or volatility) in regional trade due to heightened border clearance protocols and road congestion at border crossings. <p>Impacts on traders</p> <ul style="list-style-type: none"> Loss of livelihoods for informal cross-border traders where such trade was prohibited. 	<p>Prices of imports and exports</p> <ul style="list-style-type: none"> Some evidence of price increases for imported food items. Mixed evidence regarding price effects for exports traded internationally, with some reports of price declines and other evidence of price stability.
Food and nutrition security	
<p>Availability</p> <ul style="list-style-type: none"> Mostly stable availability of staple foods. 	<p>Access</p>

Domestic Food Value Chains

- Reduced availability of specific items, particularly imported foods, perishable foods, and animal-sourced foods.

Dietary quality

- Evidence that households have shifted away from more nutritious and expensive foods, such as vegetables and dairy products, toward cheaper foods.

- Reduced *economic access* due to reduced income and increased food retail prices.
- Reduced *physical access* due to bans or restrictions on informal markets or street vending.
- Reduced *social access* due to the covariate nature of the Covid-19 shock, which disrupted informal safety nets.
- Reduced frequency and quantity of consumption.

Source: Authors

6. Effectiveness of Social Protection Policies in Response to the Covid-19 Pandemic

As discussed in section 5, the effects of Covid-19 on SSA households and the consequences of public policies intended to address health risks have been intense. Considerable evidence suggests that incomes of the poor shrank during the height of the pandemic, and this ultimately compromised food security and the general welfare of SSA households. For example, Nigeria witnessed an increase in food prices caused by the lockdown policy in most parts of the country, which to varying degrees hampered normal activities in agricultural production and food distribution. This, in turn, resulted in food supply shortages (Akinleye et al., 2020). In addition, a decline in economic activities reduced households' incomes and weakened their purchasing power. To support their citizens through these shocks, some governments in SSA adopted various social protection policies. This section examines the nature and extent of social protection policies in SSA, the challenges encountered in their implementation, and the policies' impact on households.

Overall, compared to policy responses to curtail the spread of Covid-19, policy responses to provide social protection were less common (see Figure 4 in section 2). These include food aid/basic needs packages, cash transfers, support for businesses, tax reduction or postponement, farm input subsidies or distribution, food price controls, price support to farmers through procurement or regulation, and unemployment benefits, among others. Subsidies for utilities were also offered, to varying degrees. These social protection measures can be broadly grouped into three categories: consumption, production, and marketing (through price mechanisms). Policies which supported household consumption and access to services were more common than those which sought to promote production and marketing (see Figure 5 in section 2). This is expected, as the immediate concern of a government during a pandemic would be to ensure food security and access to basic services for its people. But it is also important not to overlook support for production and marketing activities, as these are critical to building resilience in the food system. In the medium to long term, emphasis in these areas, especially for agricultural households, will be crucial.

A closer look at social protection policies in SSA reveals that in many countries, only a limited number of people received assistance. For example, in Liberia and Malawi, Aggarwal et al. (2020) report that no household in their study received social assistance during the pandemic. In Uganda, the incidence of household cash transfer receipts from social assistance programs was less than 1% (World Bank, 2020e). Similarly, over 60% of respondents in a study in Nigeria, Tanzania, and Zimbabwe did not receive social assistance from any source (Carreras et al., 2020). In Nigeria, Akinyele et al. (2020) note that there was limited support from SSA governments to cushion households against the effects of the pandemic. They report that only 8–13% of households in their study received financial support from the federal, state, or local governments; the majority that did not receive support remained economically vulnerable and were pushed deeper into food insecurity and poverty.

Implementation of social protection initiatives in the time of Covid-19 has not been without challenges. These mainly include limited funding and untimeliness of delivery. Funding is constrained by tight government budgets in SSA countries, making it less likely that the governments' good intentions to provide support for citizens will be actualized. Increasing debt among SSA countries and the associated debt repayment burdens also mean that government revenues rarely meet their financial obligations. Therefore, it is not surprising that, for example, although the Federal Government of Nigeria intended to offer a cash transfer of N20,000 (approximately US \$51.75) to each vulnerable household, it supported only a small number of households (Akinyele et al., 2020). Untimely delivery of social protection support is also an important challenge. For example, 100% of participants in a study in South Africa reported delayed delivery of food aid, difficulties in accessing health services, and postponement of hospital appointments (Nyashanu et al., 2020).

Three out of the 57 studies in this evidence synthesis demonstrate empirically that social protection initiatives can have a positive impact on food security, health, and conflict outcomes. Using a randomized controlled trial in the context of an existing universal basic income project in Kenya, IPA (2020) find that households that received cash transfers experienced improved food security and physical and mental health outcomes (Box 1). In Liberia and Malawi, Aggarwal et al. (2020) find that cash transfers improve dietary quality and quantity, while Gutiérrez-Romero (2020), using data on 24 countries in Africa, shows that the probability of food-related conflicts declined by about 0.2 percentage points with an additional anti-poverty policy response to Covid-19 (e.g., cash transfers, utility support, or wage subsidies).

Box 1. Impact of unconditional cash transfers on household welfare in the context of Covid-19 in Kenya

Taking advantage of a pre-existing project providing universal basic income (UBI) to adults in 295 villages in Siaya and Bomet Counties in Kenya, IPA (2020) evaluated the impact of different types of unconditional cash transfers on income, self-reported well-being, food security, mental health, and social interaction of recipients in the context of Covid-19, using a randomized controlled trial (RCT). The objective was to evaluate the extent to which unconditional cash transfers would cushion poor households from the negative effects of the pandemic.

Study design

Group	No. of villages (people)	Treatment
Long-term UBI	44 villages (5,000 people)	Each adult over 18 years receives daily transfer of US \$0.75 for 12 years.
Short-term UBI	80 villages (8,800 people)	Each adult over 18 years receives daily transfer of US \$0.75 for 2 years. Payments had stopped by the time the survey was conducted in May/June 2020.
Lump sum UBI	71 villages (8,800 people)	Each adult over 18 years received a one-time transfer of US \$500.
Control group	100 villages (11,000 people)	Received no assistance

Results

- Recipients of long-term transfers diversified income sources before the pandemic, though earnings significantly declined during the pandemic.
- Recipients of the transfers were less likely by 5–11 percentage points to report hunger, and the effect was greater for the long-term transfers group.
- Incidence of sickness was less likely by 4–6 percentage points in recipients' households.

7. Impacts Across Subpopulations

Rural / Urban Differences in the Impact of the Covid-19 Pandemic

There is reason to assume that the Covid-19 pandemic and its associated policy responses may have different impacts on rural and urban populations in SSA. To the extent that rural households may be less reliant on markets for their food access and may derive less of their livelihoods from market settings, rural households would be in a relatively stronger position to withstand the economic disruptions of 2020 (Aggarwal et al., 2020; Mosely & Battersby, 2020). They would be less negatively affected by market closures, variability in market prices, and regulations of public transport. Accordingly, farmers in Kenya and Uganda have been less likely to experience declines in their food security than other urban-based groups (Kansiime et al., 2020). In Nigeria, state-level lockdowns seem to have disrupted non-farm business activities more than farming activities. In Liberia and Malawi, Aggarwal et al. (2020) write, “our results suggest that the typical farming household was able to cope.” In contrast, urban dwellers largely rely on markets for access to food. Furthermore, those who work in the informal sector (as do a large majority of the urban population in SSA) toil each day for income with which to meet their daily needs, such that interruptions to the functioning of informal markets cut them off from their livelihoods.

Nevertheless, this evidence synthesis also demonstrates that rural populations are often affected by the Covid-19 pandemic through similar pathways. As noted by Willy et al. (2020), a majority of rural labour time is allocated to off-farm (often informal) activities. Consequently, even rural households have lost income with the economic restrictions introduced to stem the spread of Covid-19. Rural households are also food purchasers too. And in fact, an average of two thirds of the value of rural food consumption across five countries (Ethiopia, Malawi, Nigeria, Tanzania, and Uganda) is being purchased (Liverpool-Tasie et al., 2020). Thus, a decline in income and any increase in food prices is detrimental to the welfare of rural households in SSA. In Kenya and Uganda, farmers are more likely than others to report experiencing income reductions (Kansiime et al., 2020).- this could be driven by difficulties in getting their produce to markets. Nigerian households residing in remote areas were most likely to suffer in terms of reduced food security (Amare et al., 2020).

Gender Patterns in the Impact of the Covid-19 Pandemic

The Covid-19 pandemic, as with most shocks, has had somewhat different impacts on men and women in SSA food systems. In Kenya and Uganda, men were more likely than women (by 11 percentage points) to report that their income sources have been affected by the Covid-19 crisis. Given that men tend to have more diverse income portfolios, if one area or another is affected by a shock, other areas may remain unaffected (Kansiime et al., 2020). At the same time, because women do considerable work in the informal sector (and are less likely to be employed formally as wage workers), they are also quite exposed as informal workers. In East Africa, for example, women play a key role in the processing of meat and dairy, with over 90% of this activity being informal (FAO, 2020a). Some gendered impacts cannot be generalized across different settings. For example, in Ghana, female-headed rural households report that they have had lower access to off-farm work in the Covid-19 era, relative to their male-headed counterparts, while the reverse pattern is found in Nigeria (Carreras et al., 2020).

Another pathway through which the Covid-19 pandemic has affected men and women differently is through restrictions on cross-border trade. Informal cross-border traders (ICBTs) play an important role in Africa. It serves as a vehicle for ferrying agricultural commodities and other consumer goods between producers and consumers in different countries. In Rwanda, for example, over half of exports to neighbouring countries pass through informal cross-border channels (Parshotam, 2020). Because women comprise up to 70% of ICBTs across the continent and over 50% in East Africa (Parshotam,

2020; Porciello et al., 2020), the closure of borders and more stringent regulations of cross-border trade that were introduced with the pandemic have likely been particularly difficult for women ICBTs. Nevertheless, this hypothesis is not explicitly addressed among the 57 studies that met our inclusion criteria for this review.

As noted in section 4, a minority of the studies in this synthesis measured the differential impacts of the Covid-19 pandemic along gender lines. This leaves us with more hypotheses than evidence regarding the gendered patterns around how Covid-19 has affected food systems in SSA, a frontier worth expanding by future research.

8. Implications for the Resilience of Food Value Chains in SSA

The Covid-19 pandemic has revealed both strengths and weaknesses of food value chains in SSA. On the demand side, one lesson learned is the critical role of informal markets in the food security of (primarily but not limited to) the urban poor for three reasons. First, these consumers rely on frequent trips to nearby informal markets because they have limited incomes and no capacity to purchase and store food in bulk. Second, the markets upon which these consumers depend sell foods in small quantities and in prepared forms that are convenient to them. Third, these markets are accessible to poor communities. On the supply side, these informal markets play a key role in securing jobs for the urban poor. As noted earlier, in South Africa, informal food markets employ more people than the formal food and grocery sector (Wegerif, 2020), a pattern that is likely amplified in other SSA countries. The policy reflex to close or restrict informal markets has been detrimental to market vendors and consumers, and this underscores how these markets are (in normal times) drivers of food value chain resilience.

With respect to restrictions on mobility and transport, horticulture and other perishable products stand out as being vulnerable to such measures. Fruits and vegetables could not be ‘paused’ in their journey from production to consumption, meaning that public health policies were especially disruptive for them. The upshot is that consumers had less access to nutritious but perishable food products, diminishing their nutrition security. This experience suggests an urgent need for cold storage systems to make horticulture value chains (and those of other perishable products such as dairy) more resilient to disruptions. Given the capital intensity and time requirements associated with the development of cold storage systems, positive discriminatory public health rules could be designed to cater for the needs of handlers of perishable goods in case of another lockdown. For, example there could be fewer road check points for perishable goods and truck drivers on transit, and where they must necessarily stop for checks, a separate booth can be assigned them to speed up the process of checking and clearing them to proceed with the journey. Transportation firms operating across countries can also consider using an approach where for the same truck load of perishable goods, different drivers are used in different jurisdictions where the legal regimes allow them to. For instance, if vegetables and fruits are being moved from say Kenya to Ethiopia, then a Kenyan resident would simply drive to the border and hand it over to an Ethiopian to eliminate the waiting time that would be incurred when the Kenyan driver would be checked by health inspectors on the Ethiopian side.

To the extent that SSA food systems are reliant on global food value chains—primarily as importers but also as exporters of low-value, unprocessed agricultural commodities—the region is vulnerable to external shocks. This is evident in the alarm expressed for West African rice value chains early in the pandemic (Arouna et al., 2020; Kathiresan et al., 2020). However, a more robust system of intra-African trade would render SSA more resilient in the face of global shocks, as regional trade can be used to stabilize food supply and prices without engaging with other continents that may be more affected by a given disturbance. The implication is that intra-African trade should be facilitated and

augmented. This will be discussed further in section 9.1 ('Recommendations for policy makers'). Beyond the promise and potential benefits of intra-African trade in the medium to long term, a deliberate attempt by SSA governments to strengthen and promote local production of key food security crops is important. For instance, in the case of West Africa, which is a net importer of rice, there is ample evidence that given the needed attention, rice value chains in many of the individual countries can bridge the demand gaps – without the need to import from neighbours or from other continents. Targeted investments in these key crops in the short to medium term can prepare SSA for future shocks, even if international trade fails. Another way to potentially tackle and break the dependence on imports is to consider promoting the consumption of food staples which are produced in excess in specific countries. For example, for some West African countries cassava production far exceeds local demand, and measures to develop the taste for cassava products among a greater proportion of their populations could reduce the need for importation of other crops which drives uncertainties up in crises times.

This evidence synthesis also brings to light the scarcity of agrifood data in real (or near) time, as a lack of information through administrative or other channels was a frequent rationale for these data collection or modelling efforts. As noted by Porciello et al. (2020), up-to-date agricultural data is a building block of a resilient food system, and it seems likely that policy makers with greater access to information on what is occurring throughout a country's food system would be able to craft policies that are more context-driven and responsive to the needs of food system actors. Along these lines, Chadza et al. (2020a) recommend that policy makers engage consistently with food system actors to discern how they are affected by policies and what can be done to support them. To this end, functional and decentralized agricultural ministries and statistical offices across countries need attention with just in time collection, cleaning, organizing and transmission of data as the core driver. Where such decentralized data collection systems exist, they need to be strengthened through standardization of the data collected across the country and an up-to-date team whose work is to analyse the data to support evidence-based policy making processes.

9. Recommendations

Recommendations for Policy Makers

The preceding analysis gives rise to several recommendations for policy makers, some of which are immediately applicable while others would be relevant if a lockdown were re-introduced in a future crisis (Box 2).

Support the functioning of informal markets: It is important for policy makers to recognize the critical importance of informal markets and find better ways to engage with those whose livelihoods and food access depend on such markets. As noted earlier, the initial wave of restrictions on economic activity were particularly harsh for informal markets. They were temporarily closed, relocated, or restructured to ensure that fewer shoppers were crowded into the space. In some instances, this was even accompanied by police violence against informal traders (Asante & Mills, 2020). Closures of informal markets particularly destabilize food access for the urban poor, and they disrupt the livelihoods of the many people who work in the informal service sector. At the same time, formal food outlets (supermarkets) were, to a greater extent, able to continue functioning as they could more easily adhere to social distancing regulations simply by having an entrance and exit that could be controlled. Wegerif (2020) refers to this readiness to clamp down on the informal sector as an “anti-informality bias” in policy. In the event of another set of restrictions on economic activity, it is imperative to support the continuous functioning of local food markets; to improve their sanitary conditions; to collaborate constructively with market leadership and trader associations to build capacity to regulate the volume of foot traffic and adhere to other social distancing guidelines; and to be patient as markets and shopkeepers adjust (Asante & Mills, 2020). In general, it would be

constructive for governments to support the functioning of informal food markets and maintain a continuous dialogue with operators.

Strengthen the performance of food value chains: Policy attention to secure and strengthen food value chains in the Covid-19 era should be extended to include actors beyond “farm” and “plate”, such as input suppliers/transporters and food transporters, processors, traders, and retailers. As noted earlier, the body of research on Covid-19 impacts in SSA tends to give more attention to farm production and consumers’ food security than to the many actors in the midstream of input supply chains or midstream/downstream of food value chains. These actors provide farmers with inputs or move food to consumers, and many are small and medium-scale enterprises that perform critical roles in maintaining the food system (Liverpool-Tasie et al., 2020). As an example of policy attention that might be warranted, Chadza et al. (2020a) suggest that policy makers in Malawi offer stimulus packages to be disbursed through local financing facilities to ensure that small and medium scale agrifood firms have access to liquidity during this difficult time. Other policy measures could include the temporary curtailment of taxes on agricultural goods crossing district borders within countries, as well as those crossing country borders. Even when it is necessary to restrict movement to reduce the spread of the virus, it is imperative that food supply chains continue to function (Liverpool-Tasie et al., 2020).

Ensure social protections for the most vulnerable: Greater social protections need to be extended to those most affected by restrictions on economic activity, particularly the urban poor and informal workers. As noted by Béné (2020), “decision-makers, from the international and down to the local levels, were poorly equipped to navigate the painful trade-off between health and economy, and as a consequence (and as is often the case), the poor have been the ones who suffered the most.” While some SSA governments provided support in the form of food assistance or debt/contract relief, it is clear from the evidence in this synthesis that people suffered from having their livelihoods abruptly cut off through restrictions on movement and economic activity, particularly as this was a covariate shock that inhibited the functioning of informal safety nets. As documented in Nigeria, Tanzania, and Zimbabwe (Akinyele et al., 2020; Carreras et al., 2020), people were left to rely on their own limited savings. To the extent possible, public health policies that cause indirect harm to livelihoods need to be accompanied by more robust protections for those who suffer the harm. Governments in SSA generally have limited funds for such purposes, though there may be scope for building up a more substantial emergency fund that could be drawn down during a crisis. Bisong et al. (2020) also suggest that service providers through which people receive remittances should be regarded as “essential”, with fees temporarily waived to facilitate remittances.

Implement the African Continental Free Trade Area (AfCFTA): A more robust and seamless system of intra-Africa trade is essential to make SSA food systems resilient to current or future shocks. The disruptions to trade caused by the Covid-19 pandemic, inclusive of export bans in other places (placing pressure on SSA countries that rely on agricultural imports to meet their food needs) and heightened cross-border trade security requirements, make clear the need for a more fluid system of trade within the Africa region. For individual countries, this can take the form of temporarily waived taxes and duties on trade to shorten processing times, streamline trade procedures, and support transport and logistics service providers (Brenton & Chemutai, 2020; Willy et al., 2020). More broadly, the Covid-19 pandemic has strengthened the case for the African Continental Free Trade Area (AfCFTA), which was launched in July 2020 and became operational in January 2021. The AfCFTA aims to create a barrier-free trade zone among members with the removal of tariffs and the harmonization of trade rules (Morsy et al., 2020b). In a pandemic such as Covid-19, member countries could establish a safe travel and trade corridor in which all participants adhere to codified public health regulations—provided such precautions are devised and agreed upon in advance. By increasing intra-Africa trade, the AfCFTA will limit Africa’s exposure to future shocks to global food value chains, whether they stem from public health crises or other causes. More integrated food markets within Africa will likely lead to more vibrant cross-border trade, which can stabilize food supply and prices in member countries, as well as more competitive and well-functioning markets (ibid). The AfCFTA should be embraced and implemented quickly to help SSA countries recover from the Covid-19 shock.

Continue to monitor the effects of the Covid-19 crisis on food systems: Both policy makers and analysts need to be mindful of the long-term fallout from the Covid-19 pandemic. This evidence synthesis necessarily captured the short- and medium-term effects of the crisis, particularly among the 76% of studies that conducted an ex post quantitative analysis. However, it seems likely that the effects may extend beyond the end of the pandemic itself. At the time of this writing, farmers in southern Africa may have difficulty accessing or paying for inputs for the upcoming agricultural season, particularly if their household incomes declined in the agricultural year that just concluded. Government budgets may also tighten due to reduced revenue streams, or governments may prioritize public health concerns in the years ahead. In that case, agriculture could be overlooked in spending. Children's future growth may likewise be affected by coping strategies that have sacrificed diet quality and adequacy. Because these effects would persist over the long term, it is necessary to continue monitoring the impacts of the Covid-19 pandemic.

Box 2. Recommendations for policy

- Keep informal markets functioning and work with market leaders and shopkeepers to strengthen their ability to adhere to public health guidelines.
- Give policy attention to input suppliers/transporters and food transporters, processors, traders, and retailers to ensure that the entire food value chain can function.
- Extend greater social protections to those most affected by restrictions on economic activity, particularly the urban poor and informal workers.
- Implement the African Continental Free Trade Area (AfCFTA) to make SSA food systems more resilient to current or future shocks.
- Be mindful of the long-term fallout from the Covid-19 pandemic.

Recommendations for Analysts

This comprehensive evidence synthesis has unearthed some significant gaps in data and research around the topic of Covid-19 impacts on food systems in SSA (Box 3).

Attribute causality to specific policies and stressors: As discussed in section 4.3 ('Limitations of the analysis'), the extant literature tends not to assign clear causality across the various stressors presented in Figure 6. Rather, the literature is thus far preoccupied with characterizing what is happening in the population (for example, tracking measures of food security) and broadly attributing changes in welfare to the Covid-19 pandemic. Relatively few authors have tackled the challenge of attributing causality to distinct aspects of this massive shock to the food system. However, there are a few exceptions. Amare et al. (2020) consider variation over space and time in terms of both the prevalence of the virus and the nature of lockdown decrees across Nigerian states. The use of longitudinal data enables the authors to identify the outcomes of lockdown measures as distinct from other stressors. Another exception is the *ex ante* economywide studies in which analysts model the effect of different aspects of the Covid-19 shock (such as trade slowdowns) and quantify impacts that can be attributed directly to each aspect (Amewu et al., 2020). There is a need for more studies that go beyond descriptive evidence to rigorously attribute causality across the many facets of the Covid-19 crisis.

A related gap in the literature is the limited attention given to explaining variation in outcomes across different settings. Thus, retail food prices have been documented to spike in Nigeria (Amare et al., 2020) but flatline in rural Liberia and even decline in rural Malawi (Aggarwal, et al., 2020). Yet there is not yet an explanation in the literature for what drives these different outcomes, which may be sensitive to local rates of Covid-19 infection as well as the levels of urbanization in each setting, the

relative reliance on food imports, the strictness of the government policy responses to the pandemic, the existence of a social safety net, or the pre-pandemic levels of food system resilience.

Examine policy nuances that aim to balance public health and economic function: Policy makers may be interested in learning what *nuances* of widely applied Covid-19 policy responses are most protective of vulnerable livelihoods while still safeguarding public health. This is particularly true in SSA, where governments have limited resources with which to extend measures of social protection to their populations. However, few studies seem to evaluate the impact of specific policy nuances, such as exemptions to movement restrictions for agrifood-related activities, relative to a counterfactual scenario with no such exemptions. This lack of attention to efforts to balance public health and economic function leaves readers with the impression that the impact of these policies is primarily detrimental for livelihoods, though the impact of policy nuances is more likely to be positive. In *ex ante* analyses, such as the economywide model of Malawi assessed by Baulch et al. (2020), different policy options can be modelled and compared. In *ex post* analyses, analysts may be able to exploit variation in policy details across multiple countries to address this oversight.

Allocate more research attention to trade, including informal cross-border trade: A topical gap in the literature is evident in the relatively few studies that focus on regional and international trade, as compared to those that assess domestic production and consumption / food security. This may reflect the ease of accessing different types of data amid a crisis, as household surveys can be administered remotely, while other types of data collection may require face-to-face interaction, and administrative data may be published with some delay. However, tracking the current flow of imports and exports, inclusive of informal cross-border trade, is quite important, as is documenting what specific changes in border clearance protocols have been most damaging (or helpful) to trade.

Consider the entire food value chain: Another topical gap in the literature pertains to the middle segments of food value chains linking farmers and consumers. Processors, transporters, and wholesalers “between farm and fork” are often overlooked in research and have not received much attention in the literature on Covid-19 impacts. While the 57 studies in this synthesis focus mostly on either consumption or production, several papers do collect evidence on the impacts of the Covid-19 pandemic on actors in the midstream of food value chains. In Malawi, Chadza et al. (2020a) capture a holistic view of the food system through interviews with food transporters, food processing companies, and food traders. Agro-dealers are interviewed in Kenya (PAD, 2020), and market vendors are interviewed in Liberia and Malawi (Aggarwal et al., 2020).

Compare the impacts of the Covid-19 crisis on small- and large-scale food system actors: Yet another topical gap in the literature relates to the focus on informal food markets. Such markets have been dramatically affected by government policy responses to the Covid-19 pandemic, as open-air markets have been alternately closed, relocated, or restricted in their hours of operation. Because policy responses to Covid-19 have been especially destabilizing for informal markets, the market share of supermarkets may have increased in SSA, plausibly extending beyond the time-delimited closures of open-air markets. However, in the 57 studies that met our inclusion criteria, none evaluated the relative market shares of formal and informal food outlets—or, more broadly, the differential impact of Covid-19 policy responses on small- versus large-scale actors in the food system. This topic merits attention because, as noted by Battersby (2020), harsh government policy responses may result in consolidation of the food system and a shift in the pace and direction of agrifood system transformation in SSA.

Give research attention to the poorest countries: Recall that the 57 studies in this synthesis also exhibit a geographic gap. As noted in section 4, several countries that rank lowest in terms of the Human Development Index (UNDP 2019) are not captured in the literature, including Niger, the Central African Republic, Chad, South Sudan, and Burundi. Particularly because the poorest countries seem to be clustered in this excluded group, this may bias the overall story told by the included studies; thus, it is critical to gather evidence on the impacts of the Covid-19 pandemic in these countries.

Box 3. Recommendations for future research

- Identify direct causality between policy responses to the Covid-19 pandemic and the impacts of these policies.
- Evaluate the impacts of specific policy nuances (such as exemptions to movement restrictions for agrifood-related activities) to draw clear lessons for policy makers.
- Explain the variation in outcomes (such as food retail prices) across different settings.
- Differentiate the immediate or short-term effects from the medium- or long-term effects of the Covid-19 crisis.
- Consider the impacts of the pandemic on the “hidden middle”, including the processors, traders, transporters, wholesalers, and retailers that link “farm” to “fork” within food value chains.
- Measure the extent to which small-scale versus large-scale enterprises (or informal versus formal food outlets) have been differentially affected by Covid-19 policy responses.
- Examine the impact of the Covid-19 pandemic and changes to border clearance protocols on both regional (intra-African) and international food trade.
- Give attention to the impacts experienced in the poorest countries in SSA.

10. Conclusions

This report has summarized the evidence as of October 2020 on the impacts of the Covid-19 pandemic on food systems in SSA, with attention given to domestic food value chains, regional and international trade, and food and nutrition security. The first objective was to provide a synthesis of these impacts. We found that the measured (or modelled) impacts of the pandemic have been overwhelmingly negative, spanning declines in farmer incomes and disrupted supply chains, particularly for perishable foods; declines in the income of other actors throughout the food value chain, such as food vendors; disruptions in (particularly regional) trade that have affected food availability and prices; declines in physical, economic, and social access to food; and reduced diet quality and sufficiency among consumers.

The second objective was to assess the gendered impacts of the pandemic, as well as the implications for food system resilience. Some differential effects by gender are evident, as women comprise a considerable share of cross-border traders and informal food processors and vendors in SSA. However, the evidence of differential effects seems to be more pronounced for other subpopulations, such as rural/urban populations. The experiences of food system actors have shown that the resilience of a food system—even during a public health emergency—is contingent on the ease of movement along the agricultural input supply chain and food value chain, the continued operation of informal food markets, the unimpeded movement of goods across borders, and the ability of consumers to withstand economic distress.

The third objective was to identify what is effective among the various measures put in place to address the impacts of the pandemic. Because the existing literature tends not to assign causality to specific policies (with some exceptions), and because analysts have tended not to examine the effects of specific policy nuances (such as agrifood exemptions within larger movement restrictions), we were constrained in the specificity with which we could meet this objective. However, the evidence available does suggest that social protection initiatives, such as lump sum cash transfers or continuous income support, can have a positive impact on food security, health, and conflict outcomes during the Covid-19 pandemic.

The fourth and fifth objectives were to identify gaps in what is known on this topic and to provide policy recommendations, respectively. Future research should aim to determine causality with respect to specific policies and policy nuances in order to produce the most policy-relevant and actionable evidence. The scope of research should furthermore capture regional and international trade in greater detail. To provide a reliable backbone for such research, it is important for SSA governments to establish and maintain data collection and management infrastructure that provide timely and reliable data. Among our policy recommendations, policy makers should seek to maintain the functioning of the entire length of food value chains and should empower informal markets to better manage public health emergencies so they can remain open.

This review is among the first to systematically gather, tabulate, and synthesize the emerging evidence on the impacts of the Covid-19 pandemic on food systems in SSA. The aim was to glean lessons that can potentially be applied in SSA in the immediate term to better manage the ongoing crisis as it continues to unfold. To some extent, we were limited by the scope of the evidence that exists to date, indicating some disconnect between the prevailing research foci and the questions that policy makers and development practitioners most need to see answered in the near term. The evidence around this topic will surely grow over the coming months and years. Furthermore, the Covid-19 pandemic has been anything but predictable, and the nature of the crisis may veer towards more of a direct public health threat in 2021, which would make the widespread availability of a vaccine in SSA the most important public policy question around this disease. It is our hope that analysts may be inspired to pursue the recommendations for research highlighted above, and that this report can serve as a foundation for further evidence reviews as this body of literature expands and matures.

References

- Abate, G. T., de Brauw, A., & Hirvonen, K. (2020). Food and Nutrition Security in Addis Ababa, Ethiopia During COVID-19 Pandemic: June 2020 Report. Ethiopia Strategy Support Program Working Paper 145. Washington, D.C.: International Food Policy Research Institute.
- Aggarwal, S., Jeong, D., Kumar, N., Park, D., Robinson, J., & Spearot, A. (2020). Did COVID-19 Market Disruptions Disrupt Food Security? Evidence from Households in Rural Liberia and Malawi. Unpublished.
- Akinleye, S., Dauda, R., Iwegbu, O., & Popogbe, O. (2020). Impact of COVID-19 Pandemic on Financial Health and Food Security in Nigeria: A Survey-Based Analysis. Lagos State, Nigeria: University of Lagos. Preprint.
- Amare, M., Abay, K., Tiberti, L., & Chamberlin, J. (2020). Impacts of COVID-19 on Food Security: Panel Data Evidence from Nigeria. Discussion Paper 01956. Washington, D.C.: International Food Policy Research Institute.
- Amewu, S., Asante, S., Pauw, K., & Thurlow, J. (2020). The Economic Costs of COVID-19 in Sub-Saharan Africa: Insights from a Simulation Exercise for Ghana. Ghana Strategy Support Program Working Paper 52. Washington, D.C.: International Food Policy Research Institute.
- Andam, K., Edeh, H., Oboh, V., Pauw, K., & Thurlow, J. (2020). Estimating the Economic Costs of COVID-19 in Nigeria. Strategy Support Program Working Paper 63. Washington, D.C.: International Food Policy Research Institute.
- Arndt, C., Davies, R., Gabriel, S., Harris, L., Makrelov, K., Robinson, S., Levy, S., Simbanegavi, W., van Seventer, D., & Anderson, L. (2020). Covid-19 lockdowns, income distribution, and food security: An analysis for South Africa. *Global Food Security*, 26(100410).
- Arouna, A., Soullier, G., del Villar, R., & Demont, M. (2020). Policy options for mitigating impacts of COVID-19 on domestic rice value chains and food security in West Africa. *Global Food Security*, 26(100405).
- Asante, L., & Mills, R. (2020). Exploring the Socio-Economic Impact of COVID-19 Pandemic in Marketplaces in Urban Ghana. *Africa Spectrum*. doi:10. 1177/ 0002 0397 20943612
- Balde, R., Boly, M., & Avenyo, E. (2020). Labour market effects of COVID-19 in sub-Saharan Africa: An informality lens from Burkina Faso, Mali and Senegal. Working Papers 2020-022. United Nations University - Maastricht Economic and Social Research Institute on Innovation and Technology (MERIT).
- Banga, K., Keane, J., Mendez-Parra, M., Pettinotti, L., & Sommer, L. (2020). Africa trade and Covid 19: The supply chain dimension. Working Paper 586. London: Overseas Development Institute.
- Barrett, C. B. (2020). Actions now can curb food systems fallout from COVID-19. *Nature Food*, 1, 319–320.
- Battersby, J. (2020). South Africa's lockdown regulations and the reinforcement of anti-informality bias. *Agriculture and Human Values*, 37, 543–544.
- Baulch, B., Botha, R., & Pauw, K. (2020). Short-term Impacts of COVID-19 on the Malawian Economy: Initial Results. Washington, D.C.: International Food Policy Research Institute.
- Béné, C. (2020). Resilience of local food systems and links to food security – A review of some important concepts in the context of COVID-19 and other shocks. *Food Security*, 12, 805-822.
- Bisong, A., Ahairwe, P., & Njoroge, E. (2020). The impact of COVID-19 on remittances for development in Africa. Discussion Paper No. 269. Maastricht: European Centre for Development Policy Management.
- Bizoza, A., & Sibomana, S. (2020). Indicative Socio-Economic Impacts of the Novel Coronavirus (COVID-19) Outbreak in Eastern Africa: Case of Rwanda. Kigali, Rwanda: University of Rwanda.
- Brenton, P., & Chemutai, V. (2020). Trade responses to the Covid-19 crisis in Africa. Trade and Covid-19 guidance note. Washington, D.C.: World Bank.
- Buonseno, D., Cinicola, B., Raffaelli, F., Sollena, P., & Iodice, F. (2020). Social consequences of COVID-19 in a low resource setting in Sierra Leone. *International Journal of Infectious Diseases*, 97, 23-26.
- Calderon, C., Kambou, G., Zebaze Djiofack, C., Korman, V., Kubota, M., & Cantu Canales, C. (2020). Assessing the Economic Impact of Covid-19 and Policy Responses in Sub-Saharan Africa. *Africa's Pulse*. Washington, D.C.: World Bank.
- Carreras, M., Saha, A., & Thompson, J. (2020). Rapid assessment of the impact of Covid-19 on Food Systems and Rural Livelihoods in sub-Saharan Africa. *Agricultural Policy Research in Africa Synthesis Report 1*. Brighton: Future Agricultures Consortium.
- Chadza, W., Muyanga, M., Burke, W., & Nyondo, C. (2020a). Impact of COVID-19 on Agri-food Systems in Malawi: Farm Level Analysis. Working Paper No. 20/02. Lilongwe, Malawi: MwAPATA Institute.
- Chadza, W., Burke, W., Nyondo, C., Khonje, M., Munthali, M., Nyirenda, Z., Muyanga, M., & Jayne, T. S. (2020b). An Early Assessment of the Impact of COVID-19 in Malawi. Working Paper No. 20/05. Lilongwe, Malawi: MwAPATA Institute.

- Chege, C., Onyango, K., Kabach, J., & Lundy, M. (2020). Impact of COVID-19 on Diets of Poor Consumers in Africa: Evidence from the Slums of Nairobi, Kenya. Cali, Colombia: International Center for Tropical Agriculture (CIAT).
- Confederação das Associações Económicas de Moçambique (CTA). (2020). Impacto da pandemia da covid-19 no sector empresarial e medidas para a sua mitigação. Maputo: CTA.
- Da Rocha, A., Vaz, C., Paulo, F., Domingos, P., Santos, R., & Marcelo, T. (2020). COVID-19: Impactos Económicos E Sociais Em Angola. Contribuição para o debate. Luanda: Centro de Estudos e Investigação Científica Universidade Católica De Angola.
- Demeke, E., Hardy, M., Kagy, G., Meyer, C., & Witte, M. (2020). The Impact of COVID-19 on the Lives of Women in the Garment Industry: Evidence from Ethiopia. Living Paper Version 1. Preprint.
- Desbureaux, S., Kaota, A., Lunanga, E., Stoop, N., & Verpoorten, M. (2020). Covid-19 vs. Ebola: Impact on households and SMEs in Nord Kivu, DR Congo. Institute of Development Policy Working Paper 2020.03. Belgium: University of Antwerp.
- Devereux, S., Béné, C., & Hoddinott, J. (2020). Conceptualising COVID-19's impacts on household food security. *Food Security*, 12, 769-772.
- Dolislager, M., Reardon, T., Arslan, A., Fox, L., Liverpool-Tasie, S., Sauer, C., & Tschirley, D. (2020). Youth and adult agrifood system employment in developing regions: Rural (Peri-urban to hinterland) vs urban. *Journal of Development Studies*. doi: 10.1080/00220388.2020.1808198.
- Erokhin, V., & Gao, T. (2020). Impacts of COVID-19 on trade and economic aspects of food security: Evidence from 45 developing countries. *International Journal of Environmental Research and Public Health*, 17 (5775).
- Fall, A., Sèye, M., Lô, C., Dione, M., Leport, A., Peterman, A., & Hidrobo, M. (2020). Les femmes rurales sénégalaises à l'épreuve de la Covid-19. International Food Policy Research Institute and Université Cheikh Anta Diop de Daka, Washington, D.C. and Dakar.
- Famine Early Warning Systems Network (FEWS NET). (2020). Moçambique: Perspectivas de Segurança Alimentar. Junho de 2020 a Janeiro de 2021. Washington, D.C.: FEWS NET.
- Food and Agriculture Organization of the United Nations (FAO). (2020a). Impact of COVID-19 on agriculture, food systems and rural livelihoods in Eastern Africa: Policy and programmatic options. Rome: FAO.
- Food and Agriculture Organization of the United Nations (FAO). (2020b). Mali - Plan de réponse de la maladie à coronavirus 2019 (covid-19). Rome: FAO.
- Food and Agriculture Organization of the United Nations (FAO). (2020c). An Introduction to the Basic Concepts of Food Security. Rome: FAO. Retrieved from <http://www.fao.org/3/aal936e.pdf>
- Francesconi, N., Wouterse, F., & Birungi, D. (2020). Governing for resilience: Producer organizations and the COVID-19 crisis in Africa. Unpublished draft.
- Global Alliance for Improved Nutrition (GAIN). (2020). Impact of COVID-19 on Food Systems: A Situation Report, Edition 3. Geneva, Switzerland: GAIN.
- Goshu, D., Ketema, M., Diriba, G., & Ferede, T. (2020). Assessment of COVID-19 Effects and Response Measures in Ethiopia: Livelihoods and Welfare Implications. Policy Working Paper 04/2020. Addis Ababa, Ethiopia: Ethiopian Economic Policy Research Institute (EEPRI).
- Grant, M., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal*, 26, 91–108.
- Gutiérrez-Romero, R. (2020). Conflict in Africa during COVID-19: social distancing, food vulnerability and welfare response. London: Queen Mary University of London. Preprint.
- Hale, T., Angrist, N., Cameron-Blake, E., Hallas, L., Kira, B., Majumdar, S., Petherick, A., Phillips, T., Tatlow, H., & Webster, S. (2020). Oxford COVID-19 Government Response Tracker. Oxford: Blavatnik School of Government. Retrieved from <https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker>.
- Hirvonen, K. (2020). Economic Impacts of COVID-19 Pandemic in Ethiopia. Ethiopia Strategy Support Program Working Paper 151. Washington, D.C.: International Food Policy Research Institute.
- Hirvonen, K., de Brauw, A., & Abate, G. (2020a). Food Consumption and Food Security during the COVID-19 Pandemic in Addis Ababa. Discussion Paper 01964. International Food Policy Research Institute, Washington, D.C.
- Hirvonen, K., Mohammed, B., Minten, B., & Tamru, S. (2020b). Food Marketing Margins During the COVID-19 Pandemic: Evidence from Vegetables in Ethiopia. Ethiopia Strategy Support Program Working Paper 150. Washington, D.C.: International Food Policy Research Institute.
- High-Level Panel of Experts (HLPE). (2017). Nutrition and food systems. A report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome: FAO.
- Initiative Prospective Agricole et Rurale (IPAR). (2020). Effets de la COVID-19 sur les ménages agricoles et ruraux du Sénégal. IPAR.

- Innovations for Poverty Action (IPA). (2020). The Effects of a Universal Basic Income During the COVID-19 Pandemic in Kenya. Study Summary. New Haven, Connecticut: IPA.
- International Food Policy Research Institute (IFPRI). (2020). Covid-19 Policy Response (CPR) Portal. Retrieved from <https://www.ifpri.org/project/covid-19-policy-response-cpr-portal>.
- Kamanha, N., Lourenço, Ó., & Pedro, O. (2020). O Impacto Socioeconómico da Covid-19 em Angola. Congresso Internacional Virtual Sobre COVID-19.
- Kansiime, M. K., Tambo, J. A., Mugambi, I., Bundi, M., Kara, A., & Owuor, C. (2020). COVID-19 implications on household income and food security in Kenya and Uganda: Findings from a rapid assessment. *World Development*. doi:10.1016/j.worlddev.2020.105199
- Kathiresan, A., Nagai, T., & Haneishi, Y. (2020). Policy options for galvanizing Africa's rice sector against impacts of COVID-19. *World Development*, 136(105126).
- Le Nestour, A., Mbaye, S., & Moscoviz, L. (2020). Phone survey on the Covid crisis in Senegal. Washington, D.C.: Centre for Global Development.
- Liverpool-Tassie, L., Reardon, T., & Belton, B. (2020). "Essential non-essentials": COVID-19 policy missteps in Nigeria rooted in persistent myths about African food value chains. Forthcoming in *Applied Economic Perspectives and Policy*. doi: 10.1002/aapp.13139.
- Mahmud, M., & Riley, E. (2020). Household response to an extreme shock: Evidence on the immediate impact of the Covid-19 lockdown on economic outcomes and well-being in rural Uganda. Preprint.
- Matsungu, T., & Chopera, P. (2020). The effect of the COVID-19 induced lockdown on nutrition, health and lifestyle patterns among adults in Zimbabwe. Harere, Zimbabwe: University of Zimbabwe. Preprint.
- Minten, B., Mohammed, B., & Tamru, S. (2020). Emerging medium-scale tenant farming, gig economies, and the COVID-19 disruption: Evidence from commercial vegetable clusters in Ethiopia. Ethiopia Strategy Support Program Working Paper 149. Washington, D.C.: International Food Policy Research Institute.
- Mogues, T. (2020). Food Markets During COVID-19. Washington, D.C.: International Monetary Fund.
- Mold, A., & Mveyange, A. (2020). The impact of the COVID-19 crisis on trade: Recent evidence from East Africa. Policy Brief. Washington, D.C.: Brookings Institution.
- Morsy, H., Balma, L., & Mukasa, A. (2020a). Not a Good Time: Economic Impact of COVID-19 in Africa. Working Paper No. 338. Abidjan, Côte d'Ivoire: African Development Bank.
- Morsy, H., Salami, A., & Mukasa, A. (2020b). Opportunities Amid COVID-19: Advancing Intra-African Food Integration. Africa Economic Brief, Issue 11, No. 4. Abidjan, Côte d'Ivoire: African Development Bank.
- Moseley, W., & Battersby, J. (2020). The vulnerability and resilience of African food systems, food security, and nutrition in the context of the COVID-19 pandemic. *African Studies Review*, 63 (3), 449-461.
- Nyashanu, M., Simbanegavi, P., & Gibson, L. (2020). Exploring the impact of COVID-19 pandemic lockdown on informal settlements in Tshwane Gauteng Province, South Africa. *Global Public Health*. doi:10.1080/17441692.2020.1805787.
- Ouattara, N. (2020). Impact of COVID-19 on cashew price and cashew producers' income in Côte d'Ivoire: A case study in five departments. *Journal of Agricultural Science*, 12 (8), 117-128.
- Paganini, N., Adinata, K., Buthelezi, N., Harris, D., Lemke, S., Luis, A., Koppelin, J., Karriem, A., Ncube, F., Aguirre, E. N., Ramba, T., Raimundo, I., Sulejmanovic, N., Swanby, H., Tevera, D., & Stöber, S. (2020). Growing and eating food during the COVID-19 pandemic: Farmers' perspective on local food resilience to shocks in Southern Africa and Indonesia. *Sustainability*, 12(8556). doi:10.3390/su12208556
- Parshotam, A. (2020). Mitigating the impact of COVID-19 for Africa's women traders: What more can we do? *Africa Current Issues*, Vol. 2020-22. Singapore: Nanyang Technological University.
- Porciello, J., Tufan, H., Njuki, J., Winters, P., Mabaya, E., & Coffman, R. (2020). Averting hunger in sub-Saharan Africa requires data and synthesis. *Nature*, 584, 37-40.
- Precision Agriculture for Development (PAD). (2020). Agroldealer and Farmer COVID-19 Survey, April-June 2020. PAD. Boston, Massachusetts: PAD.
- Reardon, T., & Swinnen, J. (2020). COVID-19 and resilience innovations in food supply chains. In J. Swinnen & J. McDermott (Eds.), *COVID-19 and Global Food Security* (Chapter 30, pp. 132–136). Washington, D.C.: International Food Policy Research Institute.
- Shupler, M., Mwitari, J., Gohole, A., Anderson de Cuevas, R., Puzzolo, E., Čukić, I., Nix, E., & Pope, D. (2020). COVID-19 lockdown in a Kenyan informal settlement: Impacts on household energy and food security. Preprint.
- Teachout, M., & Zipfel, C. (2020). The economic impact of COVID-19 lockdowns in sub-Saharan Africa. Policy Brief. London, U.K.: International Growth Centre.

- Tesfaye, A., Habte, Y., & Minten, B. (2020). COVID-19 is shifting consumption and disrupting dairy value chains in Ethiopia. In J. Swinnen, & J. McDermott (Eds.), *COVID-19 and Global Food Security, Part Two: Diets and Nutrition* (pp. 42-45). Washington, D.C.: International Food Policy Research Institute (IFPRI).
- Trotter, P., Mugisha, M., Mgugu-Mhene, A., Batidzirai, B., Jani, A., & Renaldi, R. (2020). *Between collapse and resilience: Emerging empirical evidence of Covid-19 impact on food security in Uganda and Zimbabwe*. Unpublished.
- Tsimpo Nkengne, C., Tiberti, M., Nguyen, N. V., Backiny-Yetna, P. R., Koncobo, Z., Belemkoabga, L., & Tiendrebeogo, A. (2020). *Monitoring COVID-19 Impacts on Households in Burkina Faso: COVID-19 Impact Monitoring at the Household Level. Round 1*. Washington, D.C.: World Bank.
- United Nations Development Program (UNDP). (2019). *Human Development Report 2019: Beyond income, beyond averages, beyond today: Inequalities in human development in the 21st century*. New York: UNDP.
- United Nations (UN). (2020a). *Leaving No One Behind: From the COVID-19 Response to Recovery and Resilience-Building: Analyses of the Socioeconomic Impact of COVID-19 in Uganda*. New York: United Nations.
- United Nations (UN). (2020b). *Methodology: Geographic Regions*. New York: United Nations Statistic Division. Retrieved from: <https://unstats.un.org/unsd/methodology/m49/>.
- United Nations Economic Commission for Africa. (2020). *Socio-Economic Impact of Covid-19 in Southern Africa*. Lusaka, Zambia: United Nations.
- Wageningen University & Research (WUR). (2020). *Rapid country assessment: Mali. The impact of COVID-19 on the food system*. Wageningen University & Research and Royal Tropical Institute. Netherlands: WUR.
- Wegerif, M. (2020). "Informal" food traders and food security: Experiences from the Covid-19 response in South Africa. *Food Security*, 12, 797-800.
- Wieser, C., Ambel, A., Bundervoet, T., & Haile, A. (2020). *Monitoring COVID-19 Impacts on Households in Ethiopia: Results from a High-Frequency Phone Survey of Households. Report No. 3*. Washington, D.C.: World Bank.
- Willy, D., Diallo, Y., Affognon, H., Nang'ayo, F., Waithaka, M., & Wossen, T. (2020). *COVID-19 Pandemic in Africa: Impacts on Agriculture and Emerging Policy Responses for Adaptation and Resilience Building*. TAAT Policy Compact Working Paper No. WP01/2020. Abidjan, Côte d'Ivoire: African Development Bank.
- World Bank. (2020a). *Commodity Price Data (The Pink Sheet)*. Washington, D.C.: World Bank.
- World Bank. (2020b). *COVID-19 From the Ground Up: What the Crisis Means for Nigerians: Findings from the Nigeria COVID-19 National Longitudinal Phone Survey (NLPS), Round 1, April-May 2020*. Washington, D.C.: World Bank.
- World Bank. (2020c). *COVID-19 Impact Monitoring, Round 4 (Nigeria)*. Washington, D.C.: World Bank.
- World Bank. (2020d). *Monitoring COVID-19 Impacts on Households in Malawi: Findings from the Second Round of the High-Frequency Phone Survey*. Washington, D.C.: World Bank.
- World Bank. (2020e). *Monitoring COVID-19 Impacts on Households in Uganda: Findings from the First Round of the High-Frequency Phone Survey*. Washington, D.C.: World Bank.
- World Food Program (WFP). (2020). *Impact of covid-19 outbreak on supply chains, regional trade, markets and food security in Africa*. Rome: World Food Program.

Annex

Table A1. Coding framework for documents included in the evidence synthesis

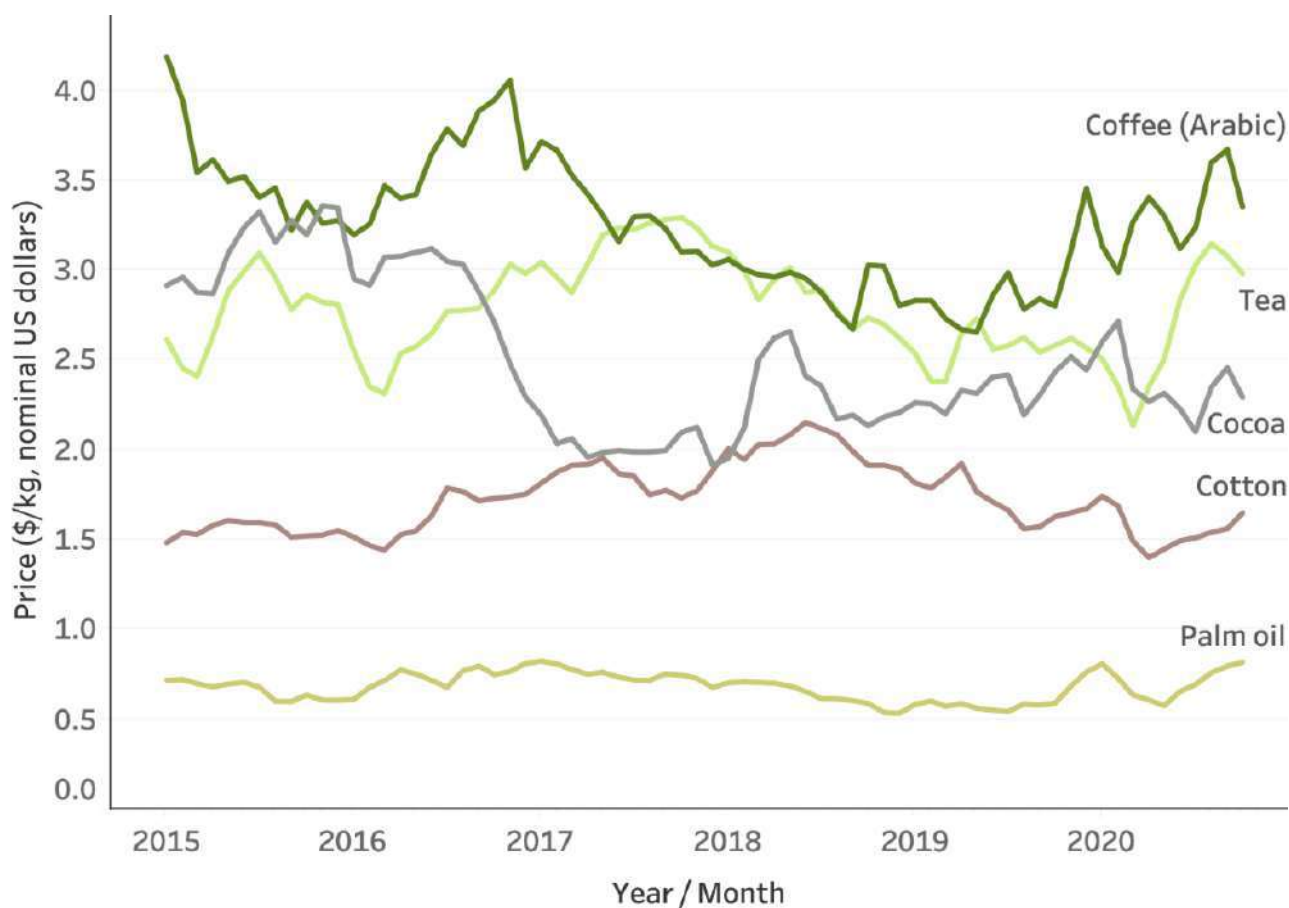
Variable	Drop-down menu options
Type of publication	Peer-reviewed journal article; Pre-print (not peer reviewed article); grey literature
Author	Academic scholar / university; Research institute; International organization; National or subnational NGO
Date of publication (month)	January – October 2020
Method 1	Quantitative; Qualitative; Mixed methods
Method 2	Ex ante; Ex post; Mixed
Level of rigor	Descriptive; Correlation; Robust causal analysis
Geography (region)	Central Africa; East Africa; South Africa; West Africa; Multiple regions
Geography (specify countries)	---
Type of policy maker	National government; Subnational government; International organization
Policy intent	Stimulate food production; Protect food supply / food access / lower food prices; Stimulate the economy and jobs; Support enterprises, employment and incomes; Protect workers
Policy type	Farm policy; Restrictions on populations; Trade policy; Social protection policy; Business policy; Monetary and financial policy; Covid-19 specific health policy
Specific policy actions (specify)	---
Subpopulations: gender	Yes / No
Subpopulations: rural/urban	Yes / No
Subpopulations: other vulnerable groups	Yes / No
Effective	Yes / No / Inconclusive (not applicable for public health policies)
Outcomes evaluated	Agricultural production; Labour availability; Farmer incomes; Livelihoods / Incomes of non-farmer food system actors; Imports / Exports; Food prices; Food security (consumers); Food access (consumers)
Impact on each outcome	Increased; Decreased; No change or multiple directions of change

Source: Authors

Box A1. List of 57 studies included in the evidence synthesis

Abate et al., 2020; Aggarwal et al., 2020; Akinleye et al., 2020; Amare et al., 2020; Amewu et al., 2020; Andam et al., 2020; Arndt et al., 2020; Balde et al., 2020; Baulch et al., 2020; Buonseno et al., 2020; Calderon et al., 2020; Carreras et al., 2020; Chadza et al., 2020a; Chadza et al., 2020b; Chege et al., 2020; CTA, 2020; Da Rocha et al., 2020; Demeke et al., 2020; Desbureaux et al., 2020; Erokhin & Gao, 2020; FAO, 2020b; Fall et al., 2020; FEWS NET, 2020; Francesconi et al., 2020; GAIN, 2020; Goshu et al., 2020; Gutiérrez-Romero, 2020; Hirvonen, 2020; Hirvonen et al., 2020a; Hirvonen et al., 2020b; IPA, 2020; IPAR, 2020; Kamanha et al., 2020; Kansiime et al., 2020; Le Nestour et al., 2020; Mahmud & Riley, 2020; Matsungu & Chopera, 2020; Minten et al., 2020; Mold & Mveyange, 2020; Morsy et al., 2020; Nyashanu et al., 2020; Ouattara, 2020; Paganini et al., 2020; PAD, 2020; Shupler et al., 2020; Teachout & Zipfel, 2020; Tesfaye et al., 2020; Trotter et al., 2020; Tsimpo et al., 2020; UN, 2020a; WFP, 2020; Wieser et al., 2020; World Bank, 2020b; World Bank, 2020c; World Bank, 2020d; World Bank, 2020e; WUR, 2020.

Figure A1. Commodity prices, January 2015 – October 2020



Source: World Bank Commodity Prices “Pink Sheet” Data, as of November 16, 2020 (World Bank 2020a)



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