

The potential intersections of Covid-19, gender and food security in Africa

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Many responses to Covid-19, both in policy and analysis, fail to consider how gender interacts with implemented measures and their implications for food security in Africa. An understanding of these potential intersections is, however, crucial for a gender-sensitive response that ensures both women's own food security and their ability to safely perform crucial roles in the food value chain. We draw on evidence from past health crises, reports from the Covid-19 pandemic, and literature on gender and food security, to draw out potential gendered effects across four nodes: production, processing, trading, and consumption. We analyze how gendered structures can lead to an increase in women's care work, an increase in women's agricultural work in substitution for import-restricted inputs, a disproportionate financial effect due to women's prevalence in local markets and street vendor sectors, and consequent health effects due to women's central role in food preparation and household nutrition.

Keywords: Gender, Covid-19, Food Security, Food Value Chains, Smallholder Agriculture, Local Markets.

Introduction

The Covid-19 pandemic is spreading across the globe, causing serious illness, death, and disrupting life as we know it. The medical emergency and the public response to it – most importantly, the unprecedented restrictions to the movement of people – are also having a dramatic impact on economic activity. Among many dimensions of impact, the pandemic has the potential to threaten food security for tens of millions of people (Haddad et al. 2020). The three Rome-based food and agriculture agencies issued a statement jointly with the World Bank that emphasizes the need to ensure that global markets continue to function and for policies that ensure the poor have access to food (FAO et al. 2020).

This paper looks beneath these macro-scale forces and brings a gendered lens to understanding the food security impacts of the pandemic. Global supply and demand changes will have unequal impacts on different groups of people, even within countries or localities. Whether people are net food producers, and grow much of the food they eat, or rely on market purchases of food will affect their food security. People's location along food and agricultural value chains, the four nodes of which include producers, processors, traders, and consumers, will also affect their experience. Because men and women play different roles in local food systems and face different structural barriers, the pandemic will affect them quite differently, with different implications for food security.

Women play a pivotal role in all three components of food security: food availability (production), food access (distribution), and food utilization, as well as in a wide range of activities that support agricultural development, such as soil and water conservation, afforestation and crop domestication amongst others.

While there has been extensive discussion of gendered impacts of Covid-19, particularly the care burdens on women (Wenham et al. 2020; UN Women 2020; WBG 2020), the contribution of this paper is to focus on the intersection of gender and food security in the context of the pandemic.

We analyze how the central roles of women in the local agriculture and food sector throughout much of Africa raise concerns regarding food security. We argue that we cannot afford to ignore the role of women when we analyze the impacts on food security, and we cannot ignore the vulnerability of women and their susceptibility to food insecurity and malnutrition. While the exact roles of women and the institutional context will vary across Africa, we highlight the many ways in which the pandemic may affect food security and the importance of taking gender into consideration.

We ask what is missing in the current discussions of food security and local food systems in Africa. We draw heavily on NGO and news reports as these give insight into a continuously changing situation that academic publications are only beginning to respond to (Bahn et al. 2020). We highlight the importance of

making the invisible visible. While this often refers to women's work in the care economy, much of women's work in the food economy is also often invisible, based in smaller enterprises and in the informal sector. In addition, we consider how a set of gendered institutions, including land and property rights, market structures, and policy deeply influence food security in both the immediate and longer term. We begin with a review of the literature on the gendered impacts of epidemics and pandemics and then consider how these factors are relevant at various stages within the food system, from production, to processing and trade, and finally to consumption.

Lessons from previous epidemics on potential impacts from Covid-19

Evidence from previous epidemics, particularly HIV/AIDS and Ebola, has demonstrated the importance of women's role in care work and the impact of gendered institutions on various dimensions of food security. The impacts of an epidemic will be experienced differently across groups based on morbidity and mortality rates, the scale and locality of the epidemic/pandemic, the gendered structure of local institutions, and the government and other policy responses.

Women's role as primary caregivers will play a key role in how they are affected, as women continue to provide much of the care work for the sick globally (Akintola 2008). The unpaid care work burden, which disproportionality falls on women, has thus only increased with the pandemic. Not only do women care for those who are sick, but they are also responsible for preventive healthcare. During the 2014–16 West African outbreak of Ebola, gendered norms meant that women were more likely to be infected by the virus, given their predominant roles as caregivers within families and as front-line health-care workers (Davies and Bennet 2016).

Prevention of Covid-19 requires additional sanitation and handwashing, which increases the burden of collecting water. And when schools close, women tend to be responsible for taking care of the children. The care work burden for women in Africa is already high. On average, women in sub-Saharan Africa spend an estimated five hours per day on unpaid care work, more than double the time spent by men (Moreira da Silva 2019). In Nairobi, women spend up to five times as much time as men on unpaid care work (Oxfam 2019).

Previous studies on epidemics and pandemics have further highlighted how women's provision of care work affects agricultural production. The HIV/AIDS epidemic had particularly high care burdens because of the extended duration of the illness. In agricultural communities, households thus faced labor shortages to work on agricultural tasks, often leaving fields uncultivated, shifting to less labor-intensive cropping patterns, or to short duration crops to meet food needs, and reducing livestock use (Slater and Wiggins 2005; Gillespie and Kadiyala 2005). While there is often a link in discussions of these changes to food security, explicit consideration of the structural constraints created by gender norms and labor patterns are rarely included.

In all cases, epidemics exacerbate poverty, since incomes decrease as the market economy slows. This will have a much bigger impact with Covid-19, which has seen markets slow or shut down both locally and globally. Most of the impacts of HIV/AIDS were experienced by directly affected households, but for Ebola and Covid-19 the impacts are much more widespread. As documented in Sierra Leone, during the Ebola epidemic household income fell, financial reserves were depleted, and people became more food insecure (Rohwerder 2014). Sharp decreases in income have also been experienced as a result of the lockdowns associated with Covid-19, and this is expected to lead to higher levels of poverty. Across Africa, the UN Economic Commission for Africa (UNECA) projects a 1.1 percent growth rate in 2020 in the best-case scenario and a contraction by 2.6 percent in the worst case, depriving 19 million people of their livelihoods and, in the context of weak social protection programs in Africa, pushing up to 29 million more people into poverty (UNECA 2020).

Gendered institutions, including social norms, will also have impacts on food security. The HIV/AIDS epidemic demonstrated the gendered nature of property rights in rural Africa and elsewhere. Wives were often blamed for their husband's death from HIV/AIDS and widows and orphans struggled to assert their rights to property after the death of the male household head (Izumi 2006; Slater and Wiggins 2005; Gillespie and Kadiyala 2005). With Covid-19, the highest mortality is among older men, who are the ones most likely to own land. Depending on the particular marital property laws and inheritance patterns, women may lose their access to land. This is particularly likely in places where the marital regime is separation of property and wives do not inherit from their husbands. These changes are likely to have both short-term and long-term impacts on food security.

Many of the policies that have been put in place in response to epidemics have not considered the gendered implications. In Côte d'Ivoire, the banning of bushmeat during the Ebola crisis changed food consumption patterns and nutrition intake. The ban on bushmeat led to a reduction in its consumption, with fish and edible mushrooms considered alternatives. However, their limited availability and utilization meant households were not able to meet their protein requirements (Dindé et al. 2017). And when protein and nutrient rich foods are scarce, they are more likely to be consumed by men than by women (Holmes et al. 2009; Bentley et al. 1999).

Analyses of the impacts of Ebola and Zika have documented the ways in which disease outbreaks have deepened already existing inequalities, especially through presumptions that women have the ability to implement the official advice given (Davies and Bennett 2016; Korkoyah and Wreh 2015; AWDF 2014). Similarly, the requirements for social distancing during Covid-19 assume that women who operate in open air markets or live in informal settlements can afford to do so. In a dilemma faced by vulnerable population across the globe, risk of infection and the necessity to earn an income will be weighed against one another, and gendered differences in household bargaining power and women's overrepresentation in particular sectors may lead to a higher risk of exposure (Conrad and Doss 2008; The Lancet 2020). This is in line with Smith's (2019) finding of a gender gap

in policy documents on disease outbreaks, as well as their observation of a “tyranny of the urgent” in official responses, which “[put] aside structural issues in favor of addressing immediate biomedical needs.” They find an overall lack of gendered analysis in the responses to health crises and a global “gender gap” in policy documents on disease outbreaks.

Thus, the evidence on previous epidemics highlights some areas which require attention to ensure food security at a local level. There are lessons for each of the four nodes of the food value chains, although many of the dimensions are often interrelated across nodes.

Production

The majority of food in Africa is produced on smallholder farms (Samberg et al. 2016). These farms typically produce for both home consumption and the market, although the relative importance varies. There is a continuum of smallholder producers from those who are primarily subsistence farmers to those who are quite commercialized.

Women’s important role in smallholder production in Africa has long been well documented (Bryson 1981; Saito et al. 1994; Doss et al. 2011). Estimates using the best data available from six African countries suggest that women provide approximately 40 percent of the labor in crop agriculture (Palacios-Lopez et al. 2017). They also provide labor to other food production activities, most notably caring for small livestock and poultry (Njuki and Sanginga 2013).

It is critical to understand women’s roles in agriculture to understand the potential impacts of Covid-19. The patterns of labor and production are highly gendered, although the specific patterns differ across agricultural systems and across crops. They are dynamic and respond to changes in markets and the environment. For example, we often see men moving into crops that were traditionally viewed as women’s crops when they become more commercially valuable (Doss 2002; Orr et al. 2016).

The pandemic is likely to affect gendered patterns of agricultural production through several interlinked channels. First, agricultural productivity may be affected. Recent analyses found gaps in the productivity of plots managed by men and women attributable to women managers having less access to key inputs, including information and credit, seeds and fertilizer, and labor, especially men’s labor (O’Sullivan et al. 2014). Women may also have lower tenure security on their plots, which may also reduce productivity (Goldstein and Udry 2008). Another reason for lower productivity on women’s farms is that they are managing numerous other activities simultaneously. Women farmers in Africa are not only responsible for growing food for their families but, as noted above, are also responsible for almost all of the childcare and household domestic responsibilities, where much of this work is often invisible.

The pandemic is affecting input availability and use. Those reliant upon inputs are finding them harder to obtain. For some crops, such as horticulture, inputs are widely used. A recent

phone survey of farmers in Ethiopia found that there were shortages of inputs and their prices had increased, primarily due to Covid-19 related restrictions of imports (Tamru et al. 2020). This affects the profitability of farming and may lead to the substitution of labor for inputs, making time constraints bite harder. For instance, the substitute for inputs such as herbicides and pesticides is additional labor, often women’s labor.

Crop choice will be affected because changes in national and international markets have altered the relative prices and demands for different crops. Imports are being shut down and the movement of goods is limited thus potentially increasing reliance on local produce. The market forces driving these changes will interact with existing social institutions, including intrahousehold dynamics, in ways that relate to gendered roles. For example, women are more likely to grow crops that are harvested and sold frequently throughout the season, such as leafy vegetables, while men are more likely to grow crops that are harvested at one point in time, such as tomatoes (Njuki et al. 2014). One reason for this is that women prefer a small but steady stream of income that can be used for regular purchases and that they can control, rather than large lump sums that are more visible and may be harder to control within the household. As such, the timing and severity of Covid-19 measures on local markets will influence whether women’s or men’s income is affected most.

The additional care work demanded of women during the pandemic may reduce their time available for agricultural work. Other sources of labor for women farmers may also be affected. Women farmers may find it difficult to hire and supervise male agricultural labor, often relying on shared work groups to do some of the heavy labor on their fields. Rural communities often support members by providing labor when a farmer becomes ill, which is less costly than letting the crops fail and providing food to their neighbors. These practices are more difficult when more people in a community are sick and when the health of others depends on practicing social distancing.

There is some large-scale commercialization of agriculture, but much of it is in export crops, including tea, cotton, oil palm, and coffee. Some of these export crops are grown by smallholders or in outgrower arrangements where farmers are contracted to grow these commercial crops. As such, they have less of a direct influence on local food security but may have an indirect impact on food security through the reduction of wages for workers if the export markets are slowed. A study by the NGO Hivos (2020) in Kenya, for instance, has shown the impact of Covid-19 on women in the horticulture and floriculture sector, where women constitute the majority of workers. While the fruit and vegetable sector has remained largely stable, the flower sector experienced a severe demand shock as a knock-on effect of lockdowns across Europe, to which Kenya exports up to 75 percent of its floricultural products (Hivos 2020). Temporary and seasonal workers in the industry have largely been laid off, and permanent workers have either been put on unpaid leave or have had their wages and/or work hours significantly reduced.

The slowdown of imports meanwhile not only affects the availability of inputs but also the import of food from abroad. While this will affect food availability, particularly in urban areas, it may also increase the prices of locally produced food,

encouraging farmers to produce more where possible. For example, the decrease in fish imported to Kenya from China, as well as concerns from consumers that the fish from China may be contaminated, have increased the demand for fish caught locally. Yet the Covid-19 curfews limit men's ability to fish on Lake Victoria at night, which is when the fishing is best (Smart 2020). While men are the ones primarily involved in catching fish, as we will see, women are heavily involved in processing and trading fish in Kenya.

Processing and food sector enterprises

Women play a critical role in entrepreneurship in the food sector, from small scale processing to high growth companies that employ thousands of workers. Sub-Saharan Africa has the lowest gender gap in entrepreneurship as well as the highest rate of entrepreneurial activity among women, and in some countries, female entrepreneurs are more prevalent than male entrepreneurs, although their businesses are typically smaller and with less capital (Cirera and Qasim 2014).

Food supply chains that stretch from rural to urban areas in Africa are often fragmented and dominated by thousands of labor-intensive small and medium enterprises (SMEs), comprising 50–80 percent of the food economies of developing Asia and Africa (Reardon et al. 2020). Reardon et al. (2020) argue that Covid-19 will create direct impacts on these “midstream” (e.g., wholesale, logistics, and processing), and “downstream” food-service enterprises. The impacts are likely to be largest in dense urban and rural peri-urban areas and the effects will be strongest in the downstream segments of retail and food service. These downstream firms are mostly informal-sector small and medium enterprises, labor-intensive with high densities of workers in small spaces. And while these enterprises are mostly female-dominated, women are invisible in most analyses.

For entrepreneurs running these food processing businesses, Covid-19 presents various challenges. Both the entrepreneurs and the employees may have difficulties getting to work because of lockdowns or curfews, their increased care responsibilities of children out of school and those who are sick, or the fear of being in close proximity with other workers. Entrepreneurs may have difficulties in getting needed raw materials mainly due to transport restrictions. For some of the smaller processing companies, the additional efforts to clean and sanitize facilities more frequently is increasing their cost of production. As many of the buyers of prepared and processed food, such as schools and offices, have been closed due to the pandemic, the demand has decreased.¹ And as workers have stopped going into offices and businesses, the informal sellers of prepared foods have also seen a drastic decrease in demand. Many of these changes will affect women more than men.

A survey conducted on April 7–9, 2020 of over 100 food processors in seven sub-Saharan African countries, finds that over 60 percent of them do not feel adequately prepared for meeting the challenges presented by Covid-19 (TechnoServe 2020). One key reason is their limited liquidity. As a result, some food pro-

cessing businesses have shut down; only 31 percent of companies have retained their full workforce. But women and their work are invisible in this study.

Women entrepreneurs in agribusiness face many of the same challenges that other women entrepreneurs face. Women's entrepreneurial activity is concentrated in low productivity sectors with limited potential for growth in income and employment; many are in the informal sector.

Due to this, women-owned food processing operations are more likely to be negatively impacted by Covid-19. They are also likely to take longer to recover from the impacts of the pandemic due to their lower access to formal credit and reliance on the family network for investment finance. Even before Covid-19, owning a small or medium enterprise was challenging for women, who own or run more than a third of all SMEs in emerging markets. These businesses already faced an estimated \$1.5 trillion credit gap (White & Case 2017), and the pandemic is expected to further widen that gap. Socio-cultural norms also pose a major barrier for women entrepreneurs to access assets and education needed for a successful business. The unequal distribution of responsibilities within the household means that women are doing most of the care work, limiting their time and effort expended in their business, which is exacerbated by the impacts from Covid-19.

As countries struggle to implement lockdowns and keep businesses open, digital technologies are becoming key for managing communication, access to information and services, money exchange, and much more. These technologies have potential to address the main constraints that women entrepreneurs will face in the time of Covid-19 such as accessing markets, finance and even business mentoring services. Women, however, have lower access to and knowledge of how to utilize internet-enabled services. For example, research in Kenya in 2019 found that only 26 percent of women used a mobile phone to access the internet compared to 49 percent of men (GSMA 2020).

At the same time, there is potential for women to take advantage of the current circumstances to grow their local businesses. Because women are located in small and medium enterprises, often serving local markets, as global food systems get disrupted women's local businesses could grow. For example, in Tanzania, over 80 percent of local food processors sell primarily in their localities (Kapinga and Montero 2017), which means they could continue production even during the pandemic and access local markets.

Trading

In Africa, the majority of perishable food, such as livestock and fish products and fresh vegetables, is sold in small-scale, traditional “informal” or “wet” markets. Such perishable food goes to market through informal channels, which may be within local communities but may also cross international borders. This trade – and the traders who move the goods – are more invisible than trade moving through formal sectors. Street food is another important part of the informal food sector, combining both pro-

cessing and preparation, and trading or marketing. It is a source of inexpensive, convenient, and nutritious food and is especially important for those who lack resources to prepare meals at home.

Despite the trend of supermarket expansion in the region, the urban poor continue to depend heavily on informal markets and street vendors for daily purchases and use supermarkets only periodically for bulk purchases of staples. One survey of over 6,000 households in low-income neighborhoods in 11 African cities found that 70 percent of urban households regularly purchase their foods from the informal market or street vendors (Frayne et al. 2010). A large majority of the goods traded in these informal markets are agricultural and food products and so the majority of animal products sold to the poor in African cities are from informal markets (Resnick 2017).

The majority of street food processors and vendors are women, and as one of the few livelihood strategies open to poor women, the street food sector is of great importance to the economies in the continent. In fact, street trading is one of the largest sectors of the informal economy in many African countries. One study finds that in the Southern African Development Community region, 70 percent of informal traders are women (Koroma et al. 2017). In sub-Saharan Africa, trade represents more than 60 percent of women's non-agricultural self-employment, and in Benin, Mali, and Chad informal cross-border trade among women generates 40–60 percent of value added in trade to the GDP (UN Women 2010). Another study by ILO and WIEGO (2013) also shows that the majority of street vendors are women: 88 percent in Ghana, 68 percent in South Africa, and 63 percent in Kenya.

There are two main ways, then, in which Covid-19 is affecting informal trading in food. Lockdowns at country and sub-national levels, as well as restrictions on the movement of people and goods, have led to lower sales for street vendors and informal traders. And as Covid-19 spreads across regions with large informal economies, including sub-Saharan Africa, governments are also implementing social distancing measures in an effort to stop the spread, especially in local markets, where many women sell and large urban and peri-urban populations buy their daily fruit and vegetables (IFPRI 2017).

The predominance of women in informal cross-border trade, engagement as street vendors, or as informal food traders is often attributed to women's time and mobility constraints, as well as to their limited access to productive resources and support systems, making such trade one of the few options available to them to earn a living (Mbo'o-Tchouawou et al. 2016). Covid-19 is further reducing women's mobility and reducing access to resources such as financing for their businesses. This is going to lower their incomes, and women street vendors typically already earn less than men (Chen and Snodgrass 2001).

Most of the measures put in place by governments are difficult for women to implement given their multiple roles, including care work, and gender and intra-household dynamics. For example, while in Uganda informal trade has been allowed to continue, traders cannot return home for fourteen days as they have to be quarantined and are effectively forced to stay at the market or close by. Women may be much more affected by these govern-

ment measures because they may have caring responsibilities for children or other family members or may need permission from family to be away (Kahunga et al. 2020).

A higher share of women than men sell perishable goods (Roever 2014), which are more likely than other goods to spoil or to be confiscated. In many countries, such as Nigeria, Kenya, and Uganda, police enforcement of lockdowns and social distancing has seen women lose their stock of perishable goods. Even in markets that have not been closed down, a lack of customers is leading to loss of food stocks through spoilage, which in turn leads to further income losses for women and an inability to recover. In Zimbabwe, food traders in the city of Mutare, the majority of whom are women, had their produce confiscated by police officers and set on fire (VISET 2020).

There are opportunities to ensure women do not lose out on food trade during the pandemic. One possible solution has been to space out where each market person sits, so that social distancing is respected. In addition, it may be possible to convert other public spaces, including parking spaces or sports stadiums, into markets and/or trading spaces. In Lagos, Nigeria, the local government is allowing trade every 48 hours, leaving two days in between for disinfecting the marketplace (Bagnetto 2020). Similarly, South Africa has changed their Covid-19 lockdown regulations to allow the majority women food traders to operate as an essential service.

Local food markets form an important part of local and indigenous food systems. And while a lot of focus has been on global food markets, the pandemic also offers an opportunity for governments to re-think how to better organize and strengthen their local food systems and empower the millions of women traders and farmers that form a critical part of this system.

Consumption

Women's roles in consumption are more visible and widely recognized than their roles in production and trade. Beyond processing, women and girls do most of the food preparation. They decide what food will be prepared for household members, taking into consideration income, the food available from home production, the time available for preparation, and preferences of family members, particularly their husbands and fathers. And they may be the ones to allocate food across household members, operating within the social norms that they face.

The pandemic and the response may affect consumption through a number of channels. The most direct one is that the pandemic is having a significant impact on incomes, especially for the poor and for those working in the informal sector. Women on average have lower cash incomes than men, are more likely to work in the informal sector, and are more likely to either lose their work or need to work fewer hours due to the pandemic. Thus, household income and particularly women's income is decreasing.

Evidence from numerous countries indicates that when women have more bargaining power within the household, a

greater share of income goes to food expenditure (Doss 2013). While many indicators of bargaining power have been used, women's potential earnings or income through transfers are one important source. Thus, as women's incomes decrease, the household may spend disproportionately less on food. One class of bargaining models suggests that it is the threat point or outside option of people within the household that influence their bargaining power. We would expect that the pandemic would worsen women's options more than men's, thus decreasing their relative bargaining power within the household.

The quality of food consumed depends both on income (or home production) and on the time that women have to prepare meals. As incomes decrease and there is greater pressure on women's time, there is increased pressure to move towards cheaper and quicker calories. In urban areas, this would often be prepared meals purchased from informal vendors, but as we saw above, there are constraints on these vendors. Many of the recent studies on income elasticities analyze increases in income due to cash transfer programs (Almås et al. 2019) rather than decreases due to negative income shocks. But it is evident that the income elasticity for nutrition is higher than the elasticity for calories. Time constraints may result in women preparing meals that are less time-intensive, which may also be less nutritious. Both the price elasticity of demand and income elasticity for food tends to be greater (more elastic) for women and girls than for men and boys. This means that as incomes decrease or prices increase, women and girls are relatively disadvantaged compared with boys and men.

The lockdown and mobility restrictions will affect consumers as well. Curfews will make it more difficult for people to work and shop within the time limits. As the wet markets are closed or limited, it becomes more challenging to purchase the food that is needed.

Conclusions

The analysis of the impact of the Covid-19 pandemic on food security needs to have a strong gender focus given the role of women in the food system and the gender barriers that they face. The way in which the pandemic is affecting women, including increasing their unpaid care work burden, has the potential to impact on their roles as food producers, processors, traders and consumers, including their roles in preparing food for their families. There needs to be greater visibility of these multiple roles that women play in the analysis of the impact of the pandemic and in the development of potential solutions. Gendered local institutions will also mediate the impacts of both the pandemic and the policy responses. Many responses have ignored these structural factors that affect who is impacted.

The pandemic, however, also presents opportunities for strengthening local food systems where women are heavily engaged. Given restrictions on travel and imports, investments in developing local markets and local processing and trading of foods that are traditionally grown and managed by women can

ensure that women's incomes and livelihoods are not lost while at the same time keeping populations fed.

Other impacts are not yet known. For example, the movement of people from cities back home to rural areas may have implications for food security. The impact on labor availability for rural smallholder farming could move in either direction. It could be that the people returning home provide labor on the farm, or they may bring home the illness and both infect others and require that others stop working to care for them or to self-isolate. Movement of male migrant workers to rural areas could also mean that women have less decision-making power over means of production and over their own labor.

Finally, the policy response to the pandemic, with government mandates and recommendations, assumes an ability of people to follow these guidelines. People's ability to do so will vary widely, with gender and income being two of the key fault lines.

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References

- Akintola, O. (2008) 'Unpaid HIV/AIDS care in southern Africa: forms, context, and implications', *Feminist Economics*, 14(4), pp. 117–47.
- Almås, I., Haushofer, J., and Shapiro, J.P. (2019) *The income elasticity for nutrition: evidence from unconditional cash transfers in Kenya*, NBER Working Paper 25711. Cambridge, MA: NBER (National Bureau of Economic Research).
- AWDF (African Women's Development Fund) (2014) *Report of the multisector impact assessment of gender dimensions of the Ebola virus disease (EVD) in Sierra Leone*, Report. Accra, GH: AWDF.
- Bahn, K., Cohen, J., and van der Meulen Rodgers, J. (2020) 'A feminist perspective on Covid-19 and the value of care work globally', *Gender, Work & Organization*, Feminist Frontiers, pp. 1–5.
- Bagnetto, L.A. (2020) 'African street vendors feel the squeeze under strict Covid-19 measures', *RFI*, April 8. Available at <http://www.rfi.fr/en/africa/20200408-african-street-vendors-feel-the-squeeze-under-strict-covid-19-measures-food-traders-markets-coronavirus-lockdown>
- Bentley, G.R., Aunger, R., Harrigan, A., Jenike, M., Bailey, R., and Ellison, P. (1999) 'Women's strategies to alleviate
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- nutritional stress in a rural African society', *Social Science & Medicine*, 48(2), pp. 149–162.
- Bryson, J.C. (1981) 'Women and agriculture in sub-Saharan Africa: implications for development (an exploratory study)', *The Journal of Development Studies*, 17(3), pp. 29–46.
- Chen, M.A. and Snodgrass, D. (2001) *Managing resources, activities, and risk in urban India: the impact of SEWA bank*, USAID AIMS Project Report. Washington, DC: AIMS.
- Cirera, X. and Qasim, Q. (2014) *Supporting growth-oriented women entrepreneurs: a review of the evidence and key challenges*, Innovation, Technology & Entrepreneurship Policy Note No. 5. Washington, DC: World Bank.
- Conrad, C. and Doss, C.R. (2008) 'The AIDS epidemic: challenges for feminist economics', *Feminist Economics*, 14(4), pp. 1–18.
- Davies, S.E. and Bennett, B. (2016) 'A gendered human rights analysis of Ebola and Zika: locating gender in global health emergencies', *International Affairs*, 92(5), pp. 1041–60.
- Dindé, A.O., Mobio, A.J., Konan, A.G., Fokou, G., Yao, K., Easo, E., Fantodji, A. et al. (2017) 'Response to the Ebola-related bushmeat consumption ban in rural Côte d'Ivoire', *Agriculture and Food Security*, 6(1), pp. 1–9.
- Doss, C. (2002) 'Men's crops? Women's crops? The gender patterns of cropping in Ghana', *World Development*, 30(11), pp. 1987–2000.
- Doss, C. (2013) 'Intrahousehold bargaining and resource allocation in developing countries', *The World Bank Research Observer*, 28(1), pp. 52–78.
- Doss, C., Raney, T., Anriquez, G., Croppenstedt, A., Gerosa, S., Lowder, S., Matuschke, I., and Skoet, J. (2011) *The role of women in agriculture*, ESA Working Paper No. 11-02. Rome, IT: ESA (Agricultural Development Economics).
- FAO (Food and Agriculture Organization), IFAD (International Fund for Agricultural Development), World Bank, and WFP (World Food Programme) (2020) *Joint statement on Covid-19 impacts on food security and nutrition*, April 21. Available at <http://www.fao.org/news/story/en/item/1272058/icode>
- Food Safety Magazine (2020) 'Survey results: impact of coronavirus on food processing and food safety', *Food Safety Magazine*, 20 March.
- Frayne, B., Pendleton, W., Crush, J., Acquah, B. and Battersby-Lennard, J. (2010) *The state of urban food insecurity in southern Africa*, Urban Food Security Series 2. Cape Town, ZA: AFSUN (African Food Security Urban Network).
- Gillespie, S. and Kadiyala, S. (2005) *HIV/AIDS and food and nutrition security: from evidence to action*, Food Policy Review No. 7. Washington, DC: International Food Policy Research Institute.
- Goldstein, M. and Udry, C. (2008) 'The profits of power: land rights and agricultural investment in Ghana', *Journal of Political Economy*, 116(6), pp. 981–1022.
- GSMA (2020) *Connected women: the mobile gender gap report 2020*, Report. London, UK: GSMA.
- Haddad, L., Fanzo, J., Godfrey, S., Hawkes, C., Morris, S., and Neufeld, L. (2020) 'The Covid-19 crisis and food systems: addressing threats, creating opportunities', *GAIN*, 23 March. Available at <https://www.gainhealth.org/index.php/media/news/covid-19-crisis-and-food-systems-addressing-threats-creating-opportunities>.
- Hivos (2020) *The impact of Covid-19 on women workers in the horticulture sector in Kenya: a rapid assessment*, Report. Den Haag, NL: Hivos.
- Holmes, R., Jones, N., and Marsden, H. (2009) *Gender vulnerabilities, food price shocks and social protection responses*, ODI Background Note. London: Overseas Development Institute.
- IFPRI (International Food Policy Research Institute) (2017) *Global food policy report*. Washington, DC: IFPRI.
- ILO (International Labour Organization) and WIEGO (Women in Informal Employment Globalizing and Organizing) (2013) *Women and men in the informal economy: a statistical picture*, 2nd edn. Geneva, CH: ILO.
- Izumi, K. (ed.) (2006) *Reclaiming our lives: HIV and AIDS, women's land and property rights and livelihood in southern and East Africa – Narratives and responses*. Cape Town: HSRC Press.
- Kahunga, M.T. and Mabala, R. (2020) 'Vendors opt to sleep in markets, walk to work', *Daily Monitor*, 27 March. Available at <https://www.monitor.co.ug/News/National/Vendors-sleep-markets-walk-work-Museveni-coronavirus/688334-5506312-q6ew4vz/index.html>
- Kapinga, A.F. and Montero, C.S. (2017) 'Exploring the socio-cultural challenges of food processing women entrepreneurs in Iringa, Tanzania and strategies used to tackle them', *Journal of Global Entrepreneurship Research*, 7(17).
- Korkoyah, D.T. and Wreh, F. (2015) *Ebola impact revealed: an assessment of the differing impact of the outbreak on the women and men in Liberia*, Research Report for UN Women, Oxfam, Liberia Ministry of Gender and Development, Liberia Institute of Statistics and Geo-Information Services, and Liberia WASH Consortium. Oxford, UK: Oxfam.
- Koroma, S., Nirmakoh, J., You, N., Ogalo, V., and Owino, B. (2017) *Formalization of informal trade in Africa: trends, experiences and socio-economic impacts*, Report. Accra, GH: FAO (Regional Office for Africa).
- Mbo'o-Tchouawou, M., Karugia, J., Mulei, L., and Nyota, H. (2016) *Assessing the participation of men and women in cross-border trade in agriculture: evidence from selected East African countries*, ReSAKSS-ECA (Regional Strategic Analysis and Knowledge Support System East and Central Africa) Working Paper No. 38. Nairobi, KE: ReSAKSS-ECA and ILRI.
- Moreira da Silva, J. (2019) 'Why you should care about unpaid care work', *OECD Development Matters*, March 18. Available

- at <https://oecd-development-matters.org/2019/03/18/why-you-should-care-about-unpaid-care-work>
- Njuki, J. and Sanginga, P.C. (2013) 'Gender and livestock: key issues, challenges, and opportunities', in Njuki, J. and Sanginga, P.C. (eds.) *Women, livestock ownership and markets: bridging the gender gap in eastern and southern Africa*. Abingdon, UK and New York, NY: Routledge, pp. 1–8.
- Njuki, J., Waithanji, E., Sakwa, B., Kariuki, J., Mukewa, E., and Ngige, J. (2014) 'A qualitative assessment of gender and irrigation technology in Kenya and Tanzania', *Gender, Technology and Development*, 18(3), pp. 303–40.
- O'Sullivan, M., Rao, A., Banerjee, R., Gulati, K., and Vinez, M. (2014) *Levelling the field: improving opportunities for women farmers in Africa*, World Bank and ONE Campaign Report. Washington, DC: World Bank.
- Orr, A., Tsusaka, T., Kee-Tui, S.H., and Msere, H. (2016) 'What do we mean by "women's crops"? Commercialization, gender and the power to name', *Journal of International Development*, 28(6), pp. 919–37.
- Oxfam (2019) *Gendered patterns of unpaid care and domestic work in the urban informal settlements of Nairobi, Kenya*, Women's Economic Empowerment and Care Report. Oxford, UK: Oxfam.
- Palacios-Lopez, A., Christiaensen, L., and Kilic, T. (2017) 'How much of the labor in African agriculture is provided by women?', *Food Policy*, 67, pp. 52–63.
- Reardon, T., Bellemare, M., and Zilberman, D. (2020) 'How COVID-19 may disrupt food supply chains in developing countries', *IFPRI Blog*, 2 April. Available at <https://www.ifpri.org/blog/how-covid-19-may-disrupt-food-supply-chains-developing-countries>
- Resnick, D. (2017) 'Informal food markets in Africa's cities', in *Global food policy report*. Washington, DC: IFPRI, pp. 50–57.
- Roever, S. (2014) *Informal Economy Monitoring Study (IEMS) sector report: street vendors*. Cambridge, MA: WIEGO (Women in Informal Employment Globalizing and Organizing).
- Rohwerder, B. (2014) *Impact and implications of the Ebola crisis*, GSDRC Helpdesk Research Report No. 1177. London, UK: Department for International Development.
- Saito, K.A., Mekonnen, H., and Spurling, D. (1994) *Raising the productivity of women farmers in sub-Saharan Africa*, World Bank Discussion Papers. Washington, DC: World Bank.
- Samberg, L.H., Gerber, J.S., Ramankutty, N., Herrero, M., and West, P.C. (2016) 'Subnational distribution of average farm size and smallholder contributions to global food production', *Environmental Research Letters*, 11(12).
- Slater, R. and Wiggins, S. (2005) *Responding to HIV/AIDS in agriculture and related activities*, Natural Resource Perspectives Briefing Paper No. 98. London, UK: Overseas Development Institute.
- Smart, J. (@jamesmat) (2020) 'There's somewhat an evolving picture of the disruption in lives, businesses, and way of life caused by Covid-19...', Twitter thread, 15 April. Available at <https://twitter.com/jamesmat/status/1250544055924260864>
- Smith, J. (2019) 'Overcoming the 'tyranny of the urgent': integrating gender into disease outbreak preparedness and response', *Gender and Development*, 27(2), pp. 355–69.
- Tamru, S., Hirvonen, K., and Minten, B. (2020) 'Impacts of the Covid-19 crisis on vegetable value chains in Ethiopia', *IFPRI Blog*, 13 April. Available at <https://www.ifpri.org/blog/impacts-covid-19-crisis-vegetable-value-chains-ethiopia>
- TechnoServe (2020) *Food processing in a pandemic: challenges and responses for Africa's food processors facing Covid-19*, TechnoServe White Papers & Reports. Available at <https://www.technoserve.org/wp-content/uploads/2020/04/Challenges-and-Responses-for-Africa's-Food-Processors-facing-COVID-19-200415.pdf>
- The Lancet (2020) 'Redefining vulnerability in the era of Covid-19', Editorial, *The Lancet*, 395(10230), p. 1089.
- UNECA (United Nations Economic Commission for Africa) (2020) *Covid-19 in Africa: protecting lives and economies*, Report. Addis Ababa, ET: ENECA.
- UN Women (2020) *The impact of Covid-19 on women*, Policy Brief. New York, NY: UN Women.
- UN Women (2010) *Unleashing the potential of women informal cross border traders to transform intra-African trade*, UN Women Research Paper. New York, NY: UN Women.
- VISET (Vendors Initiative for Social and Economic Transformation) (2020) 'Burning of confiscated vegetables in Mutare must be investigated', *263Chat*, 4 April. Available at <https://263chat.com/burning-of-confiscated-vegetables-in-mutare-must-be-investigated>
- WBG (Women's Budget Group) (2020) *Crises collide: women and Covid-19*, Policy Brief. London, UK: WBG.
- Wenham, C., Smith, J., and Morgan, R. (2020) 'Covid-19: the gendered impacts of the outbreak', *The Lancet*, 395(10227), pp. 846–848.
- White & Case (2017) *Closing the credit gap for women entrepreneurs: a report complementing the World Bank's Women, Business and the Law 2016*. Available at <https://www.whitecase.com/publications/article/closing-credit-gap-women-entrepreneurs>

Notes

1. This has been documented in Food Safety Magazine (2020) for the US but with results relevant to Africa.