

The Impacts of Health Crises on Women & Girls: How Historical Evidence Can Inform Assessment and Recovery through a Gender Lens

Megan O'Donnell, Mayra Buvinic, Carleigh Krubiner, and Shelby Bourgault

Abstract

This paper presents a conceptual framework on the effects of health crises on women and girls with an eye toward understanding the growing evidence base for the COVID-19 pandemic. When health crises like COVID-19 emerge, the simultaneous shocks to economic, social, and health systems can have different implications for women and girls. Research on the impacts of past regional and global crises sheds light on how women's and girls' experiences and outcomes have differed from those of men and boys – both immediately following the onset of a crisis and as time progresses – as a result of entrenched gender inequalities and discrimination. Recognizing that much of the academic and policy dialogue around gender inequality in the COVID-19 context has emphasized challenges facing women and girls in high-income settings, our analysis centers on women and girls in low- and middle-income countries. The framework is meant to serve as a tool to understand how the COVID-19 pandemic may be adversely affecting the wellbeing and opportunities of women and girls, in order to identify data gaps and shape analyses, inform ongoing pandemic response efforts, and identify important points of intervention for recovery efforts and future resilience. In accompanying papers, we examine the extent to which the framework's dimensions apply in the COVID-19 context and where the current crisis may differ from those in the past—and thus where new solutions may be needed.

Keywords: gender; gender equality; indirect health effects; sexual and reproductive health and rights; essential health services; women's economic empowerment; employment; poverty; care work; gender-based violence; COVID-19; pandemic response.

JEL: B540, E240, F35, I380, J13, J160, O190

**The Impacts of Health Crises on Women & Girls:
How Historical Evidence Can Inform Assessment and Recovery
through a Gender Lens**

Megan O'Donnell, Mayra Buvinic,
Carleigh Krubiner, and Shelby Bourgault
Center for Global Development

The Center for Global Development is grateful for contributions from the Bill & Melinda Gates Foundation in support of this work.

Megan O'Donnell, Mayra Buvinic, Carleigh Krubiner, and Shelby Bourgault. 2021. "The Impacts of Health Crises on Women & Girls: How Historical Evidence Can Inform Assessment and Recovery through a Gender Lens." CGD Working Paper 574. Washington, DC: Center for Global Development. <https://www.cgdev.org/publication/impacts-health-crises-women-girls-how-historical-evidence-can-inform-assessment-and>

Center for Global Development
2055 L Street NW
Washington, DC 20036

202.416.4000
(f) 202.416.4050

www.cgdev.org

The Center for Global Development works to reduce global poverty and improve lives through innovative economic research that drives better policy and practice by the world's top decision makers. Use and dissemination of this Working Paper is encouraged; however, reproduced copies may not be used for commercial purposes. Further usage is permitted under the terms of the Creative Commons License.

The views expressed in CGD Working Papers are those of the authors and should not be attributed to the board of directors, funders of the Center for Global Development, or the authors' respective organizations.

Contents

Introduction.....	1
The Conceptual Framework	2
Direct Impacts of Health Crises and Response Measures.....	3
Initial Shocks and Impacts of Health Crises and Response Measures on Women and Girls	5
Downstream Impacts of Shocks and Coping Strategies on Women’s and Girls’ Wellbeing	7
Applying the Framework to the Emerging Evidence on COVID-19.....	10
Conclusion	11
References	12

Introduction

This paper presents a conceptual framework on the effects of health crises on women and girls with an eye toward understanding the growing evidence base for the COVID-19 pandemic. When health crises like COVID-19 emerge, the simultaneous shocks to economic, social, and health systems can have different implications for women and girls. Research on the impacts of past regional and global crises sheds light on how women’s and girls’ experiences and outcomes have differed from those of men and boys—both immediately following the onset of a crisis and as time progresses—as a result of entrenched gender inequalities and discrimination (African Development Bank 2016; Bhalotra et al. 2019; Davies and Bennet 2016; Forero-Martinez et al. 2020; Harman 2016). The framework draws upon the historical evidence, including from SARS, Ebola, Zika, and dengue fever outbreaks, as well as existing frameworks for examining indirect effects of health crises (Chi et al. 2020; Krubiner et al. 2020). It is meant to serve as a tool to understand how the COVID-19 pandemic may be adversely affecting the wellbeing and opportunities of women and girls, in order to identify data gaps and shape analyses, inform ongoing pandemic response efforts, and identify important points of intervention for recovery efforts and future resilience.

Because of the scale of economic contraction resulting from COVID-19, we also consider evidence from economic crises (e.g., debt crises in Latin America in the 1980s and 1990s; the 2008 global recession) in developing the framework (Nash 1990; Sabarwal et al. 2011). In accompanying papers, we examine the extent to which the framework’s dimensions apply in the COVID-19 context and where the current crisis may differ from those in the past—and thus where new solutions may be needed.

Recognizing that much of the academic and policy dialogue around gender inequality in the COVID-19 context has emphasized challenges facing women and girls in high-income settings, our analysis centers on women and girls in low- and middle-income countries (LICs and MICs).¹ Women in lower-income countries and especially lower-income women in these countries—those working in subsistence agriculture or low wage informal jobs—or adolescent girls living in rural areas with limited education or constrained access to essential health services—are more vulnerable to and unlikely to experience the effects of COVID-19 in the same way as better off women, so we emphasize the need to understand and address their particular needs and constraints.

This framework is intended to serve as a starting point to guide policy decision-making within the COVID-19 context and in future pandemic preparedness. As donor institutions and governments respond to the COVID-19 pandemic and global recession, CGD’s new *COVID-19 Gender and Development Initiative* aims to support policy and investment decisions that equitably benefit women and girls. Through this work we seek to deepen decisionmakers’ understanding of the multiple and overlapping impacts of the COVID-19

¹ Where research has focused on the COVID-19 crisis’ impacts in lower-income countries, much of it has not focused on gender-differential impacts. See Khamis et al., *The Early Labor Market Impacts of COVID-19 in Developing Countries: Evidence from High-Frequency Phone Surveys*, World Bank Group.

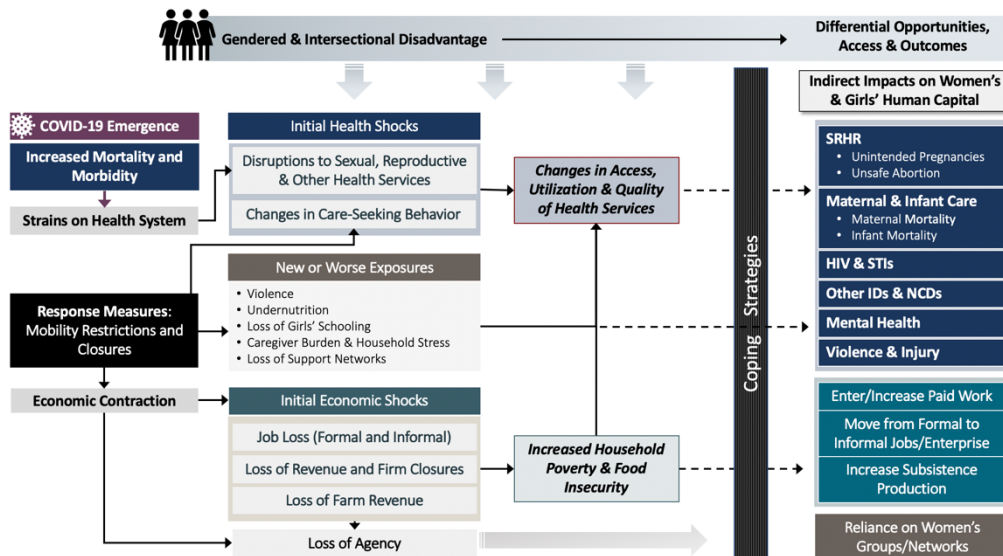
crisis and the public health, economic, and social policy responses to it, as well as propose evidence-based solutions to ensure recovery efforts do not leave women and girls behind. The initiative’s work focuses on three areas of the COVID-19 response and recovery: (1) indirect health impacts of the pandemic for women and girls; (2) inclusive and equitable social protection policy; and (3) promoting women’s economic opportunities and empowerment.

The conceptual framework and summary of COVID-19’s impacts on women and girls that we introduce in this paper are complemented by [accompanying papers](#) that delve deeper into the gendered dimensions of the crisis as they relate to health, social protection, and economic empowerment, including analyses on the extent to which donor institutions and governments have considered gender issues in their response efforts to date, and recommendations for what else is needed to ensure women and girls are not left farther behind as a result of COVID-19.

The Conceptual Framework

The conceptual framework below (Figure 1) illustrates the ways in which existing gender norms and inequalities, alongside other forms of disadvantage, impact how women and girls experience the initial shocks and longer-term effects of a health crisis, how various disruptions may affect their behavior, coping strategies, and access to health services and income generating opportunities. Recognizing the interactions between poverty and health, there are likely to be at least two rounds of indirect effects for women and girls: initial impacts on health, income and well-being; and downstream effects emerging as a result of prolonged economic contraction and/or sustained disruptions affecting the health system and other social sector programs.

Figure 1. The Impacts of Health Crises on Women and Girls:
A Conceptual Framework



It is clear from the review of the evidence that health and economic shocks do not have homogenous effects across contexts and populations. As such, the framework illustrates how gender matters in explaining differential effects and coping strategies, as do intersecting demographic and socioeconomic characteristics such as age, race and ethnicity, migration status, location, household structure and income. Women in lower-income countries—especially poorer women in these countries, including those working in subsistence agriculture or informal microenterprise and adolescent girls living in rural areas with limited education—are more vulnerable to the economic shocks of crisis. These women and girls often face greater barriers to meet their basic needs before the crisis’ onset, which can be compounded as household resources diminish, routine services face disruptions, and various coping strategies are adopted.

The framework also underscores that many of the risks to women and girls outlined below do not originate with the onset of crisis; they are merely magnified as a result of it. Globally, before COVID-19 struck, there were over 200 million women with an unmet need for contraception, and one in three women experienced some form of violence over the course of her lifetime (Population Reference Bureau 2012). Women participated in the paid workforce at lower rates than men and performed more unpaid work. The fact that the crisis exacerbates, but does not create, these persistent forms of gender inequality is important to keep in mind while designing and implementing longer-term recovery and development efforts. Even with the widespread distribution of a vaccine and a resurgence of the global economy, women and girls will not be on an even playing field with men and boys absent intentional policies and investments aimed at reducing gender inequalities. Against the backdrop of existing gender inequalities, and how they intersect with other forms of disadvantage particularly relevant in LICs and MICs, we now examine how the emergence of a crisis can have differential impacts for women and girls.

Direct Impacts of Health Crises and Response Measures

Though mortality and morbidity levels vary by the degree of communicability and severity of symptoms of a given disease, all health crises result in increased mortality and morbidity absent swift and effective intervention. In 2003, the World Health Organization estimated the case-fatality ratio for the SARS outbreak to be about 15 percent (WHO 2003). The average case fatality rate of Ebola across several past outbreaks has been about 50 percent (WHO n.d.), whereas the mortality rate of common influenzas is well below 0.1 percent (WHO 2020a). In some instances, the burden of disease falls disproportionately on women and girls, as was the case in the 2018–2020 Ebola crisis in the Democratic Republic of the Congo where 57 percent of cases occurred in females (WHO 2020b). Higher incidence of Ebola virus disease in women and girls has been attributed to greater reliance on female household members to care for the ill, gender composition of the health workforce, as well as a possible added exposure through sexual transmission (Harman 2016; Menéndez et al 2015). An accurate estimation of the mortality rate for COVID-19 will not be available for some time, as testing and reporting vary widely across countries, though within individual countries, estimates currently range from 8.7 percent reported in Mexico to 1 percent reported in Turkey (Johns Hopkins University 2021). Although a number of countries collecting sex-

disaggregated data report higher COVID-19 case fatality rates among men as compared to women, a few high-burden countries like India have documented greater fatality rates among women, raising questions about the different roles of biological sex-mediated pathogenesis, behavior and patterns of underlying health risks shaped by gender, and potential bias in data collection that may be contributing to observed sex differences in burden of disease (Dehingia and Raj 2021).

Especially where diseases are highly contagious and response measures are not imposed swiftly and effectively, a pandemic will place enormous strain on healthcare systems. With increasing caseloads, health workers face increasing demands on their time and resources, while also confronting exposure risks that threaten their own health and the ability of the health system to effectively deliver care during a pandemic crisis. In many contexts, health workers or even whole facilities are redeployed to focus on epidemic response efforts, oftentimes including underpaid, under-protected and predominantly female community health workers who previously focused on providing routine primary health services (Miller et al. 2018; Agarwal 2021; Kidangoor 2020). Early on in the COVID-19 response, many countries and locales suspended services deemed “non-essential” or elective in order to limit exposures and free up capacity for COVID-19 care (WHO 2020c).

Efforts to contain the spread of disease, such as the lockdowns implemented in response to COVID-19, often entail restricting transport and individual mobility alongside closing public spaces, all of which affect schooling, health and social services, and income-generating activities. As Ebola began to spread in West Africa in 2014, governments in the region implemented measures to contain the outbreak. Liberia imposed mandatory quarantines, Guinea closed ports and shipping routes, and Sierra Leone set up checkpoints along border crossings (Pellecchia et al. 2015; Calnan 2017; WHO 2015). All three countries closed schools for 33 to 39 weeks (CDC n.d.). Various initiatives such as the Oxford COVID-19 Government Response Tracker and Partnership for Evidence-Based Response to COVID-19 (PERC) have been cataloguing the ongoing implementation, easing, and reintroduction of containment efforts across different countries, including school and workplace closures, stay-at-home orders, domestic and international movement restrictions, and restrictions on public gathering (Hale et al. 2020; PERC n.d.).

Elevated health risks and containment measures combine to impact economic activity. COVID-19 poses serious threats to economic growth, as businesses are forced to close and supply chains are disrupted, at least temporarily, resulting in widespread unemployment, lost income, and decreased aggregate demand for goods and services. One study on the dengue fever epidemic in Peru found a large decrease in work hours due to government interventions aimed at reducing transmission, with women reducing work hours more than men (Walsh 2019). As investors perceive heightened risks to lending in a state of economic contraction, posing barriers to business viability and loan repayment, credit sources are also likely to dry up (Aisen and Franken 2010). Even countries with little direct exposure to a virus but dependent on trade, tourism, and other forms of foreign investment are likely to face economic impacts (UN Global Pulse 2011). Early evidence from the COVID-19 crisis shows staggering job loss across the globe, economic contraction, and a 20 percent drop in remittances sent by migrants back home to LICs and MICs (Evans and Acosta 2020).

Initial Shocks and Impacts of Health Crises and Response Measures on Women and Girls

How do these direct effects, containment measures, and resulting economic contractions affect women and girls? The simultaneous economic, social, and health shocks that arise from the emergence of an epidemic threat have a range of ripple effects, which manifest differently by gender due to pre-existing gender differences in health needs and health-seeking behavior, levels and types of paid and unpaid work, and broader agency and autonomy.

As the health sector responds to the urgent epidemic threat, women and girls may face challenges accessing essential health services, including but not limited to safe and respectful maternal care and contraceptive services. Service disruptions can arise from various supply-side factors, including redeployment of health workers to the frontline response, supply chain issues, absenteeism of health workers due to fear of infection, and suspension of services deemed non-essential or elective. For women and girls in need of timely services, such as skilled attended births, these supply-side disruptions combined with economic constraints, restrictions on mobility, and other challenges to agency discussed below can have deadly consequences. In the West African Ebola crisis of 2014, Guinea, Liberia and Sierra Leone experienced a 75 percent increase in maternal mortality across the three countries during an 18 month period (Davies and Bennett 2016). Another study in Guinea found a 51 percent decline in utilization of family planning, a 41 percent decline in antenatal care visits, and a 62 percent decline in institutional deliveries during the Ebola outbreak (Camara et al. 2017). There is also evidence suggesting disruptions to HIV, malaria and TB services during the Ebola crisis may have caused nearly as many indirect deaths as those resulting from the Ebola virus itself (Parpia et al. 2016). Sex-disaggregated data to examine the distribution of these collateral impacts is hard to come by, likely due to what Sophie Harman called the “conspicuous invisibility of women” in the Ebola response, but a look at UNAIDS data on HIV prevalence among women as compared to men in the three affected countries suggests that disproportionate numbers of women and girls were already living with HIV, meaning they would be hit hardest by disruptions to these services. (Harman 2016; UNAIDS 2019).

Extended time in the home can increase unpaid care work burdens for women and girls. Curfews, work and school closures, and other social distancing measures mean people are spending more time in the home than ever, created additional housework and childcare needs that were previously attended to outside the home. In pandemic contexts, unpaid care work can also increase as family members fall ill. As with childcare, women and girls are more likely to shoulder these care responsibilities (Bhalotra et al. 2019). This may mean an increase in total work burdens for women who maintain or expand paid work in a crisis, or maintenance of total work burdens when women’s increased unpaid work compensates for lost paid work (see below).

Increases in household work can have downstream effects not only on women’s labor force participation and income generation, but also on their health. Women’s household responsibilities are a frequently cited barrier to health-seeking behavior, especially

when women's health needs are already undervalued and decision-making relies on permission from male household members (Jayakumar et al. 2019; Munguambe et al. 2016). It is worth noting, however, that the evidence available on containment measures increasing households' unpaid care work has largely focused on high-income, formal workforce populations.² More evidence is needed to unpack this effect in lower-income settings, given that fewer households follow a nuclear model, and caregiving responsibilities are often shared by older sisters, grandmothers, and other relatives and community members.

At the same time, women and girls may be exposed to increased gender based violence (GBV) within the home. Evidence from past pandemics and other crises suggests that increased time at home, particularly under stressful circumstances, increases the likelihood of domestic violence. Mobility restrictions in turn hinder victims' ability to leave a violent context and access support services. Drawing upon historical evidence, Peterman et al. (2020) trace nine pathways through which violence against women and children tends to increase in pandemics and other crises, several of which are tied to containment measures.

Economic contractions may lead to a loss of both formal and informal sector jobs, with a resulting loss of income and a reduction in the assets that individuals and households are able to acquire or retain. A reduction in formal sector employment may increase informal sector work—especially where formal sector opportunities decrease but containment measures do not constrict the operations of the informal sector (Bosch and Maloney 2008). Job and income losses are likely to differ by gender, given women's and men's different opportunities in labor markets and traditional gender roles within households. A study in Liberia found that of those working prior to the onset of the Ebola outbreak, 60 percent of women were not working during the outbreak, compared to 40 percent of men (World Bank 2015). Following a dengue fever outbreak in Brazil in 2014, women's earnings fell by about twice as much as men's earnings (Bhalotra et al. 2019).

Self-employed individuals running both formal and informal businesses of various sizes/stages of growth (micro, small and medium) will also experience losses in revenue and difficulties accessing credit—and may be forced to shut down permanently. Men have more access to formal credit than women do, and therefore might feel more of the impact of a formal credit squeeze, but women are the majority of clients of microfinance institutions (MFIs), and may face difficulty keeping their businesses afloat as microfinance also dries up (Di Bella 2011). Losses in revenue and credit constraints are also likely in the agricultural sector, and women in farm households may shift work time to subsistence agriculture to help families cope with food scarcity (de Janvry and Sadoulet 2011; von Braun 2008).

Loss of income for wage workers, entrepreneurs, and those in the agricultural sector will increase household poverty and food insecurity. The 2014 Ebola outbreak erased over a decade of gains in household income, reducing household income by 35.1 percent in

² Exceptions include Bandiera et al. (2018), who observed that girls in villages highly impacted by Ebola spent 13 percent more time on household chores than girls in villages not highly impacted by the outbreak.

Liberia, 29.7 percent in Sierra Leone, and 12.7 percent in Guinea in six months (UNDP 2014). The World Food Program estimated that the 2014 Ebola outbreak pushed 750,000 additional people into food insecurity across the three affected countries (World Food Program 2014). These household dynamics have implications for the coping strategies women and girls employ to weather crisis (see below).

Women’s and girls’ agency, ability to make independent choices, and broader wellbeing are also at risk from the combined effects of economic insecurity, increased risk of gender-based violence, challenges in accessing essential health services, and managing increased unpaid care work. One study found that in areas highly impacted by the Ebola outbreak, young women and girls were at a heightened risk of unplanned pregnancy and dropping out of school, while an empowerment program almost entirely reversed these effects in other affected villages (Bandiera et al. 2018).

Downstream Impacts of Shocks and Coping Strategies on Women’s and Girls’ Wellbeing

Evidence points to women’s and girls’ resilience in crisis and the coping strategies they devise to weather challenging circumstances, generate income to support their households, and save in the face of poverty and food insecurity. Unfortunately, many of these coping strategies, though insulating households from worst case scenario outcomes, leave women and their families worse-off.

In light of income reductions, households may reduce education and spending on health to meet other basic needs. Even when schools are fully open, economic pressures may result in children being pulled or kept out of school to contribute to family income, often with gendered impacts on education. Evidence suggests boys may be prioritized to return to school, while girls may be kept home longer to care for younger siblings and do housework to free up the mother’s time for paid work—as was the case in Latin America after economic shocks to the region (Duryea et al. 1999). Loss of girls’ education not only impacts their future earnings prospects, but also has implications for their health—including near-term health benefits, such as reducing potentially harmful exposures or direct provision of health services through schools, as well as longer term, cross-generational protection, with higher educational attainment and health literacy associated with better health outcomes for women and their children (Picker 2007; Muyunda et al. 2018; Miller et al., 2017; Hargreaves et al. 2008; Jukes et al. 2008). Schooling has been shown time and again to reduce unplanned pregnancies as well as HIV incidence among adolescent girls. During the West African Ebola crisis, school closure was linked to increases in adolescent pregnancy, which in turn led to greater attrition of girls from school, not to mention more immediate health implications for pregnant girls unable to access adequate maternal care (Davies and Bennett 2016; UNDP 2017; Bandiera et al. 2019).

School closures, combined with restricted access to contraception and other sexual and reproductive health services, mean adolescent girls are more likely to get pregnant, resulting in increased fertility rates, as well as increased unsafe abortion rates where abortion is illegal or otherwise inaccessible.¹ Adolescent pregnancy may

occur within marriage, as families encountering financial strains pressure girls to marry sooner and eliminate costs associated with girls continuing to live at home or allow them to acquire a dowry/bride price. Pregnancy may also occur outside of marriage, in part due to girls facing increased pressure to engage in unprotected, transactional sex to meet their basic needs or supplement households' reduced incomes (Peterman et al. 2020). Adolescent mothers are more likely to drop out of school, limiting their educational attainment and workforce potential, resulting in an overall loss of girls' human capital.

Household poverty associated with the economic shocks of a crisis can also adversely impact care-seeking for essential health services—especially those requiring out of pocket payments (Alam and Mahal 2014). There is compelling evidence that adverse effects on health are much greater for girls than for boys (Buvinic 2009; Friedman and Schady 2009; Baird et al. 2007). Following the 2008 financial crisis, Friedman and Schady estimated that there would be between 28,000 and 49,000 excess deaths in sub-Saharan Africa in 2009, mostly comprised of girl infants (Friedman and Schady 2009).

Women and girls may need to explore alternative work opportunities, often with lower earning potential and fewer protections. The existing labor force literature on historical crises largely focuses on implications for men's rising unemployment and women's ability to supplement household income by entering the paid workforce, increasing their financial responsibility for meeting households' needs. The evidence has shown that this 'added worker effect' is sensitive to household income: low-income women join the paid workforce to insulate against the risks of household poverty and food insecurity, whereas higher-income women exit the workforce (Cerutti 2000; Humphrey 1996; Judisman and Moreno 1990; Lee and Cho 2005; Sabarwal, et al. 2011; Skoufias and Parker 2006). Whether women and girls enter the paid workforce and/or increase hours spent working for pay may not only vary based on income but also education level, age, parental status, rural or urban location, whether women are working formally or informally, and other factors (Aslanbeigui and Summerfield 2000; Bhalotra and Umana 2009; Cerutti 2000; Hirata and Humphrey 1990; Humphrey 1996; Francke 1992; Lee and Cho 2005; Lim 2000).

Using household level data from the Demographic Health Survey from 66 countries and across 21 years (1985–2006), Bhalotra and Umana (2009) show that globally, on average, a 10 percent drop in country GDP is associated with a 0.34 percentage point (69 percent) increase in women's labor force participation. Women who exhibit the strongest increases in labor force participation are those with low education, who traditionally experience the lowest rates of economic participation in low- and middle-income economies (Cerutti 2000). Women may also be more likely to enter the informal sector to combine paid work with caregiving activities (Cunningham 2001). The work they take on in these circumstances of duress is likely to be low-quality, offering limited protections and bargaining power—underscoring the distinction between labor force participation and full economic empowerment.

Women who experience job loss in the formal workforce may resort to informal wage work or entrepreneurship, taking on employment with lower wages and fewer benefits and labor protections to make ends meet. Women and girls living in rural areas may turn to increased subsistence production, especially in response to rising food insecurity. Evidence

suggests that, as more workers crowd into the informal sector, those previously operating within it may be pushed out. Each of these coping strategies may result in reverse (urban to rural) migration, as those previously working in factories or as informal traders, for example, may return to rural communities to engage in subsistence agriculture (de Janvry and Sadoulet 2011; Antonopoulos 2009; von Braun 2008).

As in non-crisis periods, women are likely to rely on the support of women’s groups and networks in times of economic contraction, though containment measures imposed in health crises, combined with members’ reduced incomes, may limit the support these groups are able to provide.³ Christian et al. (2019) point to self-help group participants’ heightened ability to meet basic needs—smoothing non-food consumption—relative to non-participants following Cyclone Phailin in Odisha, India. de Hoop et al. (2020) review the evidence on women’s groups’ ability to provide a safety net for members in the face of crisis, with similar results gathered from studies across Malawi, Uganda, and Ghana. Additionally, in Sierra Leone, an economic empowerment program for young women that combined vocational training, microfinance, and social networking during the Ebola crisis showed dramatic protective effects for reducing unplanned pregnancy and enabling re-enrolment in school following the epidemic (Bandiera et al. 2019). That said, lockdowns and other containment measures impede groups’ ability to meet in person, a particularly binding constraint in contexts where women lack access to mobile phones and other technologies allowing for remote communication. During the Ebola outbreak, nearly all (95 percent) of village savings and loan associations experience high rates of absenteeism, limiting groups’ capacity to continue communal savings and lending practices (FAO 2014).

The negative effects of crisis on women and girls can be intergenerational and inter-cohort, resulting in losses for future generations’ human capital. As crisis negatively impacts outcomes for older women, younger women and girls witness these impacts and may be discouraged to pursue further education, employment, and other opportunities. Young women and girls (and their households and communities) may fail to see potential for empowerment through delaying marriage and childbearing, seeking paid employment, and other pathways, and thus resign themselves to lower long-run opportunities, entrenching traditional gender attitudes and behaviors (Miller and Babiarz 2014; Goldin and Katz 2002). Vicious cycles are similarly perpetuated when women are caught in low-wage work in firms and on farms and are also saddled with care work burdens. This reinforces gender inequalities within the household and further restricts economic opportunities for women and the next generation. In this way, the disempowerment of individuals (or communities) contributes to the perpetuation of restrictive social and economic contexts (Buvinic et al. 2020a).

³ “Women’s groups” is an umbrella term commonly used to refer to different models of economic, health, and community groups with a primarily female membership. Groups’ models of operation vary but may aim to promote women’s economic or broader empowerment (de Hoop 2020).

Applying the Framework to the Emerging Evidence on COVID-19

This framework helps to assess the emerging evidence on the myriad impacts that the COVID-19 pandemic, global recession, and associated policy measures are having on women and girls in low- and middle-income countries. A full exposition of the COVID-specific evidence can be found in our accompanying papers on indirect health impacts, social protection, and economic empowerment. However, even with an organizing framework to examine the data, there are various challenges relating to the nature and interpretation of the evidence thus far.

The emerging evidence on the differential gender effects of the COVID-19 pandemic has a number of limitations, with various challenges in data access, quality, and interpretation. Much of the country-specific evidence comes from rapid response phone surveys, using a variety of sampling frames from convenience samples to random samples of specific subpopulations (e.g., in humanitarian settings), as well as some purposive samples (e.g., refugees or informal workers). Notably, these surveys do not capture data from women who do not own or have access to phones—an estimated 26 percent of women in developing economies—restricting its validity and generalizability (World Bank 2017).

These sample selection biases only add to longstanding challenges in measuring women’s economic activities, which include undercounting women’s paid activities, especially in informal employment and in agriculture, and failures in reporting sex-disaggregated employment statistics. Informal jobs, given their sporadic nature, are not captured well within the time frames of labor force or household surveys; the same is the case with women’s work in the family farm that is not captured or farming that may be intended for family consumption but ends up being sold. Currently, only 41 percent of a total of 75 low- and lower-middle income countries report data on informal jobs disaggregated by sex (Buvinic et al. 2020b). The type of granular, near-real time data needed to understand employment effects for women versus men and guide crisis policy response is almost completely absent in lower-middle and low-income countries. In addition to undercounting and underreporting women’s paid work, other gender biases in survey instruments used prior to COVID-19’s onset (including regarding household headship and women’s unpaid care work) may also carry into phone surveys used to gather data on the crisis’ impacts.

Some evidence on indirect health impacts draws upon larger datasets from national routine health information systems and administrative data from vertical programs.

However, many health information systems experienced disruptions and delays in data collection activities as stringent response measures were put in place. Missing data and delays in reporting pose challenges in interpreting the timing and magnitude of health care disruptions and adverse impacts on key indicators. Analytical methods also varied in reported studies, with some using direct comparison to the same period in previous years, some estimating expected utilization based on upward trends over past years, some pre-post analyses and others using interrupted time series. Like always, the analytical approach, as well as the quality of the underlying data, must be considered when interpreting findings. Drawing upon multiple data sources to triangulate findings and conducting sensitivity analyses can help improve understanding of the timing, nature, and magnitude of indirect effects to better

inform appropriate policy responses. It should also be noted that many studies produce aggregate assessments of indirect impacts, which may be masking how the collateral impacts of COVID-19 are affecting the health and wellbeing of the most marginalized and disadvantaged women and girls, as highlighted by a few referenced studies. Moving forward, it will be important to understand the diversity of service disruption across and within countries, applying an intersectional approach and zeroing in on the risk of worsening disparities for specific regions and sub-groups, each with unique needs and priorities.

These limitations imply that the emerging evidence is not capturing the impact of COVID-19 on the poorest and therefore most vulnerable women and girls, which is likely underestimating COVID-19's impact on the most precarious informal and agricultural jobs held by women and reflecting outcomes and trends that are time-bound and may change significantly over time.

Finally, because the pandemic is still unfolding and response measures are contingent on this evolution, such measures can shift rapidly, and effects captured may vary significantly over time. The available data only provides insights into the most immediate indirect impacts of the pandemic on women and girls. Moreover, some harmful exposures—including undernutrition, loss of schooling, and sustained poverty—will have impacts that extend far beyond this current pandemic crisis.

Conclusion

Women's and girls' health, education, economic opportunities, and overall wellbeing have been adversely impacted by past crises, suggesting the need for a gender-informed approach to COVID-19 response and recovery efforts. This framework, based on the historical evidence on the effects of crises on women and girls, should help researchers, practitioners, and policymakers as they seek to understand how the COVID-19 pandemic may be adversely affecting the wellbeing and opportunities of women and girls, fill gaps in the evidence base, inform ongoing pandemic response efforts, and identify important points of intervention for recovery efforts and future resilience.

Emerging COVID-specific evidence still leaves big knowledge gaps in terms of the poorest and most vulnerable women and girls; the result is likely an underestimation of COVID-19's impact on women and girls holding the most precarious informal and agricultural jobs. Additionally, evidence is still sparse on various sub-populations of women. More research should examine the intersectional impact of the pandemic, including for women and girls of different ages and education levels. The pandemic is still unfolding, and trends picked up by the early evidence reviewed here may change significantly over time. In accompanying papers on the indirect health impacts of the crisis, the gender dimensions of social protection, and the promotion of women's economic empowerment, we delve deeper into these effects and how donor institutions and policymakers have sought to address them—and propose recommendations to help ensure recovery efforts do not exacerbate, and ideally reduce, existing forms of gender inequality.

References

- African Development Bank. (2016). Women's resilience: integrating gender in the response to Ebola. African Development Bank. Accessed January 13, 2021 from https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/AfDB_Women_s_Resilience_-_Integrating_Gender_in_the_Response_to_Ebola.pdf.
- Agarwal, B. (2021). Livelihoods in COVID times: gendered perils and new pathways in India. *World Development*, 139: 105312. Accessed February 10, 2021 from <https://www.sciencedirect.com/science/article/abs/pii/S0305750X20304393>.
- Aisen, A. and Franken, M. (2010). Bank credit during the 2008 financial crisis: a cross-country comparison. IMF Working Paper 10/47. Accessed February 2, 2021 from <https://www.imf.org/external/pubs/ft/wp/2010/wp1047.pdf>.
- Alam, K. and Mahal, A. (2014). Economic impacts of health shocks on households in low and middle income countries: a review of the literature. *Global Health*, 10(21). Accessed February 10, 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4108100/>.
- Antonopoulos, R. (2009). The current economic and financial crisis: a gender perspective. Levy Economics Institute Working Paper Series No. 562. Accessed February 2, 2021 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1402687.
- Aslanbeigui, N., and Summerfield, G. (2000). The Asian crisis, gender, and the international financial architecture. *Feminist Economist* 6 (3): 81–103.
- Baird, S., Friedman, J. and Schady, N. (2007). Aggregate income shocks and infant mortality in the developing world. World Bank Policy Research Working Paper No. 4346. Accessed January 29, 2021 from <https://openknowledge.worldbank.org/handle/10986/4916>.
- Bandiera, O., Buehren, N., Goldstein, M., Rasul, I., and Smurra, A. (2019). The economic lives of young women in the time of Ebola: lessons from an empowerment program. World Bank Policy Research Working Papers. Accessed March 5, 2021 from <https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-8760>.
- Bandiera, O., Buehren, N., Goldstein, M., Rasul, I., and Smurra, A. (2018). Ebola: lessons from an empowerment program. International Growth Center Working Paper. Accessed January 15, 2021 from https://www.theigc.org/wp-content/uploads/2018/06/Bandiera-et-al-2018-Working-Paper_rev-Dec-2018.pdf.
- Bhalotra, S., Facchini, G., Menezes, A. and Rocha, R. (2019). Productivity effects of Dengue in Brazil. ISER Working Paper Series 2019–04. Colchester: University of Essex, Institute for Social and Economic Research. Accessed February 3, 2021 from <http://hdl.handle.net/10419/200383>.
- Bhalotra, S., and Umaña-Aponte, M. (2009). Distress work amongst women? the dynamics of labour supply in sixty-six developing countries. Paper presented at Fourth IZA/World Bank Conference on Economics and Development, Bonn, Germany, May 4.
- Bosch, M. and Maloney, W. (2008). Cyclical movements in unemployment and informality in developing countries. Policy Research Working Paper No. 4648. World Bank. Accessed December 16, 2020 from <https://openknowledge.worldbank.org/handle/10986/6672>.

- Buvinic, M., O'Donnell, M., Knowles, J.C., and Bourgault, S. (2020a). Measuring women's economic empowerment: a compendium of selected tools. Center for Global Development and Data2X. Accessed January 29, 2021 from <https://www.cgdev.org/publication/measuring-womens-economic-empowerment-compendium-selected-tools>.
- Buvinic, M., Noe, L., and Swanson, E. (2020b). Understanding women's and girls' vulnerabilities to the COVID-19 pandemic: a gender analysis and data dashboard of low- and lower-middle income countries. Data2X and Open Data Watch. Accessed February 2, 2021 from https://data2x.org/wp-content/uploads/2020/11/COVID-19-Vulnerability-Paper_FINAL-2.pdf.
- Buvinic, M., Das Gupta, M., Casabonne, U., and Verwimp, P. (2013). Violent conflict and gender inequality: an overview. Policy Research Working Paper No.6371. World Bank. Accessed January 14, 2021 from <https://openknowledge.worldbank.org/handle/10986/16326>.
- Buvinic, M. (2009). 'The global financial crisis: Assessing vulnerability for women and children, identifying policy responses'. Presented to UN Commission on the Status of Women, New York. Accessed January 29, 2021 from http://www.un.org/womenwatch/daw/csw/csw53/panels/financial_crisis/Buvinic.formatted.pdf.
- Calnan, M., Gadsby, E., Kader Konde, M., Diallo, A., and Rossman, J. (2017). The response to and impact of the Ebola epidemic: Towards an agenda for interdisciplinary research. *International Journal of Health and Policy Management* 7(5). Accessed January 14, 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5953523/pdf/ijhpm-7-402.pdf>.
- Camara, B., et al. (2017). Effect of the 2014/2015 Ebola outbreak on reproductive health services in a rural district of Guinea: an ecological study. *Transactions of the Royal Society of Tropical Medicine and Hygiene* vol. 111,1 (2017): 22–29. Accessed January 13, 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5914332/>.
- Cerutti, M. (2000) Economic reform, structural adjustment, and female labor force participation in Buenos Aires, Argentina. *World Development* 28(5), pp. 879–91.
- CDC. (n.d.) Cost of the Ebola epidemic: impact of Ebola on children. Center for Disease Control and Prevention. Accessed January 13, 2021 from <https://www.cdc.gov/vhf/ebola/pdf/impact-ebola-children.pdf>.
- Chi, Y., et al. (2020). Beyond COVID-19: a whole of health look at impacts during the pandemic response. Center for Global Development Policy Paper 177. Accessed February 10, 2021 from <https://www.cgdev.org/publication/beyond-covid-19-whole-health-look-impacts-during-pandemic-response>.
- Christian, P., Kandpal, E., Palaniswamy, N., and Rao, V. (2019). Safety nets and natural disaster mitigation: evidence from cyclone Phailin in Odisha. *Climate Change*, 153 (1–2), pp. 141–164.
- Cunningham, W. (2001). Breadwinner versus caregiver: labor force participation and sectoral choice over the Mexican business cycle. *The economics of gender in Mexico: Work, family, state, and market*, 85–132.
- Davies, S. and Bennett, B. (2016). A gendered human rights analysis of Ebola and Zika: locating gender in global health emergencies. *International Affairs*, 192(5), pp. 1041–1060.

- Accessed February 10, 2021 from <https://academic.oup.com/ia/article/92/5/1041/2688120>.
- Dehingia, N. and Raj, A. (2021). Sex differences in COVID-19 case fatality: do we know enough? *The Lancet Global Health*, 9(1) E14–E15. Accessed February 10, 2021 from [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(20\)30464-2/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30464-2/fulltext).
- de Hoop, T., Desai, S., Holla, C., and Belyakova, Y. (2020). Women’s groups and COVID-19: challenges, engagement, and opportunities. *Poverty, Gender, and Youth* 1067. Accessed January 29, 2021 from <https://core.ac.uk/download/pdf/327313274.pdf>.
- de Janvry, A. and Sadoulet, E. (2011). Subsistence farming as a safety net for food-price shocks. *Development in Practice*, 21(4–5), pp. 472–480. Accessed February 2, 2021 from <https://www.tandfonline.com/doi/abs/10.1080/09614524.2011.561292>.
- Di Bella, G. (2011). The impact of the global financial crisis on microfinance and policy implications. IMF Working Paper 11/175. Accessed February 2, 2021 from <https://www.imf.org/external/pubs/ft/wp/2011/wp11175.pdf>.
- Duryea, S., Behrman, J., and Szekely, M. (1999). Schooling investments and aggregate conditions: a household survey-based approach for Latin America and the Caribbean. Inter-American Development Bank. Accessed January 15, 2021 from <https://publications.iadb.org/en/publication/schooling-investments-and-aggregate-conditions-household-survey-based-approach-latin>.
- Evans, D. and Acosta, A. (2020). The economic impact of COVID-19: after record unemployment, countries around the world begin to reopen industries. Center for Global Development. Accessed February 10, 2021 from <https://www.cgdev.org/blog/economic-impact-covid-19-after-record-unemployment-countries-around-world-begin-reopen>.
- FAO. (2014). The impact of Ebola virus disease on village savings and loan associations Montserrado, Margibi, Bong and Lofa Counties. Food and Agriculture Organization. Accessed January 29, 2021 from <http://www.fao.org/resilience/resources/resources-detail/en/c/276321/>.
- Forero-Martinez, L., Murad, R., Calderon-Jaramillo, M., and Rivillas-Garcia, J. (2020). Zika and women's sexual and reproductive health: Critical first steps to understand the role of gender in the Colombian epidemic. *International Journal of Gynecology and Obstetrics*, 148(S2). Accessed January 13, 2021 from <https://obgyn.onlinelibrary.wiley.com/doi/10.1002/ijgo.13043>.
- Francke, M. (1992). Women and the labor market in Lima, Peru: weathering economic crisis. Paper prepared for the International Center for Research on Women Seminar on Weathering Economic Crises: Women’s Responses to the Recession in Latin America, Washington, DC, August 11.
- Friedman, J. and Schady, N. (2009). How many infants are likely to die in Africa as a result of the global financial crisis? World Bank Policy Research Working Paper No. 5023. Accessed January 15, 2021 from <https://openknowledge.worldbank.org/bitstream/handle/10986/4215/WPS5023.pdf?sequence=1&isAllowed=y>.

- Goldin, C. and Katz, L. (2002). The power of the pill: oral contraceptives and women's career and marriage decisions. *Journal of Political Economy*, 110(4), Accessed February 3, 2021 from <https://www.journals.uchicago.edu/doi/full/10.1086/340778>.
- Hale, Thomas et al. (2020). *Oxford COVID-19 Government Response Tracker*. Blavatnik School of Government. Accessed January 15, 2021 from <https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-responsetracker>.
- Hargreaves, J.R., et al. (2008). Systematic review exploring time trends in the association between educational attainment and risk of HIV infection in sub-Saharan Africa. *AIDS*, 22(3), pp. 403–414. Accessed February 10, 2021 from https://journals.lww.com/aidsonline/Fulltext/2008/01300/Study_of_bias_in_antenatal_clinic_HIV_1.10.aspx.
- Harman, S. (2016). Ebola, gender and conspicuously invisible women in global health governance. *Third World Quarterly*, 37(3), pp. 524–541. Accessed February 2, 2021 from <https://www.tandfonline.com/doi/abs/10.1080/01436597.2015.1108827>.
- Hirata, H., and Humphrey, J. (1990). Male and female workers and economic recession in Brazil. Mimeo, International Center for Research on Women, Washington, DC.
- Humphrey, J. (1996). Responses to recession and restructuring: employment trends in the Sao Paulo metropolitan region, 1979–87. *Journal of Development Studies* 33(1), pp. 40–62.
- Jayakumar, B., Murthy, N., Misra, K., and Burza, S. (2019). “It’s just a fever”: gender based barriers to care-seeking for visceral shmaniasis in highly endemic districts of India: a qualitative study. *PLOS Neglected Tropical Diseases*, 13(6). Accessed February 10, 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6597040/>.
- Johns Hopkins University. (2021). Mortality analysis. Johns Hopkins University Coronavirus Resource Center. Accessed January 14, 2021 from <https://coronavirus.jhu.edu/data/mortality>.
- Judisman, C., and Moreno, A. (1990). Women, labor, and crisis: Mexico. Mimeo, International Center for Research on Women, Washington, DC.
- Jukes, M., Simmons, S., and Bundy, D. (2008). Education and vulnerability: the role of schools in protecting young women and girls from HIV in southern Africa. *AIDS*, 22, pp. S41–S56. Accessed February 10, 2021 from https://journals.lww.com/aidsonline/fulltext/2008/12004/education_and_vulnerability__the_role_of_schools.5.aspx.
- Kidangoor, A. (2020). 1 million women healthcare workers have been drafted to fight COVID-19 in India: for as little as \$40 a month. *Time*. Accessed February 10, 2021 from <https://time.com/5904706/india-female-healthcare-workers-covid19/>.
- Krubiner, C., Madan Keller, J., and Kaufman, J. (2020). Balancing the COVID-19 response with health needs: key decision-making considerations for low- and middle-income countries. Center for Global Development. Accessed February 10, 2021 from <https://www.cgdev.org/publication/balancing-covid-19-response-wider-health-needs-key-decision-making-considerations-low>.
- Lee, K. and Cho, K. (2005). Female labor force participation during economic crises in Argentina and the Republic of Korea. *International Labor Review* 144 (4): 423–49.
- Lim, J. (2000). The effects of the East Asian crisis on the employment of women and men: the Philippine case. *World Development* 28 (7): 1285–1306.

- Menendez, C., Lucas, A., Munguambe, K., and Langer, A. (2015). Ebola crisis: the unequal impact on women and children's health. *The Lancet Global Health* 3(3) E130. Accessed February 2, 2021 from [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(15\)70009-4/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(15)70009-4/fulltext).
- Miller, N., et al. (2018). Community health workers during the Ebola outbreak in Guinea, Liberia, and Sierra Leone. *Journal of Global Health*, 8(2): 020601. Accessed February 10, 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6030670/>.
- Miller, J., et al. (2017). Women's education level amplifies the effects of a livelihoods-based intervention on household wealth, child diet, and child growth in rural Nepal. *International Journal of Equity in Health*, 16(183). Accessed February 10, 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5648516/>.
- Miller, G. and Babiarz, K. S. (2014). Family planning program effects. NBER Working Paper Series No. 20586. Accessed February 2, 2021 from https://www.nber.org/system/files/working_papers/w20586/w20586.pdf.
- Munguambe, K., et al. (2016). Barriers and facilitators to health care seeking behaviours in pregnancy in rural communities of southern Mozambique. *Reproductive Health*, 13(31). Accessed February 10, 2021 from <https://link.springer.com/article/10.1186/s12978-016-0141-0>.
- Muyunda, B., Musonda, P., Mee, P., Todd, J., and Michelo, C. (2018). Educational attainment as a predictor of HIV testing uptake among women of child-bearing age: analysis of 2014 demographic and health survey in Zambia. *Frontiers in Public Health*. Accessed February 10, 2021 from <https://www.frontiersin.org/articles/10.3389/fpubh.2018.00192/full>.
- Nash, J. (1990). Latin American women in the world capitalist crisis. *Gender and Society* 4(3), 338–353. Retrieved January 14, 2021 from <http://www.jstor.org/stable/189647>.
- Parpia, A. S., Ndeffo-Mbah, M. L., Wenzel, N.S., and Galvani, A. P. (2016). Effects of response to 2014–2015 Ebola outbreak on deaths from Malaria, HIV/AIDS, and Tuberculosis, West Africa. *Emerging Infectious Diseases* 22 (3): 433–441. Accessed February 10, 2021 from <https://doi.org/10.3201/eid2203.150977>.
- Pearson, R. and Sweetman, C. (2011). Gender and the economic crisis. Practical Action Publishing and Oxfam UK. Accessed January 14, 2021 from <https://oxfamlibrary.openrepository.com/bitstream/handle/10546/121671/bk-gender-economic-crisis-100211-en.pdf?sequence=1&isAllowed=y>.
- Pellecchia, U., Crestani, R., Decroo, T., Van den Bergh, R., and Al-Kourdi, Y. (2015). Social consequences of Ebola containment measures in Liberia. *PLoS ONE* 10(12). Accessed January 14, 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4674104/pdf/pone.0143036.pdf>.
- PERC. (n.d.). Partnership for Evidence-based Response to COVID-19 (PERC). Prevent Epidemics. Accessed February 10, 2021 from <https://preventepidemics.org/covid19/perc/>.
- Peterman, A. et al. (2020). Pandemics and violence against women and children. Center for Global Development. Accessed February 10, 2021 from <https://www.cgdev.org/sites/default/files/pandemics-and-vawg-april2.pdf>.

- Picker, L. (2007). The effects of education on health. NBER The Digest Issue No. 3. Accessed February 10, 2021 from <https://www.nber.org/digest/mar07/effects-education-health>.
- Population Reference Bureau. (2012). Unmet need for contraception: factsheet. Population Reference Bureau. Accessed January 13, 2021 from <https://www.prb.org/unmet-need-factsheet/>.
- Sabarwal, S., Sinha, N., & Buvinic, M. (2011). How do women weather economic shocks? What we know. World Bank Economic Premise No. 46. Accessed January 29, 2021 from <https://openknowledge.worldbank.org/handle/10986/10113>.
- Skoufias, E., and Parker, S. (2006). Job loss and family adjustments in work and schooling during the Mexican Peso Crisis. *Journal of Population Economics* 19 (1): 163–81.
- UNDP. (2017). Recovering from the Ebola crisis—full report. UNDP. Accessed February 10, 2021 from <https://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/recovering-from-the-ebola-crisis---full-report.html>
- UNDP. (2014). Socio-economic impacts of the Ebola virus disease in Guinea, Liberia, and Sierra Leone. United Nations Development Programme. Accessed January 14, 2021 from <https://www.undp.org/content/undp/en/home/librarypage/crisis-prevention-and-recovery/undp-s-policy-notes-on-the-economic-impact-of-the-ebola-virus-in.html>.
- UNFCCC. (2019). Differentiated impacts of climate change on women and men; the integration of gender considerations in climate policies, plans and actions; and progress in enhancing gender balance in national climate delegations. United Nations Framework Convention on Climate Change. Accessed January 14, 2021 from https://unfccc.int/sites/default/files/resource/sbi2019_inf8.pdf.
- UN Global Pulse. (2011). Economic crisis, international tourism decline and its impact on the poor: an analysis of the effects of the global economic crisis on the employment of poor and vulnerable groups in the tourism sector. UN Global Pulse, ILO, UNWTO. Accessed February 2, 2021 from <https://www.unglobalpulse.org/project/economic-crisis-tourism-decline-and-its-impact-on-the-poor-2011/>.
- von Braun, J. (2008). Food and financial crises: implications for agriculture and the poor. IFPRI Food Policy Report. Accessed February 2, 2021 from <https://core.ac.uk/download/pdf/6289061.pdf>.
- Walsh, A. (2019). Impacts of Dengue epidemics on household labor market outcomes. *Applied Economic Perspectives and Policy*, 41(4), pp. 684–702. Accessed February 2, 2021 from <https://onlinelibrary.wiley.com/doi/abs/10.1093/aep/ppy027>.
- Wenham, C., Smith, J., and Morgan, R. (2020). COVID-19: the gendered impacts of the outbreak. *The Lancet* 395(10227), pp. 846–848. Accessed February 3, 2021 from [https://www.thelancet.com/article/S0140-6736\(20\)30526-2/fulltext](https://www.thelancet.com/article/S0140-6736(20)30526-2/fulltext).
- WHO. (2020a). Coronavirus disease (COVID-19): similarities and differences with influenza. World Health Organization. Accessed January 13, 2021 from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19-similarities-and-differences-with-influenza>.
- WHO. (2020b). Ebola virus disease Democratic Republic of Congo: external situation reports. World Health Organization. Accessed February 10, 2021 from <https://www.who.int/emergencies/diseases/ebola/drc-2019/situation-reports>.

- WHO. (2020c). In WHO global pulse survey, 90% of countries report disruptions to essential health services since COVID-19 pandemic. World Health Organization. Accessed February 10, 2021 from <https://www.who.int/news/item/31-08-2020-in-who-global-pulse-survey-90-of-countries-report-disruptions-to-essential-health-services-since-covid-19-pandemic>.
- WHO. (2015). Ebola in Sierra Leone: a slow start to an outbreak that eventually outpaced all others. World Health Organization. Accessed January 14, 2021 from <https://www.who.int/csr/disease/ebola/one-year-report/sierra-leone/en/>.
- WHO. (2003). Consensus document on the epidemiology of severe acute respiratory syndrome (SARS). World Health Organization. Accessed January 13, 2021 from <https://www.who.int/csr/sars/en/WHOconsensus.pdf>.
- World Bank. (2017). Access to mobile phones and internet around the world. World Bank. Accessed January 14, 2021 from https://globalindex.worldbank.org/sites/globalindex/files/chapters/2017%20Index%20full%20report_spotlight.pdf.
- World Bank. (2015). Ebola hampering household economies across Liberia and Sierra Leone. World Bank. Accessed January 15, 2021 from <https://www.worldbank.org/en/news/press-release/2015/01/12/ebola-hampering-household-economies-liberia-sierra-leone>.
- World Food Programme. (2014). How can we estimate the impact of Ebola on food security in Guinea, Liberia and Sierra Leone? special focus. World Food Programme. Accessed January 15, 2021 from <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp268882.pdf>.