

PROTECTING HUMAN CAPITAL FROM THE IMPACT OF EARLY LIFE SHOCKS KEY INTERVENTIONS FOR LOWER–MIDDLE–INCOME COUNTRIES

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KEY RECOMMENDATIONS

This policy note presents strong evidence of the impacts of early childhood exposure to shocks on later life human capital outcomes in lower–middle–income countries, particularly in the Sahel region. It recommends key, evidence–based social protection interventions to mitigate these impacts and protect human capital as follows :

- **Cash transfers to improve child nutritional outcomes**, particularly when combined with behavior change communication on water, sanitation and hygiene and hygiene practices.
- **Conditional cash transfers to increase educational outcomes**, especially when monitored and reinforced.
- **Contributory schemes to mitigate the impact of shocks on asset loss and household expenditure**, particularly health, livestock, and climate insurance schemes.
- **Food distribution interventions to mitigate the impact of shocks on nutritional and educational outcomes**, particularly for children under–five, which is a critical period for growth and development.
- **Behavioral interventions to positively influence health and educational behavior and spending**, especially nutrition education, academic nudges, and maternal psychotherapy interventions.
- **The success of these interventions requires context– and population–appropriate program design and implementation** to maximize their effects on protecting human capital.

1 Introduction

To ensure sustained economic growth in lower–middle–income countries (LMICs), it is essential to accumulate and protect human capital. Human capital is “the knowledge, skills, and health that people accumulate over their lives.” Exposure to shocks in LMICs has resulted in significant economic costs, including through the loss of human capital. Shocks are unanticipated events that result in major disruptions at the household or national level, and include conflict, climate events, or sudden loss of income². The impact of shocks is especially damaging when they occur in early childhood — the first five years of life³. Disruptions experienced during this critical period of cognitive and physical development have been shown to have long–lasting effects on potential productivity and earnings^{4,5,6}. **Box 1** summarizes key indicators of human capital that can help track human capital outcomes.

Box 1 : Indicators of Human Capital

Childhood nutritional status is routinely assessed with anthropometric measures — measures of the body. These indicators include stunting (low height–for–age) and wasting (low weight–for–height). Stunting is considered an indicator of chronic undernutrition, whereas wasting is considered an indicator of acute undernutrition.

Nutritional status, in both childhood and adulthood, is assessed indirectly through feeding practices. The World Health Organization and UNICEF recommend that children under six months of age be exclusively breastfed. Once complementary feedings begins, a child should be fed an adequate number of high–quality, diverse meals, which is primarily assessed by the number of different food groups from which one eats daily.

Box 1 continued

Educational status, in childhood or adulthood, is assessed through measures of school attendance and performance. Indicators measured during childhood include current school enrollment, school attendance, and test scores. Indicators assessing educational status in adulthood or late childhood include grades completed or years of schooling.

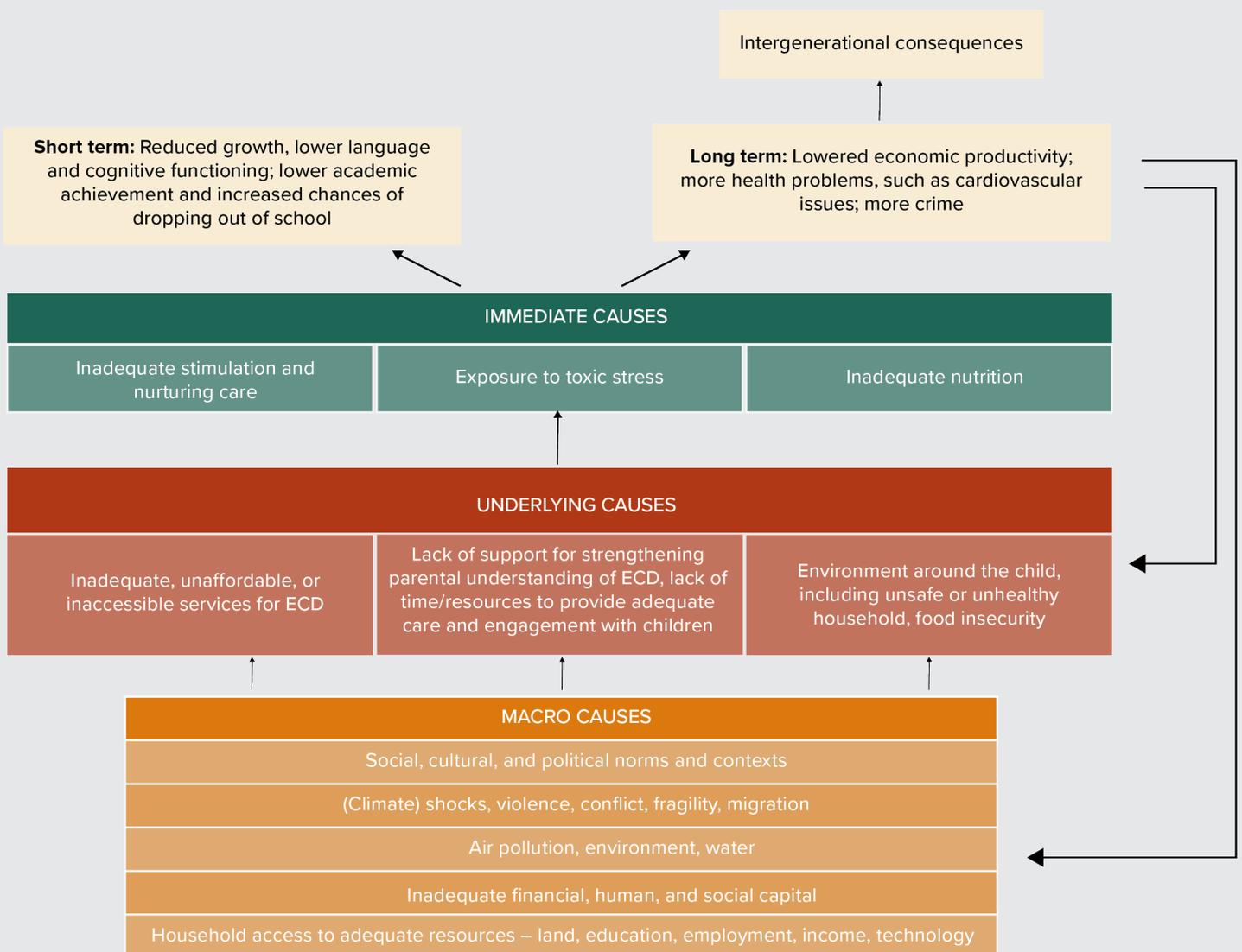
Health status is assessed directly through measures of morbidity or mortality. In childhood, morbidity is assessed through the incidence of illnesses such as diarrheal disease or respiratory infections. Additional assessments of health status include measures of cognitive development.

The World Bank Human Capital Index (HCI) brings some of these indicators together to capture the amount of human capital that a child born today could expect to attain by age 18. It calculates the human capital of the next generation, defined as the amount of human capital that a child born today can expect to achieve in view of the risks of poor health and poor education currently prevailing in the country where that child lives. The HCI is based on three components: survival, expected years of learning-adjusted school and health. Across Sub-Saharan Africa, a child born in 2020 will only be 40 percent as productive when she grows up as she could be if she had enjoyed complete education and full health.

Among LMICs, the Sahel region is highly exposed to shocks and vulnerable to their impacts on human capital formation and accumulation. The six countries of the Sahel — Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal — experience increasingly frequent climate- and conflict-related shocks. The United Nations estimates that the temperature increase in Sahel countries is almost 1.5 times higher than the projected global average⁷, resulting in numerous droughts. This is compounded by high levels of poverty and inequality, which increase household vulnerability to the effects of shocks on human capital formation⁸. Persistent poor human capital outcomes mean that children born in the Sahel are only one third to two-fifths as productive as adults than they could have been if human capital had been optimally developed⁹. **Figure 1** provides a framework that illustrates the potential impacts of unmitigated exposure to the impacts of shocks and the vital importance of investing in childhood human capital¹⁰.



FIGURE 1.
UNICEF Framework for Investing in Childhood Human Capital



Source: Authors' adaptation based on UNICEF (2017)¹¹.
Note: The black arrows illustrate the perpetual cycle of adverse long-term outcomes negatively affecting the macro environment and underlying causes.

2 Impact of shocks on human capital in LMICs

2.1 Impact of exposure during the early years on human capital formation

Childhood or in utero exposure to extreme weather events can have catastrophic impacts on human capital formation, with long-lasting effects on adult outcomes. Global studies show that in utero or childhood exposure to famine, drought or crop failure has variously resulted in a wide range of adverse human capital outcomes in adulthood, such as poorer health outcomes (higher likelihood of diseases, faster cognitive aging, adult body size, or diabetes).^{12,13,14,15,16,17,18} Surviving a famine in early childhood affects not just health but also long-term labor market outcomes, including lower levels of education and reduced working hours and income. In utero exposure to health- or conflict-related shocks, such as war or a pandemic, also has long-lasting impacts on human capital outcomes in adulthood. Those in utero during these events have experienced significant reductions in education, health, and economic outcomes.^{19,20,21,22,23,24}

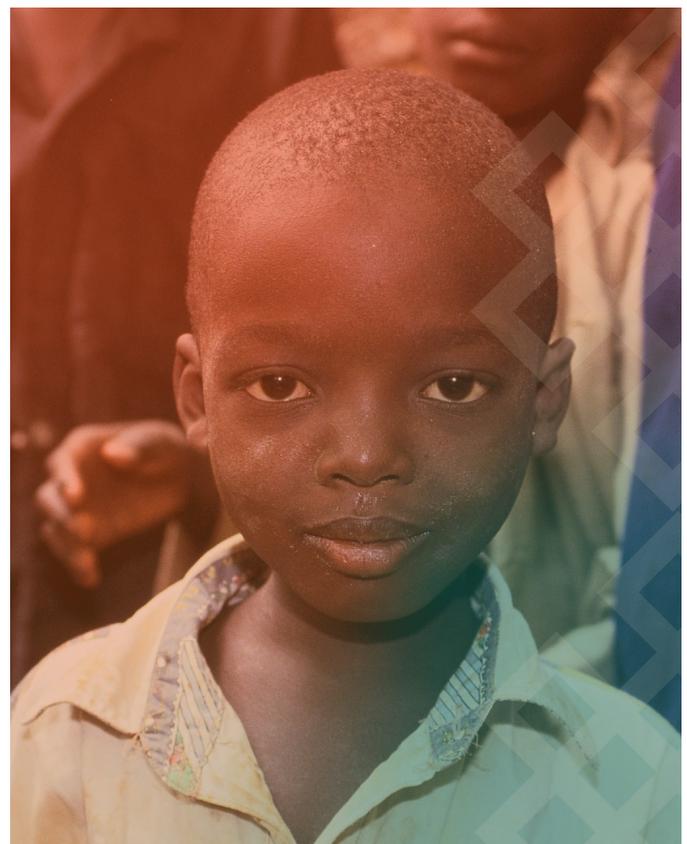
2.2 Impact of exposure during adolescence on human capital formation

In Sub-Saharan Africa, exposure to droughts in adolescence can also increase the likelihood of child marriage. Households may use child marriage as a mechanism to manage a decrease in household income by reducing household size, and expenditure on food and education.^{25, 26} Girls who marry early are more likely to experience domestic violence, school dropout, and oppression, which further perpetuates poor short- and long-term human capital outcomes, including to the next generation.^{27, 28}

The COVID-19 pandemic is likely to have long-lasting impacts on human capital. There is already evidence of pandemic-related impacts on income and consumption, increased intimate partner violence, reduced childhood human capital due to school closures, higher incidence of adolescents dropping out of school, increased teen pregnancies, and higher rates of child marriages.

2.3 Impact of maternal exposure to concurrent shocks on childhood human capital formation

A single extreme event can lead to concurrent and compounding shocks that impact maternal stress and subsequently child outcomes. Shocks increase maternal stress, with measurable effects that range from complications during labor and birth²⁹, developmental delays and behavioral abnormalities among their children, through to intergenerational impacts on the grandchildren of those who experienced the stressor.³⁰ Shocks can also increase violence against women, further magnifying maternal stress.^{31,32} Children with one or more parents exposed to war or intimate partner violence are at higher risk of experiencing child maltreatment,³³ which increases their risk of physical and mental illness.³⁴ These examples highlight the need for interventions to mitigate the impacts of exposure to shocks.



3 Impact of shocks on human capital in the Sahel

Countries in the Sahel are highly vulnerable to shocks and their impact on human capital. Studies have revealed the extensive short and longterm human capital impacts of climate, conflict, and healthrelated shocks in this region.

3.1 Impact of climate-related shocks in the Sahel

Exposure to climate shocks in the Sahel can significantly impact child nutritional, health, and educational outcomes.^{35,36} This highlights the need to mitigate exposure to shocks in early childhood, to address both the direct impact on children and the indirect impact through parental (particularly maternal) nutrition and stress. In numerous Sahel countries, droughts or flooding have frequently resulted in sudden and dramatic increases in household food costs, with the negative impacts on food security continuing beyond the immediate shock.^{37,38} The Sahel region is highly vulnerable to droughts, and children living in the driest climates have an 80 percent higher likelihood of suffering from diarrheal disease than children in humid climates. Furthermore, birth month exposure to dust or sandstorms (harmattan) is associated with an increased likelihood of neonatal mortality.^{39,40} In Mali, early childhood exposure to locust invasions reduced long-term school enrollment, particularly for children who were in utero and up to two years old during the locust invasion, and more so for boys. Similar negative impacts were seen on grade attainment among girls,⁴¹ while exposure to famine in Mali led to a decrease in male educational attainment.⁴²

3.2 Impact of conflict-related shocks in the Sahel

Increasing instability in the Sahel, and the associated conflict-related shocks, can negatively affect general and maternal health status. There is striking evidence of the mental and maternal health impacts of conflict-related shocks in this region. Among Malian refugees in Burkina Faso, 75 percent were found to be depressed or suffering from a mental illness, while 85 percent had post-traumatic stress disorder,⁴³ particularly among women and older populations. In Burkina Faso, expectant mothers who were exposed to terrorist attacks made less use of maternal healthcare services.⁴⁴ In Chad, internally displaced populations experienced a higher prevalence of child and under-five mortality than their non-displaced counterparts.⁴⁵

3.3 Impact of the COVID-19 health shock in the Sahel

Current studies on the COVID-19 health shock are revealing the negative impacts of the pandemic on food security and poverty in the Sahel. In Burkina Faso, more than 70 percent of women in both urban regions rural regions reported partial or complete income loss due to the COVID-19 pandemic and associated restrictions.⁴⁶ Additionally, the COVID-19 pandemic has increased food insecurity in Burkina Faso, including reduced meal frequency and meal size.^{47,48}





4 Interventions to limit the impacts of shocks on human capital

Social protection interventions aim to mitigate the short- and long-term impacts of early-life shocks on key determinants of human capital in both childhood and adulthood. This section provides proven social protection interventions that can inform effective, evidence-based policy solutions in the Sahel.

4.1 Cash transfer interventions

Cash transfer interventions in LMICs have been shown to measurably impact child nutritional and educational outcomes. Cash transfers are most impactful on child nutritional status when combined with behavior change communication.⁴⁹ WASH and hygiene behavior change communication can have the greatest impact on both child growth and undernutrition. Other priority areas for behavior change communication are on infant and young child feeding and household nutrition. Effective cash transfer programs are dependent on program design, implementation, and target population.⁵⁰

Cash transfer programs in LMICs can also improve the likelihood of school enrollment and attendance.^{51,52} This impact is further improved when the program is conditional, and these conditions are monitored and reinforced. Conditional cash transfer programs can in particular counter the tendency to pull girls out of school, improving not just educational outcomes, but also reducing the likelihood of early marriage and teenage pregnancy. However, cash transfer programs do not impact on test scores, which points to policy opportunities for improving school and schooling quality, in addition to ensuring increased access to schools.

Box 2: Concern Worldwide Conditional Cash Transfer Program (Niger)⁵³

In 2012, Concern Worldwide introduced a conditional cash transfer program in rural Niger in response to government predictions of an impending drought and famine. The program targeted the poorest households, which were particularly vulnerable to food insecurity. Households received approximately US\$ 250 per month for a 3-month period, and where possible, this was provided directly to female beneficiaries. Prior to receiving the monthly cash transfer, mothers were required to attend nutrition education courses.

Children between 6 and 24 months whose households were enrolled in this program observed increases across multiple weight measures. In Niger the electronic

distribution of cash through mobile money may be the most cost-effective option for cash transfers and resulted in greater improvements in food purchases and consumption.

Cash plus programs can improve the impact of cash transfer programs in LMICs and ensure an enduring impact on human capital. Cash plus programs are unconditional cash transfer programs implemented alongside complementary programs or services that address the needs of the target population and facilitate household-level investments in human capital. These complementary programs or services can include additional benefits or in-kind transfers, behavioral change communication, psychosocial support, facilitating access to services, or linking individuals to services.⁵⁴ A combination or package of these interventions can be implemented concurrently or staggered to maximize their impact on human capital. The most appropriate package and timing of interventions depends on the needs of the population and the context in which they are implemented.

4.2 Public Work Programs

Public work programs can mitigate the impact of shocks on human capital in LMICs.⁵⁵ Public work programs are government interventions that provide individuals with employment opportunities for approximate market wage in-cash or in-kind (food items, vouchers, or subsidies) payments. Public works programs in low-income and lower-middle-income African countries have a varied impact on household expenditure, nutrition, and education outcomes.⁵⁶ Within this region, there is inconclusive evidence of the impact of public works programs on consumption and expenditure, the impact on food security and nutrition outcomes is inconsistent, and the impact on education outcomes is largely statistically insignificant. However, available evidence is limited by a small number of rigorous studies outside of Ethiopia and considerable heterogeneity in the program design — including the duration of the program, payment schemes and relative amounts, and the type of complementary packages.

4.3 Contributory Schemes

HEALTH INSURANCE

Health insurance schemes are the primary social insurance schemes targeting the most vulnerable populations in LMICs and can also be provided as social health insurances (non-contributory) to the poorest. Community-based health insurance schemes can improve educational outcomes and reduce catastrophic health expenditures. The key determinants of program effectiveness include participant understanding of health insurance, trust in the insurer, household size, community involvement, administrative and management structure, the amount and timing of the premium, and cost-sharing.⁵⁷

Box 3: Healthcare (Rwanda)⁵⁸

In Rwanda, a nationwide community-based mutual health insurance scheme called *Mutuelles de Santé* was introduced in 2005, reaching 90 percent coverage by 2012. This scheme targets low-income households or individuals who are employed in the informal sector. Every Rwandan is obliged by law to have some form of health insurance. This particular mandatory scheme provides coverage for healthcare services and medication. While households enroll in the scheme jointly, payment is calculated per household member. Payment for households with the lowest income levels are covered by the Rwandan government or donors. Insurance payments among other members are based on income level.

This scheme has resulted in improved educational outcomes, better protection against parental health shocks, decreased catastrophic spending, and a reduced poverty gap.^{59,60,61} Insurance coverage also decreased the number of hours worked by boys. The effectiveness and sustainability of community-based health insurance schemes is dependent on local buy-in at all levels and the identification of reliable and sustainable financing mechanisms.

INDEX-BASED INSURANCE SCHEMES

Index-based insurance schemes mitigate the impact of shocks, particularly climate and agricultural shocks, on household expenditure and poverty levels. These schemes require a particular threshold to be met before cash payments are automatically distributed to beneficiaries. The effectiveness of these interventions is dependent on adequate demand for the insurance scheme and appropriate indexes to ensure that payments are adequately timed to mitigate the impact of shocks on households. Index-based

livestock insurance may also benefit household spending. Among rural households, selling livestock is often one of the first strategies to manage the financial effects of shocks. Index-based livestock insurance schemes are interventions that could potentially eliminate or minimize this asset loss or changes in household expenditure. In Kenya and Ethiopia, coverage was associated with a 45 percent decrease in catastrophic losses following exposure to shocks.⁶²

Uptake of index-based insurance schemes remains low in LMICs, despite their potential to mitigate the impact of shocks on human capital. Demand and uptake of these schemes is generally dependent on understanding, perception, trust, cost, and available alternatives,⁶³ in addition to geographically specific determinants.^{64,65,66} At the individual level, demand also depends on the specific asset and the climatic event being insured against.⁶⁷ This evidence highlights the importance of designing population-specific insurance schemes to ensure increased demand and uptake.

Box 4: The Kenya Livestock Insurance Program (Kenya)^{68,69}

In 2015, the Kenyan government introduced a social protection program to prevent the loss of livestock and improve food insecurity in the most vulnerable drought-affected communities. Kenya purchases insurance coverage for vulnerable households in arid and semi-arid counties. Calculating agents monitor, via satellite, the amount of vegetation available for livestock to consume and create an associated index of drought. Once a predetermined index threshold is reached and communicated to relevant stakeholders, insurance companies provide payments directly to policyholders. Payments are proportional to the value thresholds reached. Households then use the payments

4.4 Food distribution interventions

Food distribution interventions mitigate the impact of shocks on food consumption, particularly for children under-five, which is a critical period for growth and development. Food distribution interventions broadly target either school or non-school-age children.

SUPPLEMENTARY/COMPLEMENTARY FEEDING

Supplementary/complementary child feeding programs target non-school-age children, especially during the critical growth period of the first 1,000 days of life.

Complementary feeding programs in LMICs, with or without additional nutrition education, can result in marked improvements in measures of growth in children.^{70,71}

Box 5: The Rainbow Project Supplementary Feeding Program (Zambia) ^{72,73}

In 2011, an NGO called the Rainbow Project, introduced a supplementary feeding program in two Zambian districts. The program targeted the most undernourished children under-five who did not suffer from any additional medical complications. Feeding centers provided weekly growth monitoring, nutrition education, cooking demonstrations, onsite provision of a meal to the children, distribution of high energy protein supplements for the children under-five and a basket of local foods for the whole household, and home visitations. Home visits were also conducted by community volunteers.

SCHOOL FEEDING

School feeding interventions can improve both nutrition and education outcomes.^{74,75} School feeding programs provide children with nutritious meals and snacks during school hours, or take-home food items, and are regularly introduced alongside complementary programs such as deworming treatments or micronutrient supplementation. School feeding programs in Africa have been shown to increase school attendance, enrollment, and test scores.⁷⁶ There is also evidence of long-lasting and multi-generational impacts of school feeding programs on nutritional outcomes.⁷⁷ The impact of these programs is dependent on their context, design, and implementation.

Box 6: School Feeding Program (Ghana) ^{78,79}

The Ghana School Feeding Program is a nationwide government-led school feeding program that provides kindergarten and primary school children with one nutritious hot meal every school day. Identification of schools or communities is based on factors including poor educational outcomes, high rates of poverty or gender inequality, and the existence and willingness to introduce complementary nutrition or health education interventions.

4.5

Behavioral interventions

NUTRITION EDUCATION

Nutrition education can improve child feeding practices and key measures of child growth.^{80,81,82} Nutrition education programs — commonly referred to as complementary feeding education — educate parents and caregivers about how to promote the overall well-being of their children and ensure that feeding practices are timely, adequate, and safe. These programs are among the most widely implemented behavioral interventions across LMICs.

ACADEMIC NUDGES

Behavioral interventions can encourage improved school attendance and academic outcomes.^{83,84} Decision-makers can augment the promising outcomes of these interventions by ensuring effective monitoring and improvement of schools and schooling quality.

MENTAL HEALTH INTERVENTIONS

Psychotherapy interventions that target women — particularly for depression — can have significant long-term impacts on women's empowerment and improve time- and monetary-intensive parental investments.⁸⁵ Mental health interventions that foster women's empowerment can result in improved maternal and child health.⁸⁶ Mental health interventions can also address the direct mental effects of exposure to shocks (e.g., post-traumatic stress disorder).

Box 7: The Thinking Healthy Program—Peer Delivered (Pakistan) ^{87,88,89}

An evidence-based mental health intervention has been introduced by the World Health Organization in rural Pakistan to address high rates of perinatal depression. The 'Thinking Healthy Program' uses a simplified version of cognitive behavioral therapy to address mental health issues in mothers, and costs US\$ 133 per participant. Trained peers facilitate individual and group sessions with mothers who are diagnosed with depression. Sessions focus on improving mothers' relationship with themselves, with their babies, and with their support systems.



5 Conclusions

Protecting children in the crucial first five years of life from the impacts of exposure to shocks is vital to long-term human capital outcomes and sustained economic growth in LMICs. Countries in the Sahel are particularly exposed to climate- and conflict-related shocks and are more vulnerable to their impacts due to their reduced ability to withstand this exposure in a way that minimizes the impact on human capital formation, especially in early childhood. This policy note has outlined proven social protection interventions that can mitigate or even eliminate this vulnerability and ensure the protection and accumulation of human capital. To be effective, the design of these interventions must be population-specific, and their implementation closely monitored.





ENDNOTES

- ¹ Buchsbaum, "HCP an Introduction".
- ² Brunelin, Ouedraogo et Tandon, "Five Facts about Shocks".
- ³ Currie et Almond, "Human Capital Development".
- ⁴ Knudsen, "Sensitive Periods", 1412–25.
- ⁵ Knudsen, Heckman, Cameron et Shonkoff, "Economic, Neurobiological, and Behavioral", 10155–62.
- ⁶ Victora, Adair, Fall, Hallal, Martorell, Richter, Sachdev et le Groupe d'étude sur la nutrition maternelle et infantile, « Santé maternelle et infantile et de la nutrition », 340–357.
- ⁷ Niang, Ruppel, Abdrabo, Essel, Lennard, Padgham et Urquhart, "Africa", 1199–1265. See also: World Bank Group 2022b. G5 Sahel Region Country Climate and Development Report.
- ⁸ Groupe de la Banque mondiale, « Indicateurs de la Banque mondiale ».
- ⁹ Banque mondiale, « Indice du capital humain (ICH) de 2020 mis à jour ».
- ¹⁰ UNICEF, « Orientation des programmes de l'UNICEF relatifs au développement de la petite enfance ».
- ¹¹ UNICEF, « Orientation des programmes de l'UNICEF relatifs au développement de la petite enfance ».
- ¹² Stein, Susser, Saenger et Marolla, "Famine and Human Development".
- ¹³ Roseboom, Van Der Meulen, Ravelli, Osmond, Barker et Bieker, "Effects of Prenatal Exposure", 293–298.
- ¹⁴ Roseboom, de Rooij et Painter, "The Dutch Famine", 485–491.
- ¹⁵ Banerjee, Duflo, Postel-Vinay et Watts, "Long-Run Health Impacts", 714–728.
- ¹⁶ Kumar, Molitor et Vollmer, "Drought and Early Child Health", 53–68.
- ¹⁷ Ampaabeng et Tan, "The Long-Term Cognitive Consequences", 1013–1027.
- ¹⁸ Lumey, Stein et Susser, "Prenatal Famine and Adult Health", 237–262.
- ¹⁹ Lee, "In Utero Exposure", 76–93.
- ²⁰ Almond, "Is the 1918 Influenza Pandemic", 672–712.
- ²¹ Almond, Edlund et Palme, "Chernobyl's Subclinical Legacy", 1729–1772.
- ²² Dewi, Putu, and Dartanto, "Natural Disasters and Girls Vulnerability", 24–35.
- ²³ Corna, Hildebrandt, and Voena, "Weather Shocks."
- ²⁴ UNICEF, "Child Marriage."
- ²⁵ Jensen, and Thornton "Early Female Marriage," 9–19.
- ²⁶ Iesue, Casanova et Piquero, "Domestic Violence", 589–614.
- ²⁷ Zulaika, Bulbarelli et Nyotach, "Impact of COVID-19 Lockdowns", e0076666.
- ²⁸ Rahiem, "COVID-19 and the Surge", 105168.
- ²⁹ Currie et Rossin-Slater, "Weathering the Storm", 487–503.
- ³⁰ Lee, "Intergenerational Health Consequences", 284–291.
- ³¹ Weitzman et Behrman, "Disaster, Disruption", 167–189.
- ³² Rao, "A Natural Disaster", 112804.
- ³³ Istratii, "War and Domestic Violence".
- ³⁴ WHO, "Child Maltreatment."
- ³⁵ Lazzaroni et Wagner, "Misfortunes Never Come", 246-262.
- ³⁶ Dunn, "The Impact of Climate Variability".
- ³⁷ Nebie, Ba et Giannini, "Food Security and Climate", 100513.
- ³⁸ Yobom, "Climate Change, Agriculture".
- ³⁹ Karimi, Pouran, Majbouri, Moradi-Lakeh et Hakimian, "Saharan Sand and Dust", 139053.
- ⁴⁰ Garcia-Pando, Stanton, Diggle, Trzaska, Miller, Perwitz, Baldasano, Cuevas, Ceccato, Yaka et Thomson, "Soil Dust Aerosols", 679–686.
- ⁴¹ De Vreyer, Guilbert, and Mesple-Soms, "Impact of Natural Disasters", 57–100.
- ⁴² Latham, "The Long-Term Impacts".
- ⁴³ Carta, Oumar, Moro, Moro, Preti, Mereu et Bhugra, "Trauma- and Stressor Related", 189–195.
- ⁴⁴ Druetz, Browne, Bicaba, Mitchell et Bicaba, "Effects of Terrorist Attacks".
- ⁴⁵ Guerrier, Zounoun, Delarosa, Defourny, Lacharite, Brown et Pedalino, "Malnutrition and Mortality Patterns".
- ⁴⁶ Gummerson, Cardona, Anglewicz, Zachary, Guiella et Radloff, "The Wealth Gradient".
- ⁴⁷ Ouoba et Sawadogo, "Food Security, Poverty", 100387.
- ⁴⁸ Ozer, Dembele, Yameogo, Hut et de Longueville, "The Impact of COVID-19", 100393.
- ⁴⁹ Manley, Alderman et Gentilini, "More Evidence on Cash".
- ⁵⁰ Manley, Balarajan, Malm, Harman, Owens, Murthy, Steward, Winder-Rossi et Khurshid, "Cash Transfers and Child".
- ⁵¹ Baird, Ferreira, Ozier et Woolcock, "Conditional, Unconditional and Everything", 1–43.
- ⁵² Garcia et Saavedra, "Educational Impacts and Cost-Effectiveness", 921–965.
- ⁵³ Bliss, Golden, Bourahla, Stoltzfus et Pelletier, "An Emergency Cash Transfer".
- ⁵⁴ Roelen, Devereux, Abdulai, Martorano, Palermo et Ragno, "How to Make 'Cash Plus' Work".
- ⁵⁵ Kalanidhi, del Ninno, Andrews et Rodriguez-Alas, "Public Works as a Safety".
- ⁵⁶ Beierl et Grimm, "Do Public Works Programmes Work ?".
- ⁵⁷ Fadlallah, El-Jardali, Hemadi, Morsi, Abou Samra, Ahmad et coll., "Barriers and Facilitators to Implementation".
- ⁵⁸ Rwanda Social Security Board, "CBHI Scheme".
- ⁵⁹ Woode, "Parental Health Shocks", 35–47.
- ⁶⁰ Strobl, "Does Health Insurance Reduce Child Labour and Education Gaps", 1376–1395.
- ⁶¹ Woldemichael, "The Impacts of Community-Based Health Insurance Schemes".
- ⁶² Jensen, Barrett et Mude, "Cash Transfers and Index Insurance", 14–28.
- ⁶³ Carter, De Janvry, Sadoulet et Sarris, "Index-Based Weather Insurance for Developing Countries".
- ⁶⁴ Fonta, Sanfo, Kadir et coll., "Estimating Farmers' Willingness".
- ⁶⁵ Ali, Egbendewe, Abdoulaye et Sarpong, "Willingness to Pay", 534–547.
- ⁶⁶ Aina, Ayinde, Thiam et Miranda, "Willingness to Pay".
- ⁶⁷ Ali, Egbendewe, Abdoulaye, and Sarpong, "Willingness to Pay", 534–547.
- ⁶⁸ Imbali, "Tackling Drought in Kenya".
- ⁶⁹ Fava, Jensen, Sina, Mude et Maher, "Building Financial Resilience".
- ⁷⁰ Imdad, Yakoob et Bhutta, "Impact of Maternal Education".
- ⁷¹ Lassi, Das, Zahid, Imdad et Bhutta, "Impact of Education".
- ⁷² Moramarco, Amerio, Gozza Maradini et Garuti, "The Rainbow Project".
- ⁷³ Moramarco, "Enhancing the Effectiveness", 78.
- ⁷⁴ Alderman et Bundy, "School Feeding Programs".
- ⁷⁵ Bundy, Burbano, Grosh, Gelli, Jukes et Drake, "Rethinking School Feeding".
- ⁷⁶ Wall, Tolar-Peterson, Reeder, Roberts, Reynolds et Rico Mendez, "The Impact of School Meal", 3666.
- ⁷⁷ Chakrabarti, Scott, Alderman, Menon et Gilligan, "Intergenerational Nutrition Benefits", 1–10.
- ⁷⁸ Government of Ghana, "Ghana School Feeding".
- ⁷⁹ PAM, "Home-Grown School".
- ⁸⁰ Dewey et Adu-Afarwah, "Systematic Review of the Efficacy", 24–85.
- ⁸¹ Imdad, Yakoob et Bhutta, "Impact of Maternal Education", S25–S25.
- ⁸² Lassi, Rind, Irfan, Hadi, Das et Bhutta, "Impact of Infant and Young", 722.
- ⁸³ Nguyen, "Information, Role Models".
- ⁸⁴ Jensen, "The Perceived Returns".
- ⁸⁵ Baranov, Bhalotra, Biroli et Maselko, "Maternal Depression, Women's", 824–59.
- ⁸⁶ Garcia, Yim, "A Systematic Review", 347.
- ⁸⁷ OMS, « Penser sain ».
- ⁸⁸ Rahman, "Challenges and Opportunities in Developing", 211–219.
- ⁸⁹ Sikander, Ahmad, Atif, Zaidi, Vanobberghen, Weiss, Nisar, Tabana, Ain, Bibi et Bilal, "Delivering the Thinking Healthy", 128–139.

REFERENCES

- Aina, I., Ayinde, O. E., Thiam, D., and Miranda, M. 2018. "Willingness to Pay for Index-Based Livestock Insurance: Perspectives from West Africa." *Climate* 8 (3): 47.
- Alderman, H. and Bundy, D. 2012. "School Feeding Programs and Development: Are We Framing the Question Correctly?" Published by Oxford University Press on behalf of the World Bank.
- Ali, E., Egbendewe, A. Y., Abdoulaye, T., and Sarpong, D. B. 2020. "Willingness to Pay for Weather Index-Based Insurance in Semi-Subsistence Agriculture: Evidence from Northern Togo." *Climate Policy* 20 (5): 534–547.
- Almond, D. 2006. "Is the 1918 Influenza Pandemic Over? Long-Term Effects of In Utero Influenza Exposure in the Post-1940 US Population." *Journal of Political Economy* 114 (4): 672–712.
- Almond, D., Edlund, L., and Palme, M. 2009. "Chernobyl's Subclinical Legacy: Prenatal Exposure to Radioactive Fallout and School Outcomes in Sweden." *The Quarterly Journal of Economics* 124 (4): 1729–1772.
- Ampaabeng, S. K., and Tan, C. M. 2013. "The Long-Term Cognitive Consequences of Early Childhood Malnutrition: The Case of Famine in Ghana." *Journal of Health Economics* 32 (6): 1013–1027.
- Baird, S., Ferreira, F., Ozier, B., and Woolcock, M. 2014. "Conditional, Unconditional and Everything in Between: A Systematic Review of the Effects of Cash Transfer Programmes on Schooling Outcomes." *Journal of Development Effectiveness* 6 (1): 1–43.
- Banerjee, A., Duflo, E., Postel-Vinay, G., and Watts, T. 2010. "Long-Run Health Impacts of Income Shocks: Wine and Phylloxera in Nineteenth Century France." *The Review of Economics and Statistics* 92 (4): 714–728.
- Baranov, V., S. Bhalotra, P. Biroli, and Maselko, J. 2020. "Maternal Depression, Women's Empowerment, and Parental Investment: Evidence from a Randomized Controlled Trial." *American Economic Review* 110 (3): 824–59.
- Beierl, S., and Grimm, M. 2018. "Do Public Works Programmes Work? A Systematic Review of the Evidence from Programmes in Low and Lower-Middle Income Countries in Africa and the MENA region." GIZ and Universität Passau.
- Bliss, J., Golden, K., Bourahla, L., Stoltzfus, R., and Pelletier, D. 2018. "An Emergency Cash Transfer Program Promotes Weight Gain and Reduces Acute Malnutrition Risk Among Children 6–24 Months Old During a Food Crisis in Niger." *Journal of Global Health* 8 (1).
- Brunelin, S., Ouedraogo, A., and Tandon, S. 2020. "Five Facts about Shocks in the Sahel." World Bank, Washington, DC.
- Buchsbaum, A. F. 2022. HCP an Introduction. World Bank. <https://worldbankgroup.sharepoint.com/mcas.ms/sites/HumanCapital/Knowledge%20Base/HCP%20An%20Introduction.pdf?McasTsId=20892>
- Bundy, D., Burbano, C., Grosh, M., Gelli, A., Jukes, M., and Drake, L. 2009. "Rethinking School Feeding Social Safety Nets, Child Development, and the Education Sector." *Directions in Development: Human Development*. World Bank.
- Carta, M. G., Oumar, F. W., Moro, M. F., Moro, D., Preti, A., Mereu, A., and Bhugra, D. 2013. "Trauma- and Stressor Related Disorders in the Tuareg Refugees of a Camp in Burkina Faso." *Clinical Practice and Epidemiology in Mental Health: CP and EMH* 9: 189–195.
- Carter, M., De Janvry, A., Sadoulet, E., and Sarris, A. 2014. "Index-Based Weather Insurance for Developing Countries: A Review of Evidence and a Set of Propositions for Up-Scaling." *Development Policies Working Paper* 111.
- Chakrabarti, S., Scott, S. P., Alderman, H., Menon, P., and Gilligan, D.O. 2021. "Intergenerational Nutrition Benefits of India's National School Feeding Program." *Nature Communications* 12 (1): 1–10.
- Corna, L., Hildebrandt, N., and Voena, A. 2016. "Weather Shocks, Age of Marriage and the Direction of Marriage Payments." Working Paper, No. 40. Università Cattolica del Sacro Cuore, Dipartimento di Economia e Finanza (DISCE). Milano.
- Currie, J., and Rossin-Slater, M. 2013. "Weathering the Storm: Hurricanes and Birth Outcomes." *Journal of Health Economics* 32 (3): 487–503.
- Currie, J., and Almond, D. 2011. "Human Capital Development Before Age Five." *Handbook of Labor Economics*.
- De Vreyer, P., Guilbert, N., and Mesple-Soms, S. 2014. "Impact of Natural Disasters on Education Outcomes: Evidence from the 1987–89 Locust Plague in Mali." *Journal of African Economies* 24 (1): 57–100.
- Dewey, K.G., and Adu-Afarwuah, S. 2008. "Systematic Review of the Efficacy and Effectiveness of Complementary Feeding Interventions in Developing Countries." *Maternal Child Nutrition* 4 (Suppl 1): 24–85. <https://doi.org/10.1111/j.1740-8709.2007.00124.x>
- Dewi, K., Putu R. L., and Dartanto, T. 2019. "Natural Disasters and Girls Vulnerability: Is Child Marriage a Coping Strategy of Economic Shocks in Indonesia?" *Vulnerable Children and Youth Studies* 14 (1): 24–35.
- Druetz, T., Browne, L., Bicaba, F., Mitchell, M. I., and Bicaba, A. 2020. "Effects of Terrorist Attacks on Access to Maternal Healthcare Services: A National Longitudinal Study in Burkina Faso." *BMJ Global Health* 5 (9).
- Dunn, G. 2016. The Impact of Climate Variability and Conflict on Childhood Diarrhea and Malnutrition in West Africa.
- Fadlallah, R., El-Jardali, F., Hemadi, N., Morsi, R. Z., Abou Samra, C. A., Ahmad, A., et al. 2018. "Barriers and Facilitators to Implementation, Uptake and Sustainability of Community-Based Health Insurance Schemes in Low- and Middle-Income Countries: A Systematic Review." *International Journal for Equity in Health* 17 (1).
- Fava, F. P., Jensen, N. D., Sina, J., Mude, A.G., and Maher, B. 2021. "Building Financial Resilience in Pastoral Communities in Africa: Lessons Learned from Implementing the Kenya Livestock Insurance Program (KLIP)." Washington D.C.: World Bank.
- Fonta, W.M., Sanfo, S., Kedir, A.M. et al. 2018. "Estimating Farmers' Willingness to Pay for Weather Index-Based Crop Insurance Uptake in West Africa: Insight from a Pilot Initiative in Southwestern Burkina Faso." *Agricultural and Food Economics* 6 (11).
- García, S., and Saavedra, J. E. 2017. "Educational Impacts and Cost-Effectiveness of Conditional Cash Transfer Programs in Developing Countries: A Meta-Analysis." *Review of Educational Research* 87 (5): 921–965.
- García, E.R., and Yim, I.S. 2017. "A Systematic Review of Concepts Related to Women's Empowerment in the Perinatal Period and their Associations with Perinatal Depressive Symptoms and Premature Birth." *BMC Pregnancy Childbirth* 17: 347.
- García-Pando, C.P., Stanton, M. C., Diggle, P. J., Trzaska, S., Miller, R. L., Perlwitz, J. P., Baldasano, J. M., Cuevas, E., Ceccato, P., Yaka, P., and Thomson, M. C. 2014. "Soil Dust Aerosols and Wind as Predictors of Seasonal Meningitis Incidence in Niger." *Environmental Health Perspectives* 122 (7): 679–686.
- Guerrier, G., Zounoun, M., Delarosa, O., Defourny, I., Lacharite, M., Brown, V., and Pedalino, B. 2009. "Malnutrition and Mortality Patterns among Internally Displaced and Non-Displaced Population Living in a Camp, a Village or a Town in Eastern Chad." *PLOS ONE* 4 (11).
- Gummerson, E., Cardona, C., Anglewicz, P., Zachary, B., Guiella, G., and Radloff, S. 2021. "The Wealth Gradient and the Effect of COVID-19 Restrictions on Income Loss, Food Insecurity and Health Care Access in Four Sub-Saharan African Geographies." *PLOS ONE* 16 (12L).
- Government of Ghana. 2006. "Ghana School Feeding Programme: Programme Document 2007–2010." http://schoolfeedirl.g.go19h/wr.-content/ur./loads/2019/10/GSFP_Programme_Document_2007_2010-2.07.53-PM-2.07.53-PM-2.07.53-PM.Qdf
- Ilesue, L., Casanova, F. O., and Piquero, A. R. 2021. "Domestic Violence During a Global Pandemic: Lockdown Policies and Their Impacts Across Guatemala." *Journal of Contemporary Criminal Justice* 37 (4): 589–614.
- Imbali, F. 2019. "Tackling Drought in Kenya: Livestock Insurance Policy to Help Pastoralists Beat Climate Change." <https://www.rapidtransition.org/stories/tackling-drought-in-kenya-livestock-insurance-policy-to-help-pastoralists-beat-climate-change/>
- Imdad, A., Yakoob, M.Y., and Bhutta, Z.A. 2011. "Impact of Maternal Education About Complementary Feeding and Provision of Complementary Foods on Child Growth in Developing Countries." *BMC Public Health* 11 (Suppl 3): S25–S25.
- Istratii, R. 2021. "War and Domestic Violence: A Rapid Scoping of the International Literature to Understand the Relationship and to Inform Current Responses in the Tigray Humanitarian Crisis." Working Paper 2 (English). Project: Bridging Religious Studies, Gender and Development and Public Health to Address Domestic Violence in Religious Communities. SOAS University of London.
- Jensen, N. D., Barrett, C. B., and Mude, A. G. 2017. "Cash Transfers and Index Insurance: A Comparative Impact Analysis from Northern Kenya." *Journal of Development Economics* 129: 14–28.
- Jensen, R. and Thornton, R. 2003. "Early Female Marriage in the Developing World." *Gender and Development* 11 (2): 9–19.
- Jensen, R. 2007. The Perceived Returns to Education and the Demand for Schooling. Mimeo, Brown University.
- Kalanidhi, S., del Ninno, C., Andrews, C., and Rodriguez-Alas, C. 2013. Public Works as a Safety Net: Design, Evidence, and Implementation. *Directions in Development, Human Development*. Washington, D.C.: World Bank Group.
- Karimi, S. M., Pouran, H., Majbourni, M., Moradi-Lakeh, M., and Hakimian, H. 2020. "Saharan Sand and Dust Storms and Neonatal Mortality: Evidence from Burkina Faso." *Science of the Total Environment* 729: 139053.
- Knudsen, E. I. 2004. "Sensitive Periods in the Development of the Brain and Behavior." *Journal of Cognitive Neuroscience* 16 (8): 1412–25.
- Knudsen, E. I., Heckman, J. J., Cameron, J. L., and Shonkoff, J. P. 2006. "Economic, Neurobiological, and Behavioral Perspectives on Building America's Future Workforce." *Proceedings of the National Academy of Sciences* 103 (27): 10155–62.
- Kumar, S., Molitor, R., and Vollmer, S. 2016. "Drought and early child health in rural India." *Population and Development Review* :53–68.
- Lassi, Z.S., Das, J.K., Zahid, G., Imdad, A., and Bhutta, Z.A. 2013. "Impact of Education and Provision of Complementary Feeding on Growth and Morbidity in Children Less than 2 Years of Age in Developing Countries: A Systematic Review." *BMC Public Health* 13 (suppl 13): S13.
- Lassi, Z.S., Rind, F., Irfan, O., Hadi, R., Das, J.K., and Bhutta, Z.A. 2020. "Impact of Infant and Young Child Feeding (IYCF) Nutrition Interventions on Breastfeeding Practices, Growth and Mortality in Low- and Middle-Income Countries: Systematic Review." *Nutrients* 12 (3): 722. <https://doi.org/10.3390/nu12030722>
- Latham, M.A. 2019. "The Long-Term Impacts of the Sahel Famine for Survivors in Mali." Universidad Carlos III de Madrid.



- Lazzaroni, S., and Wagner, N. 2016. "Misfortunes Never Come Singly: Structural Change, Multiple Shocks and Child Malnutrition in Rural Senegal." *Economics and Human Biology* 23: 246–262
- Lee, C. 2014. "In Utero Exposure to the Korean War and its Long-Term Effects on Socioeconomic and Health Outcomes." *Journal of Health Economics* 33: 76–93.
- Lee, C. 2014. "Intergenerational Health Consequences of In Utero Exposure to Maternal Stress: Evidence from the 1980 Kwangju Uprising." *Social Science and Medicine* 119: 284–291.
- Lumey, L. H., Stein, A. D., and Susser, E. 2011. "Prenatal Famine and Adult Health." *Annual Review of Public Health* 32: 237–262.
- Manley, J., Alderman, H., and Gentilini, U. 2022. "More Evidence on Cash Transfers and Child Nutritional Outcomes: A Systematic Review and Meta-Analysis." *BMJ Global Health* 7 (4).
- Manley, J., Balarajan, Y., Malm, S., Harman, L., Owens, J., Murthy, S., Steward, D., Winder-Rossi, N.E., and Khurshid, A. 2020. "Cash Transfers and Child Nutritional Outcomes: A Systematic Review and Meta-Analysis." *BMJ Global Health* 5 (12).
- Moramarc, S. 2019. "Enhancing the Effectiveness of a Community-Based Management of Acute Malnutrition Programme in Zambia." *Field Exchange* 60: 78.
- Moramarc, S., Amerio, G., Gozza Maradini, G., and Garuti, E. 2014. *The Rainbow Project: A Model to Fight Child Malnutrition in Zambia*.
- Nebie, E.K.I., Ba, D., and Giannini, A. 2021. "Food Security and Climate Shocks in Senegal: Who and Where are the Most Vulnerable Households?" *Global Food Security* 29: 100513.
- Nguyen, T. 2008. "Information, Role Models and Perceived Returns to Education: Experimental Evidence from Madagascar." Unpublished manuscript.
- Niang, I., Ruppel, O. C., Abdrabo, M. A., Essel, A., Lennard, C., Padgham, J., and Urquhart, P. 2014. "Africa." In *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by Barros, V.R., C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R. C. Genova, B. Girma, E.S. Kissel, A. N. Levy, S. MacCracken, P. R. Mastrandrea, and L. L. White, 1199–1265. Cambridge: Cambridge University Press, United Kingdom and New York, NY, USA.
- Ouoba, Y., and Sawadogo, N. 2022. "Food Security, Poverty and Household Resilience to COVID-19 in Burkina Faso: Evidence From Urban Small Traders' Households." *World Development Perspectives* 25: 100387.
- Ozer, P., Dembele, A., Yameogo, S.S., Hut, E., and de Longueville, F. 2022. "The Impact of COVID-19 on the Living and Survival Conditions of Internally Displaced Persons in Burkina Faso." *World Development Perspectives* 25: 100393.
- Rahiem, M. D. H. 2021. "COVID-19 and the Surge of Child Marriages: A Phenomenon in Nusa Tenggara Barat, Indonesia." *Child Abuse and Neglect* 118: 105168.
- Rahman A. 2007. "Challenges and Opportunities in Developing a Psychological Intervention for Perinatal Depression in Rural Pakistan: Multi-Method Study." *Archives of Women's Mental Health* 10 (5): 211–219.
- Rao, S. 2020. "A Natural Disaster and Intimate Partner Violence: Evidence Over Time." *Social Science and Medicine* 247: 112804.
- Roelen, K., Devereux, S., Abdulai, A.G., Martorano, B., Palermo, T., and Ragno, L. 2017. "How to Make 'Cash Plus' Work: Linking Cash Transfers to Services and Sectors." *Innocenti Working Papers*, (2017–10), UNICEF Office of Research – Innocenti, Florence.
- Roseboom, T. J., Van Der Meulen, J. H., Ravelli, A. C., Osmond, C., Barker, D. J., and Bieker, O. P. 2001. "Effects of Prenatal Exposure to the Dutch Famine on Adult Disease in Later Life: An Overview." *Twin Research and Human Genetics* 4 (5): 293–298.
- Roseboom, T., de Rooij, S., and Painter, R. 2006. "The Dutch Famine and its Long-Term Consequences for Adult Health." *Early Human Development* 82 (8): 485–491.
- Rwanda Social Security Board. 2022. CBHI Scheme. <https://www.rssb.rw/scheme/cbhi-scheme>
- Sikander, S., Ahmad, I., Atif, N., Zaidi, A., Vanobberghen, F., Weiss, H.A., Nisar, A., Tabana, H., Ain, Q.U., Bibi, A., and Bilal, S. 2019. "Delivering the Thinking Healthy Programme for Perinatal Depression through Volunteer Peers: A Cluster Randomised Controlled Trial in Pakistan." *Lancet Psychiatry* 6 (2): 128–139.
- Stein, Z., Susser, M., Saenger, G., Marolla, F. 1975. *Famine and Human Development: The Dutch Hunger Winter of 1944–1945*. Oxford: Oxford University Press.
- Strobl, R. 2017. "Does Health Insurance Reduce Child Labour and Education Gaps? Evidence from Rwanda." *The Journal of Development Studies* 53 (9): 1376–1395.
- UNICEF. 2017. UNICEF's Programme Guidance for Early Childhood Development. Available at : <https://www.unicef.org/media/107616/file/UNICEF-Programme-%20Guidance-for-Early-Childhood-Development-2017.pdf>
- UNICEF. 2022. Child Marriage. <https://www.unicef.org/protection/child-marriage>
- Victora, C. G., Adair, L., Fall, C., Hallal, P. C., Martorell, R., Richter, L., Sachdev, H. S., and Maternal and Child Undernutrition Study Group 2008. "Maternal and Child Undernutrition: Consequences for Adult Health and Human Capital." *Lancet* (London, England) 371 (9609): 340–357.
- Wall, C., Tolar-Peterson, T., Reeder, N., Roberts, M., Reynolds, A., and Rico Mendez, G. 2022. "The Impact of School Meal Programs on Educational Outcomes in African Schoolchildren: A Systematic Review." *International Journal of Environmental Research and Public Health* 19 (6): 3666.
- Weitzman, A., and Behrman, J. A. 2016. "Disaster, Disruption to Family Life, and Intimate Partner Violence: The Case of the 2010 Earthquake in Haiti." *Sociological Science* 3: 167–189.
- Woldemichael, A. 2020. "The Impacts of Community-Based Health Insurance on Poverty Reduction." *Working Paper Series* (332), African Development Bank, Abidjan, Cote d'Ivoire.
- Woode, M. E. 2017. "Parental Health Dhocks and Schooling: The Impact of Mutual Health Insurance in Rwanda," *Social Sciences Medicine* 173 (January): 35–47.
- World Bank Group. 2022. *World Bank Indicators*.
- World Bank Group. 2022b. *G5 Sahel Region Country Climate and Development Report. CCDR Series*. © Washington, DC: World Bank
- WB (World Bank). 2021. *The Human Capital Index 2020 Update: Human Capital in the Time of COVID-19*. World Bank, Washington DC. <https://openknowledge.worldbank.org/handle/10986/34432>
- WFP (World Food Programme). 2018. *Home-Grown School Feeding in Ghana*. <https://docs.wfp.org/api/documents/WFP-0000105577/download/>
- WHO (World Health Organization). 2022. *Child maltreatment*. <https://www.who.int/news-room/fact-sheets/detail/child-maltreatment>
- WHO (World Health Organization). 2015. *Thinking Healthy: A Manual for Psychosocial Management of Perinatal Depression*. (WHO generic field-trial version 1.0).
- Yobom, O. 2020. *Climate Change, Agriculture and Food Security in Sahel*. *Changement Climatique, agriculture et securite alimentaire au Sahel*. Universite Bourgogne Franche-Comte.
- Zulaika, G., Bulbarelli, M., Nyotach, E., et al. 2022. "Impact of COVID-19 Lockdowns on Adolescent Pregnancy and School Dropout Among Secondary Schoolgirls in Kenya." *BMJ Global Health* 7 (1): e007666. <https://doi.org/10.1136/bmjgh-2021-007666>

ACKNOWLEDGEMENTS

SASPP is a multi-donor trust fund managed by the World Bank that supports the strengthening of adaptive social protection systems in the Sahel (Burkina Faso, Chad, Mali, Mauritania, Niger and Senegal) to enhance the resilience of poor and vulnerable households and communities to the impacts of climate change. The program is supported by Denmark, France, Germany and the United Kingdom.

NOTE DESIGN: ANDRES DE LA ROCHE / ADELAROCHEDESIGNS.COM



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