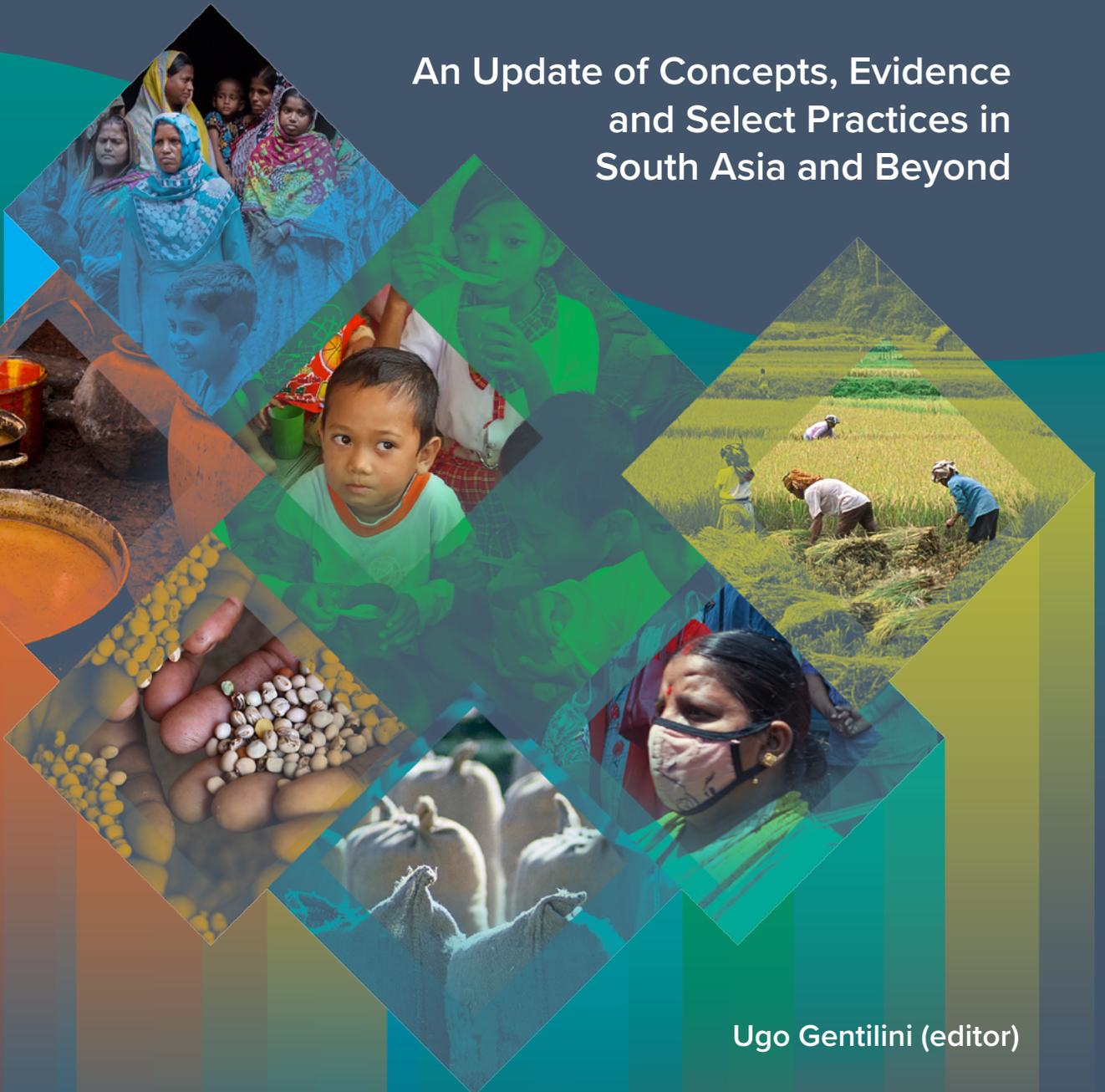




WORLD BANK GROUP

Social Protection, Food Security and Nutrition

An Update of Concepts, Evidence
and Select Practices in
South Asia and Beyond



Ugo Gentilini (editor)

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1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

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Food Security, Nutrition, and Social Protection: A Short Overview

Ugo Gentilini

1. INTRODUCTION

A leading economist recently stated that “food security may be the defining global challenge of the Century.”¹ And in underscoring the importance of social protection, the head of an international organization declared that “[w]e must recognize, share, scale up and build on these successful measures.”² In a way, this volume aims to help bridge these two worlds—that of food security and nutrition, on the one hand, and that of social protection, on the other—by reflecting on how the mechanisms of the latter might be employed to address the needs of the former.

Such bridging is not new, but it is receiving renewed attention partly because the understanding of the factors that drive food insecurity and malnutrition has evolved significantly in recent decades. Empirical evidence has contributed to the refining of theory and measurement. But evidence also helped inform the design and implementation of interventions meant to boost food security and the wider nutrition domain. Such progress is particularly evident among social assistance transfer programs: past evidence has helped illuminate how those interventions bolstered or re-established access to food (Alderman et al 2017; Maxwell and Frankenberger 1993; Pinstrup Andersen 1988; Reutlinger and van Holst Pellekaan 1985).

More recently, studies have shown how social assistance can play a critical role across the dimensions that underpin food security and nutrition—from enhancing productivity and the availability of food to playing a pivotal role within carefully calibrated, multi-layered interventions designed to enhance human capital, resilience, and good-quality nutrition (Gentilini 2019; Alderman 2015). As Wouterse et al. (2020) put it, social protection represents a “powerful sweet spot for governments in their objective of achieving long-term poverty reduction and hunger eradication” (p.518).

So why this enduring interest? For one thing, the large share of household resources that are still devoted to food—typically between 60 percent and 75 percent among lower-income families—has made the “food factor” a central concern of both

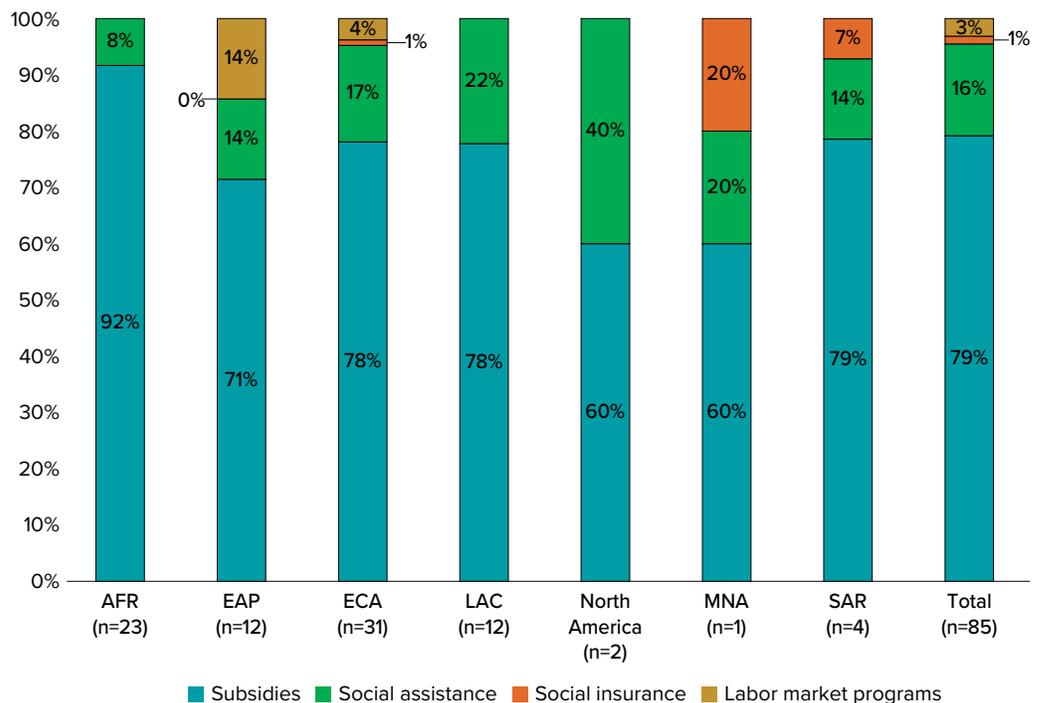
households and policymakers for decades, if not centuries (Edirisinghe 1998; Garnsey 1988). For another, the critical role that the relationship between social protection, food security and nutrition plays during crisis is more salient than ever (Barrett 2020).

Additionally, “food” is more than just a commodity: indeed, it embraces political, symbolic, and cultural dimensions of development. In some settings, the prices of specific food commodities, such as rice in Indonesia, can be said to provide a “barometer of the economy” (Timmer 2008). And in other societies, steady, government-supported access to food is central to the very cohesion of the social contract (Alderman et al. 2017). Precisely because food expenditures claim such a large share of household budgets, disruptions to access to food can—especially when they occur in the context of pre-existing social discontent—ignite socio-political instability (Barrett 2013).

But why this report, and why now? There are five main reasons. First, the war in Ukraine is accelerating the rise of food prices worldwide, raising the specter of global food insecurity (McDonough and Zhou 2022). Against this backdrop, countries are responding with various social protection measures (Gentilini et al. 2022a) (figure 1.1).

But this response is unfolding in the context of “scale-up fatigue” in the wake of a historical COVID-19 response, which compounds preexisting challenges in making transfers aligned with inflation (Gentilini 2022; Gentilini et al. 2022b; Pelly 2021).

FIGURE 1.1: Social protection responses to rising prices



Source: Gentilini et al. (2022a).

Second, globally, there is renewed interest in and demand for knowledge on the food-social protection nexus. As an illustration, at least five social protection-related “solutions” were proposed at the Food Systems Summit in 2021.³ Third, although countries are increasingly investing in social protection, the programs present a variety of design and delivery features that can affect outcomes for better or worse (Kondylis and Loeser 2021; Lindert et al. 2020). In fact, the design of these programs is sometimes not food security-oriented or nutrition-sensitive, begging the question of how these goals can be attained more deliberately.

Fourth, the food-social protection theme intersects with challenges in several other critical areas, making it inherently multidimensional. These areas include urbanization, which is seeing an exponential increase, the world of work, which is rapidly changing, climate change, where risks are heightening, and humanitarian assistance, which multiple crises are stretching (Gentilini et al. 2021; Gentilini et al. 2018). And of course, the COVID-19 pandemic is exerting additional pressure on social protection, food systems and their ongoing transformation (Barrett et al. 2022; Reardon et al. 2021).

Finally, the scale of the challenge is sizable: as we will discuss in the next section, despite considerable progress the prevalence of food insecurity and malnutrition remains significant.

This short volume does not attempt to reinvent the wheel or provide transformative insights into the agenda. Rather, it is best interpreted as a rapid refresher of knowledge at the intersection of food security and social protection. The report encompasses not just concepts or evidence or practices—but all those dimensions combined. This brief volume offers a quick overview of key analytical linkages between food security, nutrition, and social protection; a review of the empirical evidence from impact evaluations; and a practical set of considerations around select systems and program-related matters. The report does so from a global perspective, while keeping an eye on developments in and considerations for the South Asia region.

2. SNAPSHOT OF THE CHALLENGE

The magnitude of the food insecurity problem can hardly be understated: around 3 billion people worldwide cannot afford a “healthy diet”⁴ and an additional billion people would join the ranks if their incomes dropped by one-third (FAO 2021). The pandemic made that grim possibility quite realistic (Barrett 2020). For instance, it contributed to the largest uptick in global undernourishment registered in a single year—2020. Depending on which estimates you use, that uptick was anywhere between 70 million to more than 160 million people. This would bring the total number of undernourished people to between 720 million and 811 million people. In addition, as the FAO et al. (2021) has pointed out, in 2020 “at least 155 million people suffered from acute food insecurity requiring urgent humanitarian assistance in 55 countries/territories” (p.56), which includes an Integrate Food Security Phase Classification (IPC) of Phase 3 or above.

The latest data show that out of a total of 149.2 million stunted children worldwide, about one-third, or 53.8 million, are located in South Asia (FAO et al. 2021).

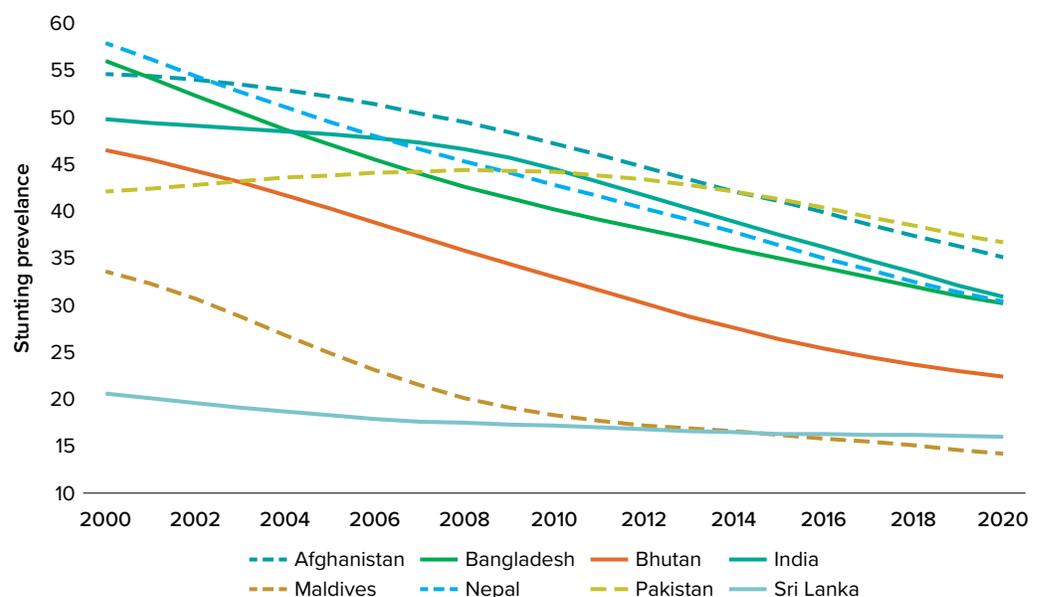
This represents a regional stunting prevalence of 31.8 percent, which is very close to the world’s highest rate found in Sub-Saharan Africa (32.4 percent). Half of women of reproductive age (15–49 years) in the region suffer from anemia. And while South Asia does not rank high in childhood obesity, about 14.7 percent of children under 5 are affected by wasting (24.8 million children). This accounts for more than half of the total global number of children who suffer from wasting (45.7 million).

Such statistics, however, may conceal the significant progress attained in recent years. For example, the average stunting prevalence in the region declined from 49.4 percent in 2000 to 31.8 percent in 2020. Such gains are especially notable in countries such as Bangladesh, Bhutan, and Nepal, with significant progress also made in India, Maldives, and Afghanistan. More moderate reductions occurred in Pakistan but relatively little progress was observed in Sri Lanka, though it should be noted that Sri Lanka was already performing relatively well (figure 1.2).

Compounding those challenges is the increasing frequency of climate risks and natural disasters, especially storms and floods. The South Asia region has been an epicenter of sorts for such hazards. Among other things, between 1970 and 2020 it experienced a fivefold increase in natural disasters (figure 1.3), which claimed the lives of nearly a million people (923,689) and cost over US\$207 billion.⁵

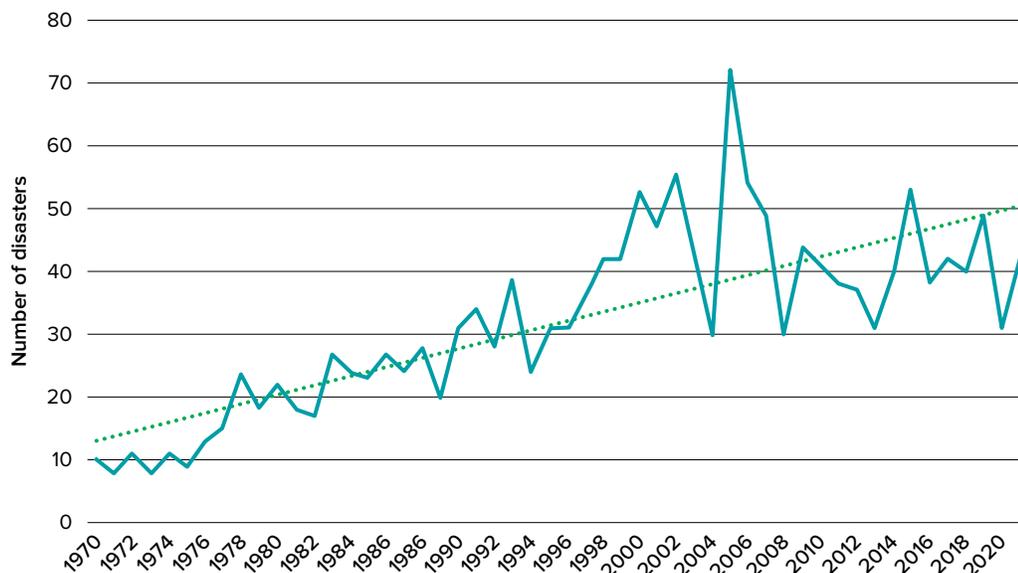
The agenda of managing disaster risks is not always explicitly connected to social protection (Costella et al. 2021; Bowen et al. 2020). For example, Johnson et al. (2022) found that 63% percent of countries in South Asia have dedicated reserve funds for

FIGURE 1.2: Trends in stunting prevalence by SAR country, 2000–2020



Source: Generated by authors based on data from World Bank World Development Indicators database.

FIGURE 1.3: Number of natural disasters in SAR, 1970–2022



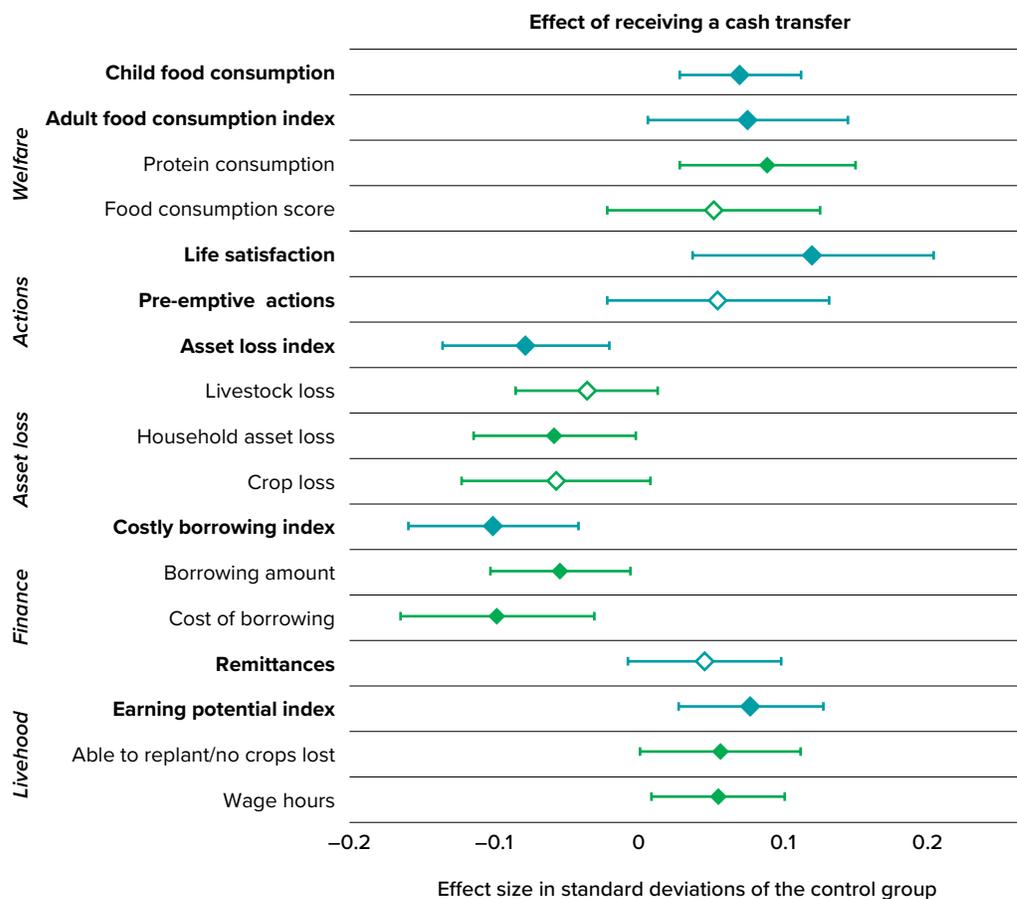
Source: Emergency Events Database, accessed in February 2022. Disasters include meteorological, hydrological, climatological, geophysical, and biological.

disasters, but these are not linked to their respective social protection systems. Countries such as India have begun a process of convergence between social protection and disaster management institutions.⁶ This is also a key theme within the agenda of making social protection more “shock responsive,” such as in Nepal.⁷ And a bulging agenda on “anticipatory” cash transfers is attempting to introduce earlier program introduction or expansion decisions—such as when a hazard is still a risk and not yet a shock—in order to act earlier.

These are not abstract ruminations but specific experiences already in practice. For example, Pople et al. (2021) examine the impact of a one-off anticipatory cash transfer to about 23,400 households living along the Jamuna River in Bangladesh. Specifically, the intervention provided US\$53 via mobile money just before people experienced severe flooding, not after the shock. As shown in figure 1.4, people receiving such early assistance had better food consumption, engaged in less costly borrowing after the flood, and reported higher earnings potential than the control group.

The timing of the response mattered: the average effect of the cash dissipated entirely if the cash transfer was not received within 12 days of the local flood peak. This anticipatory approach was predicated on forecast-based financing: based on data-driven predictions of river levels in five vulnerable districts, the humanitarian Central Emergency Response Fund disbursed more than US\$4 million to implementing agencies four days before the rise in water levels (Snowdon 2020).

FIGURE 1.4: Effects of receiving anticipatory cash transfers in Bangladesh



Source: Pople et al. (2021).

3. NAVIGATING THE REPORT

There are multiple options for improving the connections between social protection, food security and nutrition. This report illustrates three: “improving” programs that already exists; introducing “innovations” through more radical reforms; and “adapting” systems. These three options are underpinned by three forms of “assessments”: empirical (Manley et al.—chap. 2), conceptual (Alderman—chap. 3), and according to various social protection performance metrics (Almenfi and TMM Iyengar—chap. 4). Together, these four actions—assess, improve, innovate, and adapt—form the organizing framework for the volume’s chapters (figure 1.5).

The reason for laying out the improving-innovating-adapting functions is to convey the notion that different degrees of reforms are possible, and that an emerging set of practical learnings can help inform those efforts. A whole gamut of possibilities exists, from more moderate (and yet still complex) reforms to a fuller rethinking of systems.

The “improving” and “innovating” functions are illustrated through specific case studies. For example, India (chapter 5 by Puri) used as an illustration of improvements that could

FIGURE 1.5: Organizing framework for this book’s chapters: assess, improve, innovate, and adapt



Source: Generated by author.

be attained within an existing programmatic and institutional framework—in this case, food subsidies.

The case of Indonesia (chapter 6 by Mahardika) epitomizes situations where more radical solutions were adopted, including overhauling the nature of a transfer program—from food subsidies à la India to electronic vouchers—with an array of complex reforms carried out as part of the shift.

Finally, the “adapting” function—including in terms of connecting early-warning systems (EWSs) and social protection, or enhancing social assistance preparedness to shocks—represents another instance of significant change, including at the system level (chapter 7 by Lara de Arruda). Yet the novel nature of the adapting function does not allow for full-fledged case studies but rather a reflection based on a number of practical steps taken in that direction in various countries, which may ultimately be relevant for South Asia.

Let us proceed in order and examine the contribution of each chapter. Chapter 2, by Manley et al., presents broad empirical findings on the effects of cash transfers on nutrition. Previous evidence indicated that those programs can be effective, but overall impacts were small in magnitude. The chapter substantially updates the evidence base for the effectiveness of cash transfers on nutrition and moderating factors. After screen-

ing 764 articles, the review included 55 robust studies of 33 cash-transfer programs. The authors found that cash transfers had significant albeit modest effects on the incidence of stunting, wasting, dietary diversity, animal-source foods, and diarrhea.

In his exposition of evidence-based conceptual linkages, chapter 3 by Alderman unbundles multidisciplinary findings concerning nutrition-sensitive social protection. He first describes a set of basic mechanisms through which social protection and nutrition affect each other. In doing so, the chapter consults a wide-ranging literature to identify an income pathway, the role of prices, and that of behaviors. Alderman then delves into the practical implications, including in terms of designing behavioral change communication measures; investigates the extent to which stress is responsive to transfer programs; examines issues around gender and intimate partner violence; tackles the relationship between age-based or categorical targeting and duration of programs; and synthesizes the latest findings on the size and modalities of transfers—be it in cash, quasi-cash, and in-kind, including school-feeding schemes.

Beginning the volume's shift toward examining South Asia, chapter 4, by Almenfi and TMM Iyengar, provides a concise overview of the state of social assistance in the region. Specifically, the authors review the performance of country-level social assistance (and in some cases social protection more generally) according to standard metrics of coverage, adequacy, incidence, and financing. They then examine the social assistance response to the pandemic according to a variety of indicators included in the global tracker by Gentilini et al. (2022b). The chapter also documents how COVID-19 interventions embedded food security and nutritional elements, including providing an array of program-level examples and delivery practices.

Chapter 5, by Puri, uses India's food subsidy system, the Public Distribution System (PDS), as a case study of ongoing improvements to an existing intervention. Puri's contribution shows that state-level reforms have played a critical role in "providing the impetus on how to 'turnaround' an ailing national food-based safety net." The chapter tracks key changes in India's PDS since the 1990s, and then highlights variations in PDS reforms across three states, i.e., Tamil Nadu, Chhattisgarh, and Bihar. National-level reforms are also discussed, particularly as they relate to the National Food Security Act, Aadhaar-Based Biometric Authentication, and the "One Nation, One Ration" card.

In the next chapter, 6, Mahardika presents Indonesia's recently implemented food subsidy reform, one of the world's most radical and innovative shifts from subsidies to voucher (quasi-cash) transfers. The country was able to reform its longstanding Raskin program, which provided subsidized rice to over 15 million beneficiary households. The transition toward electronic vouchers occurred in a gradual phase of piloting that stretched four years. The final result did not just feature a transformative change in transfer modality and the overhaul of business processes, but it also expanded coverage to more than 20 million households in 2020. The chapter carefully chronicles how today's program, known as Sembako, was able to overcome a range of technical, institutional, and political economy hurdles. Mahardika's account shows that evidence played an important role in facilitating the reform, and that "evidence-based policy making has proven to provide preliminary insights of what works and what does not."

Finally, chapter 7, authored by Lara de Arruda, connects social protection with EWSs that help prepare for and anticipate food security shocks. His work shows that linking EWSs and social protection lies at the heart of an “adaptive” approach. Yet despite its promise and urgency, bridging early-warning systems and social protection remains a largely underexplored domain. Drawing from the emerging literature and case studies, the chapter begins to map out the broad contours of a much-needed agenda. It does so by reviewing global, regional, and national EWSs; linking the EWS agenda to disaster risk-financing options for social protection; and identifying potential lessons for South Asia.

Taken together, this succinct volume and its chapters may help academics, policymakers and practitioners be “on the same page” on the state of knowledge on how food security, nutrition, and social protection issues intersect. These matters are salient to the present and future of South Asia, and we hope this report may stimulate and deepen work in the region and elsewhere.

REFERENCES

- Alderman, Harold, Ugo Gentilini and Ruslan Yemtsov, eds. 2017. *The 1.5 Billion People Question: Food, Vouchers, or Cash Transfers?* Washington, DC: World Bank. doi: 10.1596/978-1-4648-1087-9; <https://www.worldbank.org/en/topic/safetynets/publication/food-vouchers-or-cash-transfers>.
- Barrett, Christopher B., Thomas Reardon, Johan Swinnen, and David Zilberman. 2022. "Structural Transformation and Economic Development: Insights from the Agri-food Value Chain Revolution." *Journal of Economic Literature* (in press).
- Barrett, Christopher B. 2020. "Actions Now Can Curb Food Systems Fallout from COVID-19." *Nature Food* 1 (June): 319–320. <https://doi.org/10.1038/s43016-020-0085-y>.
- Bowen, Thomas, Carlo del Ninno, Colin Andrews, Sarah Coll-Black, Ugo Gentilini, Kelly Johnson, Yasuhiro Kawasoe, Adea Kryeziu, Barry Maher, and Asha Williams. 2020. *Adaptive Social Protection: Building Resilience to Shocks*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/33785>.
- Costella, Cecilia, Anna McCord, Maarten van Aalst, Rebecca Holmes, Jonathan Ammoun, and Valentina Barca. *Social Protection and Climate Change: Scaling Up Ambition*. London: SPACE. Social Protection Approaches to COVID-19 Expert Advice Service (SPACE). DAI Global, United Kingdom.
- Edirisinghe N. 1998. "The Food Factor." World Food Programme (WFP), background paper for the conference *Time for Change: Food Aid and Development Consultation*. Rome.
- FAO, IFAD, UNICEF, WFP and WHO. 2021. *The State of Food Security and Nutrition in the World 2021. Transforming Food Systems for Food Security, Improved Nutrition and Affordable Healthy Diets for All*. Rome, New York, and Geneva.
- FAO. 2021. *The State of Food and Agriculture 2021. Making Agrifood Systems More Resilient to Shocks and Stresses*. Rome: Food and Agriculture Organization.
- Gentilini, Ugo (2022) "Cash Transfers in Pandemic Times: Evidence, Practices, and Implications from the Largest Scale Up in History". Washington, DC: World Bank.
- Gentilini, Ugo, Mohamed Almenfi, Hrishikesh TMM Iyengar, Yuko Okamura, Emilio Raul Urteaga, Giorgia Valleriani, Jimmy Vulembera Muhindo, and Sheraz Aziz. 2022a. "Tracking Global Social Protection Responses to Price Shocks." *Social Protection and Jobs Discussion Paper 2208*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/37441>.
- Gentilini, Ugo, Mohamed Almenfi, Hrishikesh TMM Iyengar, Yuko Okamura, John Austin Downes, Pamela Dale, Michael Weber, David Newhouse, Claudia Rodriguez Alas, Mareeha Kamran, Ingrid Veronica Mujica, Maria Belen Fontenez, Muhammad Ezzat, Sandra Asieduah, Vikesh Ramesh Mahboobani Martinez, Gonzalo Javier Reyes Hartley, Gustavo Demarco, Miglena Abels, Usama Zafar, Emilio Raul Urteaga, Giorgia Valleriani, Jimmy Vulembera Muhindo and Sheraz Aziz. 2022b. *Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures*. Global database. Working Paper Version 16 (February 2). Washington, DC: World Bank.
- Gentilini, Ugo, Saksham Khosla, and Mohamed Almenfi. 2021. "Cash in the City: Emerging Lessons from Implementing Cash Transfers in Urban Africa." *Social Protection and Jobs Discussion Paper 2101*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/35003>.
- Gentilini, Ugo, Sarah Loughton, and Clare O'Brien. 2018. "Humanitarian Capital? Lessons on Better Connecting Humanitarian Assistance and Social Protection." *Social Protection and Jobs Discussion Paper 1802*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/946401542689917993/Humanitarian-Capital-Lessons-on-Better-Connecting-Humanitarian-Assistance-and-Social-Protection>.

- Grosh, Margaret, Colin Andrews, Rodrigo Quintana, and Claudia Rodriguez-Alas. 2011. "Assessing Safety Net Readiness in Response to Food Price Volatility." *Social Protection Discussion Paper* 1118. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/26825>.
- Johnson, K., Tisei, F., Walker, T. and Wanniarachchi, T. (2022) "Responsive by Design: Building Adaptive Social Protection Systems in South Asia". (Eds) Washington, DC: World Bank. In press.
- Kondylis, Florence, and John Ashton Loeser. 2021. *Intervention Size and Persistence*. Policy Research Working Paper 9769. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/36242>.
- Maxwell, Simon. and Timothy R Frankenberger. 1993. *Household Food Security: Concepts, Indicators, Measurement—A Technical Review*. New York and Rome: UNICEF and International Fund for Agricultural Development (IFAD). https://www.academia.edu/42764038/opinion_food_and_nutrition_security_assessment_an_appraisal.
- Pelly, I. 2021. "Good Practice Review on Cash Assistance in Contexts of High Inflation and Depreciation." Webinar by the CaLP Network, SPACE, and GIZ. <https://www.calpnetwork.org/publication/good-practice-review-on-cash-assistance-in-contextsof-high-inflation-and-depreciation>.
- Pinstrup-Andersen, P., ed. 1988. *Food Subsidies in Developing Countries: Costs, Benefits and Policy Options*. Baltimore: Published for the IFPRI by the John Hopkins University Press. <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/129517>.
- Pople, Ashley, Ruth Hill, Stephan Dercon, and Ben Brunckhorst. 2021. *Anticipatory Cash Transfers in Climate Disaster Response*. Working Paper no. 6. London: Centre for Disaster Protection. <https://www.disasterprotection.org/publications-centre/anticipatory-cash-transfers-in-climate-disaster-response>.
- Reardon, Thomas, Lenis Saweda O. Liverpool-Tasie, and Bart Minten. 2021. "Quiet Revolution by SMEs in the midstream of value chains in developing regions: wholesale markets, wholesalers, logistics, and processing." *Food Security* 13: 1577–94. doi: <https://doi.org/10.1007/s12571-021-01224-1>.
- Reutlinger, Shlomo, and Jack van Holst Pellekaan. 1985. *Poverty and Hunger: Issues and Options for Food Security in Developing Countries*. A World Bank Policy Study. Washington, DC: World Bank. <http://documents1.worldbank.org/curated/en/166331467990005748/pdf/multi-page.pdf>.
- Siobhan McDonough and Youyou Zhou. 2022. "What the Russian Invasion of Ukraine Could Mean for Global Hunger." *Vox*, February 27, 2022. <https://www.vox.com/future-perfect/2022/2/27/22950805/russia-ukraine-food-prices-hunger-invasion-war>.
- Snowdon, Gemma. 2020. "Faster than floods: WFP works to avoid a double-disaster in Bangladesh." *Medium*, August 7, 2020. <https://medium.com/world-food-programme-insight/faster-than-floods-how-to-prevent-a-double-disaster-in-bangladesh-112adfd75ff0>.
- Wouterse, Fleur, Sophia Murphy and Jaron Porciello 2020. "Social protection to combat hunger." *Nature Food* 1 (September): 517–518. doi: <https://doi.org/10.1038/s43016-020-00144-1>.

ENDNOTES

- 1 The quote is from a 2019 lecture by Cornell's Chris Barrett (<https://news.cornell.edu/stories/2019/04/barrett-food-security-challenge-century#:~:text=Cornell%20professor%20Chris%20Barrett%2C%20speaking,global%20challenge%20of%20the%20century.%E2%80%9D>).
- 2 Qu Dongyu, Director-General of FAO, speaking in New York in February 2022 (<https://www.fao.org/director-general/news/news-article/en/c/1471386>).
- 3 Action Track 1 one listed solutions such as “[m]ake social protection more nutrition-sensitive” and “[e]xpand coverage of social protection systems.” A solution under Track 2 envisaged revenues from taxes to fund “[i]ncome transfers delivered via social protection schemes.” Action Track 3 proposed “[e]xtending social protection coverage to all,” while Action Track 5 envisioned “[b]uilding resilience in shock-prone areas to stabilize prices, build safety nets for temporary assistance to affected communities, and/or boost national social protection systems” as well as “[n]utrition sensitive social protection schemes.” These are in addition to solutions related to school feeding and an array of solution components concerning the provision of particularly nutritious and subsidized in-kind food transfers. See <https://www.un.org/en/food-systems-summit/documentation>.
- 4 The concept of a “healthy diet” is different from that of “undernourishment”: a healthy diet goes beyond cost estimates of accessing an adequate level of calories (which is the focus of undernourishment), to include that of a sufficient level of other essential nutrients. For its technical methodology, see annex 1 in FAO (2021).
- 5 Estimates refer to 1970-2021 published in the CRED Emergency Events Database (accessed in February 2022).
- 6 See the collection of resources on shifting “from schemes to systems” in India: <https://www.worldbank.org/en/news/feature/2019/11/21/lessons-from-social-protection-india-schemes-to-systems>.
- 7 See the international event that was held on this matter, hosted by Nepal in 2019: <http://socialprotection.soscbaha.org>.



More Evidence on Cash Transfers and Child Nutritional Outcomes: A Systematic Review and Meta-Analysis

James Manley, Harold Alderman and Ugo Gentilini

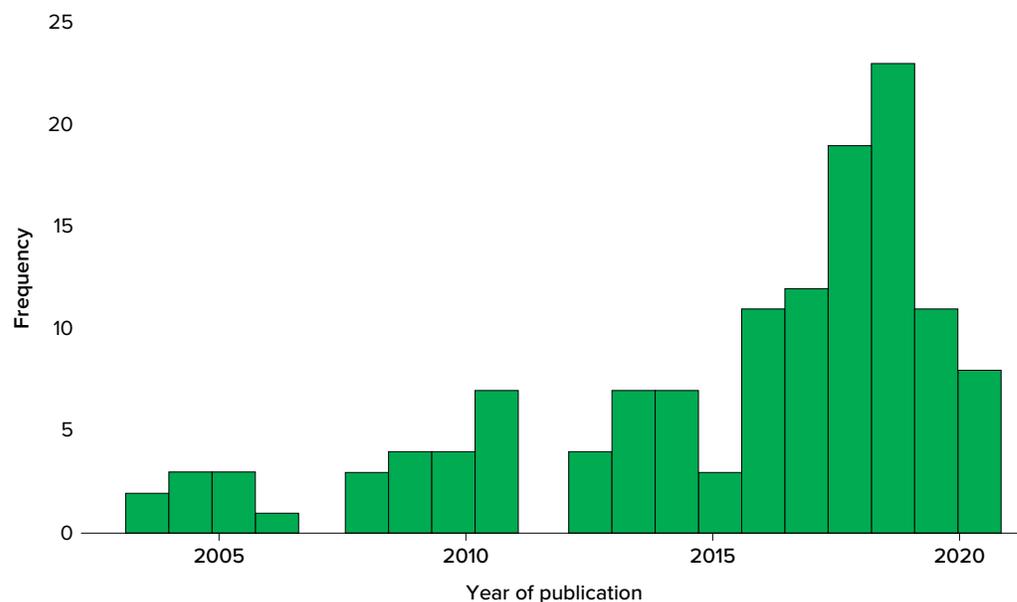
1. INTRODUCTION

The good news from the nutrition community is that stunting and growth faltering is less common than ever before. The prevalence of stunting among children under 5 years declined by almost a third from 2000 to 2017, with Asia seeing a prevalence drop of over 40 percent, from 38 percent to 23 percent, and Latin America bringing stunting to under 10 percent of the population, a decline of 46 percent. Overall, stunting has tended to decline about 1 percent per year (Victora et al. 2021). However, the danger persists: even before COVID-19, the Sustainable Development Goals relating to nutrition were seen as unlikely to be reached.

Cash transfers (CTs) are an increasingly common means of social protection, with participants numbering as high as a billion in 186 countries, including a recent surge in program development and implementation in 2020 (2020 Global Nutrition Report). The 2013 Lancet series on maternal and child nutrition inspired an increase in programs targeting these outcomes (Heidkamp et al. 2021) and a resurgence in program evaluations is underway today (see figure 2.1), with eight published in the first three months of 2021, more than were published in any given year until 2016.

The evidence base for CTs continues to grow: systematic reviews of the impacts of CT programs on child nutrition find that the effects are small but positive (Manley et al. 2020; Manley, Gitter and Slavchevska 2013; Gitter et al. 2017; Bastagli et al. 2016; de Groot et al. 2017). In the current chapter, we update the findings of the last such review for this very productive period. We find that this added evidence in most cases gives us similar results to previous reviews, with the most significant update being an increasing impact associated with wasting.

FIGURE 2.1: Year of publication for sources contained in this review



Source: Generated by authors.

2. METHODS

Search strategy and study selection

For this systematic review and meta-analysis, we searched for studies with 1) clear counterfactuals, including randomized control trials; 2) 300 or more observations of analysis; 3) estimates of impact on one or more of our targeted outcomes, with standard errors; and 4) countries with a per capita GDP of less than US\$10,000. We excluded programs providing cash for work and those that provided recipients with only one or two disbursements in total. Finally, we limited our sample to studies examining children under the age of 60 months (that is, <5 yr.) unless we were considering only (secondary) dietary household outcomes.

After “snowballing” references from researchers active in the area and perusing key background source (Manley, Gitter and Slavchevska 2013; Gitter et al. 2017, Bastagli et al. 2016; de Groot et al. 2017), we searched Google Scholar, Agris, Econlit, Eldis, IBSS, IDEAS, IFPRI, PubMed, and World Bank using two terms: “cash transfer” and either “child health” or “child nutrition.” Searches were limited to articles published from 2018 to March 2021 in peer-reviewed or grey literature. They were carried out in English, although the snowball ultimately included three Spanish studies in our final set.

Data collection and analysis

The title and abstract searches were each carried out by Manley and an assistant in Spring 2021. Search results were compiled separately and based on the articles compiled; data were created independently from the included studies and reconciled through discussion.

Data extraction tables included the following information: year of study, whether the document was published, transfer amount, program characteristics including conditionality (and type of conditionality) as well as provision of clinic access, nutritional supplements, and BCC (behavior change communication). Household characteristics included mean child age, age and education of household head, age and education of child's mother, household size, share of the sample in urban areas, and household size. The primary outcome measures were anthropometric markers of nutritional status: height-for-age z-score (HAZ) and weight-for-height z-score (WHZ) as well as stunting and wasting. The secondary outcomes measures were markers of immediate and underlying determinants of malnutrition, specifically dietary diversity, the consumption of animal-source foods, and the prevalence of diarrhea. In some studies, animal-source foods refers to the probability of a household consuming animal-source foods in a given time period, and in others, it refers to the share of the household budget spent on such foods (results were combined since both reflect increased consumption, but separate results are also set out below). Dietary diversity was based on a household dietary diversity score of defined food groups: while the majority of our studies operationalize this outcome using the household dietary diversity score based on 12 food groups, some studies used indices with fewer groups. (We break down results by whether or not the Household Dietary Diversity Score (HDDS) is used.) Finally, we tracked the incidence of child diarrhea defined as three or more watery stools in a 24-hour period.

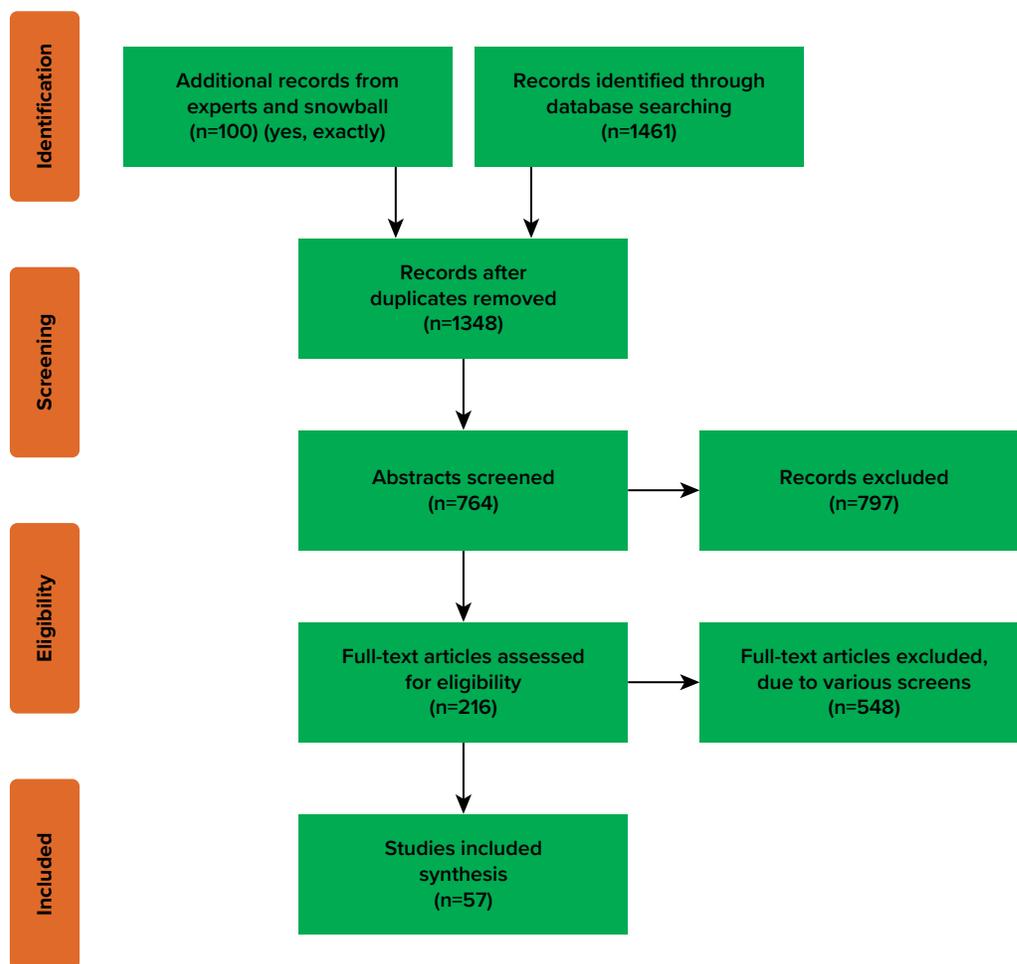
We estimated the pooled effect sizes via the `metan` command in STATA 15.1, using random effects (DerSimonian-Laird methodology) to take into account differences among the studies (Borenstein et al. 2009). A forest plot was created for each outcome, including HAZ, WAZ, WHZ, wasting, stunting, animal-source foods, dietary diversity, and diarrhea. We used a series of simple meta-regressions to test a variety of program, study, and household characteristics against each outcome. We carried out sensitivity measures, including comparing the current results against the results of the 2020 review (Manley et al. 2020), and breaking down results by child age and global region. Finally, we used a funnel plot to investigate publication bias.

3. RESULTS

From the search strategy, we identified 1561 studies; of those, 764 titles and abstracts were articles we considered relevant and screened. The full text of 216 studies was examined for eligibility, and after applying our inclusion and exclusion criteria, 57 studies of 38 CT programs were included (figure 2.2).

Table 2.1 shows summary statistics of the studies included in the meta-analysis. Sample sizes vary widely, from 332 to 58,623, with a mean of 3929 and a median of 2151. The median study took place in 2014. The median study duration was two years, with 46 of 57 studies (81 percent) lasting three years or less; 46 percent of the studies (26 of 57) were peer-reviewed. Program participants received transfers worth US\$52 on average (deflated to 2015 USD), an increase of 36 percent of their income (for those reporting it as a percentage). Among studies included in this analysis, 32 percent of programs set conditions on recipients: among programs setting conditions, half of CTs required households to send their children to school, and 72 percent required health services.

FIGURE 2.2: PRISMA flow diagram



Source: Generated by authors.

(Enforcement of conditions was variable and was not tracked.) Approximately 42 percent of programs provided health services and 46 percent were BCC interventions.

At the time of measurement, the majority of households (84 percent) lived in rural areas. About half—28—of the 57 studies took place in sub-Saharan Africa, while 7 were from Latin America (five studies were from the Middle East and North Africa region, not shown). While almost half of the programs included some form of BCC, the type of instruction varied, with about 40 percent providing instruction on childcare, about a third providing general nutrition information, and 35 percent addressing medicine directly.

The new sample features different regions. While in the preceding paper about half of the included programs were from Latin America and the Caribbean, in this review there are just 12 percent. More studies are from sub-Saharan Africa and South Asia: while the preceding review (Manley et al. 2020) included results from 26 studies from sub-Saharan Africa, the new evidence base for this paper features 28 more.

TABLE 2.1: Characteristics of studies included in the meta-analysis

		Obs	Mean	SD	Min	Max
Study	Study sample size	57	3928.86	7933.46	332	58623
	Year of data collection	57	2014.44	3.85	1999	2020
	Total years of study	57	2.38	1.63	0.25	9
	Published study	57	0.46	0.50	0	1
Transfer size	Real transfer amount, USD	57	51.98	68.40	5.3	412
	Transfer, % of income	36	36.06	45.49	1	218
	Log (real transfer)	57	3.53	0.84	1.7	6
Program characteristics	Conditional program	57	0.32	0.47	0	1
	Health services access	57	0.42	0.50	0	1
	Behavior change communication (BCC)	57	0.46	0.50	0	1
Participant characteristics	Mother's age	26	26.42	6.23	15	40
	Child age	28	15.37	18.16	0	83
	% of sample urban	39	0.16	0.27	0	1
Context	Sub-Saharan Africa	57	0.49	0.50	0	1
	Latin America	57	0.12	0.33	0	1
	South Asia	57	0.21	0.41	0	1
	East Asia	57	0.09	0.29	0	1
BCC Types	BCC on IYCF	57	0.39	0.49	0	1
	BCC on Household Nutrition	57	0.33	0.48	0	1
	BCC on Healthcare	57	0.35	0.48	0	1
	BCC on WASH/hygiene	57	0.28	0.45	0	1
	BCC with Business/ag training	57	0.14	0.35	0	1

Source: Generated by authors.

Likewise, although there were just 6 studies from South Asia in the last review, that number has doubled to 12 studies. We have as many East Asian as before: 5.

Table 2.2 shows sample statistics for the primary and secondary outcomes of interest. The median program has an impact of 0.035 standard deviations on the HAZ score, with a mean is 0.07. Impacts on WAZ and WHZ are also positively skewed: WAZ has a median of 0.003 and a mean of -0.010, while WHZ has a median impact of -0.010 and a mean effect of 0.068. Both stunting and wasting show small reductions overall, with mean effects of 1.1 percent and 1.3 percent. All of the secondary outcomes have the expected signs, with consumption of animal-source foods increasing by 17 percent on average as a treated household consumes food from 0.54 additional food groups. Finally, diarrhea declines among program participants by about 1.6 percent on average.

TABLE 2.2: Unweighted sample statistics of dependent variables

Outcome	Obs	Mean Effect Size	SD	Min	Max
Height for age z-scores	33	0.07	0.27	-0.34	1.2
Weight for age z-scores	12	-0.01	0.25	-0.64	0.46
Weight for height z-scores	23	0.07	0.44	-0.68	1.8
Stunting (%)	19	-1.12	5.05	-8.9	11
Wasting (%)	10	-1.26	1.90	-5	1
Animal-source foods (% of days or budget)	28	16.68	25.35	-22	100
Dietary diversity (food groups)	19	0.54	0.58	-0.13	2.1
Diarrhea incidence (%)	18	-1.58	3.35	-9.2	4

Source: Generated by authors.

4. META-ANALYSIS RESULTS

Table 2.3 summarizes the results of the meta-analyses. For height-for-age z-score (HAZ), data were available from 77 studies. On average, the pooled effect size associated with CT programs on HAZ scores was 0.024 ($p < 0.02$). For Weight-for-Age z-scores (WAZ), data were available from 32 studies. On average, the pooled effect size associated with CT programs on WAZ scores was 0.02 ($p < 0.37$). For Weight-for-Height z-scores (WHZ), data from 40 studies have a pooled effect size of 0.03 ($p < 0.19$). Forty-one studies found effects on stunting, and on average, CT programs decreased stunting relative to baseline by 1.4 percent ($p < 0.01$). From 17 studies, CT programs were found to decrease wasting by 1.3 percent ($p < 0.01$).

TABLE 2.3: Random-effects meta-analysis: The effect of cash transfer programs on child nutrition outcomes

Outcome	Effect Size	P-value	95% CI	N
HAZ	0.039	0.12	(-0.010, 0.088)	33
WAZ	0.017	0.62	(-0.051, 0.085)	12
WHZ	0.007	0.79	(-0.041, 0.055)	23
Stunting (%)	-1.49	0.09	(-3.21, 0.22)	10
Wasting (%)	-0.82	<0.01	(-1.48, -0.17)	10
Animal-source foods (%)	10.91	<0.01	(7.75, 14.08)	27
Dietary diversity	0.37	<0.01	(0.23, 0.52)	19
Diarrhea incidence (%)	-1.66	<0.01	(-2.72, -0.59)	18

Source: Generated by authors.

TABLE 2.4: 2020 study results vs. 2021 results

Outcome	2020			2021		
	Effect Size	P-value	N	Effect Size	P-value	N
HAZ	0.026	0.029	46	0.039	0.12	33
WAZ	0.023	0.41	19	0.019	0.62	12
Stunting (%)	-2.11	<0.01	27	-1.49	0.09	23
Wasting (%)	-1.22	0.06	17	-0.82	<0.01	10
Animal-source foods (%)	4.47	<0.01	20	10.91	<0.01	27
Dietary diversity	0.73	<0.01	13	0.37	<0.01	19
Diarrhea incidence (%)	-2.72	0.048	9	-1.66	<0.01	18

Source: Generated by authors.

Consumption of animal-source foods increased by an average of 10.9 percent ($p < 0.01$). Separately considering studies examining the share of household food budgets, we see a pooled effect size increase of 11 percent ($p = 0.20$), while studies reporting changes in the probability of consumption also found an increase of 11 percent ($p < 0.01$).

In 19 studies with data on the diversity of diets, children enrolled in CT programs had increased diet diversity, with the number of food groups consumed increasing by 0.37 ($p < 0.01$). Considering only the 10 papers that used the HDDS 12 group measure, the pooled effect is 0.41 ($p < 0.01$).

Of the 25 studies that estimated program effects on the incidence of diarrheal disease, an average decrease of 1.7 percent ($p < 0.01$) was found among the CT program participants.

The biggest news in table 2.4 is that we have more evidence of similar results, and many p-values reflect a bit more certainty about the outcomes. Sizes of the effects are slightly changed, moving toward zero in most cases. The point estimates on HAZ and animal-source foods have increased slightly, and the biggest change in significance is increased confidence that effects on wasting and diarrheal incidence are more than we can attribute to chance. (Note that in the preceding paper, WHZ was not included, and in the present analysis child illness was excluded, so neither appear here.)

5. SUB-GROUP RESULTS/SENSITIVITY

Table 2.5 is the first of our sensitivity analyses. In each case, we limit the analysis to studies from a particular region and report the results of the meta-analysis. (Five studies from MENA were not enough to support analysis.) On HAZ, South Asia shows the largest effects and is the only region in which it shows a significant improvement. We see that measures of child weight are uniformly unaffected by cash transfers in any

TABLE 2.5: Sensitivity analyses: regional analysis

Outcome	Latin America		Sub-Saharan Africa		South Asia		East Asia	
	Effect Size	N	Effect Size	N	Effect Size	N	Effect Size	N
HAZ			0.03	17	0.09**	10		
WAZ			0.01	7	0.09	3		
WHZ			-0.04	8	-0.01	10		
Stunting (%)			-0.87	8	-2.62**	6	-0.66	4
Wasting (%)			-1.48	3			-0.78**	3
Animal-source foods (%)	12.52***	4	9.98***	10	12.10***	7	-2.67	3
Dietary diversity			0.37***	13				
Diarrhea incidence (%)			-3.14*	4	-1.26**	8	-2.22*	4

Source: Generated by authors.

Note: In this and all tables, *** indicates significance at the 1% level; ** is for 5%; and * is significant at the 10% level only.

region. All dietary and morbidity outcomes show the expected signs and are significant—at least the 10 percent level—except for the three studies in East Asia.

Next, we consider separately studies investigating program effects on children in the first 1,000 days of life (table 2.6). The effect sizes are similar for all outcomes except HAZ; curiously, the impacts on children aged 24–60 months are stronger. (Food consumption variables are assessed at the household level and so we cannot break them down by age group. Note that some studies report that the results reflect children under 60 months but without providing additional details; those studies are excluded from this table.)

TABLE 2.6: Sensitivity analyses: child age

Outcome	Under 24 mos		24–60 mos	
	Effect size	N	Effect size	N
HAZ	0.06**	18	0.15***	3
WAZ	-0.01	4		
WHZ	-0.04	10	-0.04	4
Stunting (%)	-2.46**	9	-2.28	3
Wasting (%)	-0.70*	3		
Diarrhea incidence (%)	-1.53*	8		

Source: Generated by authors.

Note: *** indicates significance at the 1% level; ** is for 5%; and * is significant at the 10% level only.

TABLE 2.7: Meta-regression analysis: the effect of selected characteristics of CT programs on selected outcomes

	HAZ	WAZ	ASF	Diet	Diar
Study sample size	0	0**	0	0	0
Transfer, % of income	0.001	–	0.10	0.01**	0.13
Behavior change communication	0.11**	–0.03	10.19	0.19	–2.58**
BCC: Household nutrition	0.12**	–0.04	8.62	0.10	–2.16*
BCC: Health care	0.02	–0.03	1.42	–0.04	–2.52**
BCC: WASH/hygiene	0.08	–0.03	21.09***	0.23	–3.48**

Source: Generated by authors.

Note: Insignificant coefficients between ± 0.005 are indicated by 0. *** indicates regression coefficients significant at the 1% level; ** is for 5%, and * at the 10%. Illness variables excluded due to small sample size.

Next, we review the results of the meta-regression analysis, for which we separately analyzed the associations between each outcome and all covariates listed in table 2.1. While the full results appear in appendix 2, table A.2.1, table 2.7 includes only outcomes and program or study characteristics for which at least one result was observed at the 5 percent level of significance or greater. (WHZ, wasting, and stunting showed no significant associations with any covariate and thus they are not shown.)

Study sample size is linked to increases in WAZ, which is an idiosyncratic finding: in no other table in the paper is WAZ significantly linked with anything. Also, the amount of transfer as a percentage is positively linked with the number of food groups consumed.

However, the big surprise in these data is the importance of Behavior Change Communication. In a previous work (Sania et al. 2019), a strong relationship was not observed, but here we see impacts on HAZ and on diarrheal incidence.

The last three rows show the impacts of different types of BCC on various outcomes, including relatively large impacts on HAZ. Finally, the covariate showing significant associations with the most outcomes is WASH/hygiene-based BCC, which is associated with improvements in HAZ, stunting, animal-source foods, and diarrhea prevalence.

Finally, we looked for publication bias using meta-funnel plots for both HAZ and dietary diversity. Unlike the earliest review (Bastagli et al. 2016) but similar to the more recent review (Manley et al. 2020), we found no evidence of bias.

6. DISCUSSION

The results of this study are in line with previous efforts: the overall effects of cash transfer programs on HAZ and stunting continue to be small in size. CT programs mostly show no impact on child weight outcomes, with the exception of wasting, an outcome for which this chapter is among the first to find a significant decrease. Previous reviews found only weak evidence for program effects on wasting, for which this review

of the evidence finds an additional degree of confidence. We also see added support for the importance of increasing transfer size, which is positively linked both to HAZ and dietary diversity.

The other main result of interest is the association of certain types of BCC with a variety of outcomes, from anthropometrics to morbidity. While earlier efforts failed to indicate conclusive evidence of a relationship, with this survey, we see effects in general and when broken down by particular types of BCC. In particular, WASH/hygiene BCC is effective in improving animal-source food consumption as well as decreasing the incidence of diarrhea.

A number of limitations of this work persist. First, this analysis remains at the meta-level; gathering a larger set of micro-data along the lines of this study (Sania et al. 2019) would enable finer resolution on outcomes and the consideration of a much greater variety of covariates. Second, the data collected by this search are limited by the choice of terms: while “child nutrition” and “child health” are broad terms, other studies, for example, those examining strictly household outcomes such as diet quality, might have been overlooked. Third, this analysis depends on the data collected, and most extant studies are of relatively short duration and continued to track outcomes after program cessation.

As the world looks to recover from the global pandemic, it is good to know that some tested solutions to food insecurity are available, and that cash transfers are increasingly being implemented around the world. The demonstrated effectiveness of BCC represents another tool in our response kit as we seek progress toward the sustainable development goals.

Having completed this far-ranging literature review, the next chapter drills down into features of successful programs, highlighting the relatively few papers designed to test hypotheses about particular mechanisms.

APPENDIX

TABLE A.2.1: Meta-regression analysis: the effect of cash transfer programs on child nutrition outcomes, for all available covariates

Study	HAZ	WAZ	WHZ	Stunting	Wasting	ASF	Diet	Diar
Study sample size	0	0**	0	0	0	0	0	0
Year data collected	0.01	0	-0.01	-0.04	-0.11	-0.11	.003	-0.41
Total years of study	-0.02	0.05	0.05*	-0.36	-0.08	-2.79	-0.15*	-0.25
Published study	0.11*	-0.12	-0.10	0.72	0.48	2.21	0.09	0.36
Transfer size								
Real transfers, USD	-0.001	0.001	0.001	-0.001	-0.005	0.007	-0.001	0.005
Transfer, % of income	0.001	-	0	0.06	-	0.10	0.01**	0.13
Log (real transfer)	-0.042	0.01	0.06	-0.01	-0.54	3.35	-0.06	-0.02
Programme characteristics								
Conditional program	0	-0.08	0.11	1.76	0.33	-0.96	-0.08	-0.91
Health services access	-0.01	0.08	-0.02	0.77	0.56	-4.90	-0.03	0.80
Behavior change communication	0.11**	-0.03	-0.02	-0.39	0.74	10.19	0.19	-2.58**
Participant characteristics								
Mother's age	0.002	-	-0.002	0.10	-	-2.13	-	-
Child age	0.002	-	0.001	0.03	-	-0.11	-	-0.01
% of sample urban	-0.06	-	-0.02	2.75	-	-1.08	0.10	8.47
Context								
Africa	-0.02	-0.06	-0.03	0.94	-0.68	-0.90	0.06	-1.33
Latin America	-0.04	-0.02	-	-0.41	-	-0.21	0.52	-
South Asia	0.09	0.08	-0.03	-1.90	0.88	1.43	0.002	1.10
East Asia	-0.38*	0.01	0.26	1.32	0.33	-14.62	-0.53	-0.27
BCC Type								
IYCF	0.09*	-0.07	0	-0.39	0.74	10.33	0.19	-2.16*
Household nutrition	0.12**	-0.04	-0.03	-1.22	-0.07	8.62	0.10	-2.16*
Health care	0.02	-0.03	0	1.00	0.74	1.42	-0.04	-2.52**
WASH/hygiene	0.08	-0.03	0.01	-3.14	1.85	21.09***	0.23	-3.48**
Business/ag training	-0.01	-0.10	-0.02	-1.33	1.09	-3.99	0.16	-1.36

Source: Generated by authors.

Note: Sample sizes under 10 are indicated by a "-"; Insignificant coefficients between ± 0.005 are indicated by 0. *** indicates regression coefficients significant at the 1% level; ** is for 5%, and * at the 10%. Illness variables excluded due to small sample size.

REFERENCES

- Aubra, Laura, Agnes Le Port, Yves Kameli, Sonia Fortin, Tanimoune Mahamadou, Marie T Ruel, Yves Martin-Prevel, and Mathilde Savy. 2019. "Conditional cash transfer and/or lipid-based nutrient supplement targeting the first 1000 d of life increased attendance at preventive care services but did not improve linear growth in young children in rural Mali: Results of a cluster-randomized controlled trial." *American Journal of Clinical Nutrition* 110(6): 1476–1490. doi: 10.1093/ajcn/nqz238.
- Ahmed, Akhter, John Hoddinott, and Shalini Roy. 2019. "Food transfers, cash transfers, behavior change communication and child nutrition: Evidence from Bangladesh." Discussion Paper 1868. Washington, DC: International Food Policy Research Institute (IFPRI). Doi: <https://doi.org/10.2499/p15738coll2.133420>.
- Avitabile, Ciro, Jesse M. Cunha, Ricardo Meilman Cohn. 2019. *The Medium Term Impacts of Cash and In-kind Food Transfers on Learning*. Policy Research Working Paper. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/33055>.
- Baird, Sarah, Craig McIntosh, and Berk Özler. 2019. "When the Money Runs Out: Do Cash Transfers have Sustained Effects on Human Capital Accumulation?" *Journal of Development Economics* 140: 169–185. <https://openknowledge.worldbank.org/handle/10986/25705>.
- Banerjee, Abhijit, Michael Faye, Alan Krueger, Paul Niehaus, and Tavneet Suri. 2020. "Effects of a Universal Basic Income during the Pandemic." Working Paper. <https://www.poverty-action.org/publication/effects-universal-basic-income-during-pandemic>.
- Banerjee, Abhijit, Rema Hanna, Benjamin A. Olken, Elan Satriawan, and Sudarno Sumarto. 2021. "Food vs. Food Stamps: Evidence from an At-Scale Experiment in Indonesia." Working Paper No. w28641. National Bureau of Economic Research (NBER). <https://www.nber.org/papers/w28641>.
- Banerjee, Abhijit V., Rema Hanna, Gabriel E. Kreindler, and Benjamin A. Olken. 2017. "Debunking the Stereotype of the Lazy Welfare Recipient: Evidence from Cash Transfer Programs." *World Bank Research Observer* 32(2): 155–184. Washington, DC: World Bank. <https://doi.org/10.1093/wbro/lkx002>.
- Bastagli, Francesca, Jessica Hagen-Zanker, and Georgina Sturge. 2016. *Cash transfers: what does the evidence say? A rigorous review of program impact and the role of design and implementation features*. London: ODI. <https://odi.org/en/publications/cash-transfers-what-does-the-evidence-say-a-rigorous-review-of-impacts-and-the-role-of-design-and-implementation-features>.
- Bedoya, Guadalupe, Aidan Coville, Johannes Haushofer, Mohammad R. Isaqzadeh, and Jeremy Shapiro. 2019. *No Household Left Behind: Afghanistan Targeting the Ultra-Poor Impact Evaluation*. Policy Research Working Paper 8877. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/31867>.
- Behrman, Jere R., and John Hoddinott. 2005. "Programme Evaluation with Unobserved Heterogeneity and Selective Implementation: The Mexican PROGRESA Impact on Child Nutrition." *Oxford Bulletin of Economics and Statistics* 67 (4): 547–69.
- Belete, Getachew Yirga. 2021. "Impacts of Social Protection Programmes on Children's Resources and Wellbeing: Evidence from Ethiopia." *Child Indicators Research*. 14(2), 681–712. The International Society of Child Indicators (ISCI). Doi: 10.1007/s12187-020-09771-3.
- Bliss, Jessica, Kate Golden, Leila Bourahla, Rebecca Stoltzfus, and David Pelletier. 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): 010410. Doi: 10.7189/jogh.08.010410.

- Borenstein, Michael, Larry V. Hedges, Julian P. T. Higgins, and Hannah R. Rothstein. 2009. *Introduction to Meta-Analysis*. Chichester, UK: John Wiley and Sons.
- Breisinger, Clemens, Daniel Gilligan, Naureen Karachiwalla, Sikandra Kurdi, Hoda El-Enbaby, Amir Jilani, and Giang Thai. 2018. "Impact evaluation study for Egypt's Takaful and Karama cash transfer program: Part 1: Quantitative report." MENA RB Working Paper 14. Washington DC and Cairo, Egypt: International Food Policy Research Institute (IFPRI). <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/132719>.
- Briaux, Justine, Yves Martin-Prevel, Sophie Carles, Sonia Fortin, Yves Kameli, Laura Adubra, Andréa Renk, Yawavi Agboka, Magali Romedenne, Félicité Mukantambara, John Van Dyck, Joachim Boko, Renaud Becquet, and Mathilde Savy. 2020. "Evaluation of an unconditional cash transfer program targeting children's first-1,000-days linear growth in rural Togo: A cluster-randomized controlled trial." *PloS Medicine* 17(11): doi: <https://doi.org/10.1371/journal.pmed.1003388>.
- Carneiro, Pedro Manuel, Lucy Kraftman, Giacomo Mason, Lucie Moore, Imran Rasul, and Molly Scott. 2021. "The Impacts of a Multifaceted Pre-Natal Intervention on Human Capital Accumulation in Early Life." *American Economic Review* 111(8): 2506–2549. <http://ftp.iza.org/dp13955.pdf>.
- Celhay, Pablo A., Julia Johannsen, Sebastian Martinez, and Cecilia Vidal. 2021. "Can Small Incentives have Large Payoffs? Health Impacts of a Cash Transfer Program in Bolivia." *Economic Development and Cultural Change* 69(2): 591–621. <https://doi.org/10.1086/703085>.
- Chakrabarti, Averi, Sudhanshu Handa, Luisa Natali, David Seidenfeld, and Gelson Tembo. 2020. "More evidence on the relationship between cash transfers and child height." *Journal of Development Effectiveness* 12(1): 14–37. <https://doi.org/10.1080/19439342.2020.1731568>.
- Daidone, Silvio, Noemi Pace, Garima Bhalla, and Ervin Prifti. 2021. *Combining cash transfers with rural development interventions: an impact evaluation of Lesotho's Child Grants Program (CGP) and Sustainable Poverty Reduction through Income, Nutrition and access to Government Services (SPRINGS) project*. Rome: FAO and UNICEF. doi: <https://doi.org/10.4060/cb4862en>.
- De Groot, Richard, Tia Palermo, Sudhanshu Handa, Luigi Peter Ragno, and Amber Peterman. 2017. "Cash transfers and child nutrition: pathways and impacts." *Development Policy Review* 35(5): 621–643. Doi: <https://doi.org/10.1111/dpr.12255>.
- Devereux, Stephen, Keetie Roelen, Ricardo Sabates, Rachel Sabates-Wheeler, Dimitri Stoelinga, and Arnaud Dyeve. 2019. "Graduating from food insecurity: Evidence from graduation projects in Burundi and Rwanda." *Food Security* 11(1): 219–232. Doi: <https://doi.org/10.1007/s12571-019-00887-1>.
- Dietrich, Stephan, and Georg Schmerzeck. 2019. "Cash transfers and nutrition: The role of market isolation after weather shocks." *Food Policy* 87, 101739. <https://doi.org/10.1016/j.foodpol.2019.101739>.
- Ecker, Olivier, and Jean-Francois Maystadt. 2021. "Can unconditional cash transfers mitigate the impact of armed conflict on child nutrition in Yemen?" Economic Research Forum Working Paper No. 1463. Washington, DC: International Food Policy Research Institute. Doi: <https://erf.org.eg/publications/can-unconditional-cash-transfers-mitigate-the-impact-of-armed-conflict-on-child-nutrition-in-yemen-2>.
- Equity to End Malnutrition. 2020. Bristol, UK: Development Initiatives 2020 Global Nutrition Report: Action on. <https://globalnutritionreport.org/reports/2020-global-nutrition-report>.
- Fenn, Bridget, Tim Colbourn, Carmel Dolan, Silke Pietzsch, Murtaza Sangrasi, and Jeremy Shoham. 2017. "Impact evaluation of different cash-based intervention modalities on child and maternal nutritional status in Sindh Province, Pakistan, at 6 mo and at 1 y: A cluster eatureed controlled trial." *PloS Medicine* 14(5): e1002305. Doi: <https://doi.org/10.1371/journal.pmed.1002305>.

- Field, Erica M., and Elisa M. Maffioli. 2021. "Are behavioral change interventions needed to make cash transfer programs work for children? Experimental evidence from Myanmar." Working Paper no. 28443. *National Bureau of Economic Research*. doi: 10.3386/w28443.
- Gentilini, Ugo, Mohamed Bubaker Alsafi Almenfi, Ian Orton, and Pamela Dale. 2021. *Social protection and jobs responses to COVID-19*. Version dated May 14, 2021. Downloaded in June 2021 from <https://documents1.worldbank.org/curated/en/281531621024684216/pdf/Social-Protection-and-Jobs-Responses-to-COVID-19-A-Real-Time-Review-of-Country-Measures-May-14-2021.pdf>
- Gitter, Seth R., James Manley, Jill Bernstein, and Paul Winters. 2017. "Do agricultural support and cash transfer programs improve nutritional status?" Rome: IFAD Research Series no. 18. International Fund for Agricultural Development. Doi: <http://dx.doi.org/10.2139/ssrn.3307396>.
- Grijalva-Eternod, Carlos S., Mohamed Jelle, Hassan Haghparast-Bidgoli, Tim Colbourn, Kate Golden, Sarah King, Cassy L. Cox et al. 2018. "A cash-based intervention and the risk of acute malnutrition in children aged 6–59 months living in internally displaced persons camps in Mogadishu, Somalia: A non-randomised cluster trial." *PloS Medicine* 15(10), e1002684. Doi: <https://doi.org/10.1371/journal.pmed.1002684>.
- Guzman, W. 2018. "Social policies in Ecuador: the effects of minimum wages and cash transfers." Doctoral dissertation, London School of Economics and Political Science (LSE).
- Handa, Sudhanshu, Michael Park, Robert Osei Darko, Isaac Osei-Akoto, Benjamin Davis, and Silvio Daidone. 2014. "Livelihood empowerment against poverty program impact evaluation." Carolina Population Center, University of North Carolina at Chapel Hill.
- Heidkamp, Rebecca A., Ellen Piwoz, Stuart Gillespie, Emily C. Keats, Mary R. D'Alimonte, Purnima Menon, Jai K. Das et al. 2021 "Mobilising evidence, data, and resources to achieve global maternal and child undernutrition targets and the Sustainable Development Goals: an agenda for action." *The Lancet*. 397(10282): 1400–1418. Doi: [https://doi.org/10.1016/S0140-6736\(21\)00568-7](https://doi.org/10.1016/S0140-6736(21)00568-7).
- Hidrobo, Melissa, Shalini Roy, Lieven Huybregts, Leila Njee-Bugha, Eric Sessou, and Yves Kameli. (2019). *Filets Sociaux (Jigisémèjiri) program endline report*. Intl Food Policy Res Inst.
- Hidrobo, Melissa, Shalini Roy, Lieven Huybregts, Leila Njee-Bugha, Eric Sessou, and Yves Kameli. 2018. *Filets Sociaux (Jigisémèjiri) program midline report*. Washington, DC: Intl Food Policy Res Inst. <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/133081>.
- Irhamni, Milda. 2017. "Three Essays on Child and Female Welfare in Indonesia." Ph.D. dissertation. Retrieved from the University of Minnesota Digital Conservancy. <https://hdl.handle.net/11299/195395>; https://conservancy.umn.edu/bitstream/handle/11299/195395/Irhamni_umn_0130E_18934.pdf?sequence=1.
- Kronebusch, Natalie, and Amy Damon. 2019. "The impact of conditional cash transfers on nutrition outcomes: Experimental evidence from Mexico." *Economics and Human Biology* 33: 169–180. Doi: 10.1016/j.ehb.2019.01.008.
- Kurdi, Sikandra, Yashodhan Ghorpade, and Hosam Ibrahim. 2019. "The cash for nutrition intervention in Yemen: Impact evaluation study." MENA RP Working Paper 19. Washington, DC and Cairo, Egypt: International Food Policy Research Institute (IFPRI) doi: <https://doi.org/10.2499/p15738coll2.133219>.
- Leroy, Jef L., Paola Gadsden, Sonia Rodríguez-Ramírez, and Teresa González de Cossío. 2010. "Cash and in-kind transfers in poor rural communities in Mexico increase household fruit, vegetable, and micronutrient consumption but also lead to excess energy consumption." *The Journal of Nutrition* 140(3): 612–617. Doi: 10.3945/jn.109.116285.
- Manley, James, Seth Gitter, and Vanya Slavchevska. 2013. "How Effective are Cash Transfers at Improving Nutritional Status?" *World Development* 48: 133–55. Doi: <https://doi.org/10.1016/j.worlddev.2013.03.010>.

- Manley, James, Yarlini Balarajan, Shahira Malm, Luke Harman, Jessica Owens, Sheila Murthy, David Stewart, et al. 2020. "Cash transfers and child nutritional outcomes: a systematic review and meta-analysis." *BMJ Global Health* 5(12): e003621. Doi: <http://dx.doi.org/10.1136/bmjgh-2020-003621>.
- Martins, Ana Paula Bortoletto, and Carlos Augusto Monteiro. 2016. "Impact of the Bolsa Família program on food availability of low-income Brazilian families: a quasi-experimental study." *BMC Public Health* 16(1): 827. Doi: [10.1186/s12889-016-3486-y](https://doi.org/10.1186/s12889-016-3486-y).
- McIntosh, Craig, and Andrew Zeitlin. 2021. "Cash versus Kind: Benchmarking a Child Nutrition Program against Unconditional Cash Transfers in Rwanda." arXiv preprint arXiv:2106.00213. doi: <https://doi.org/10.48550/arXiv.2106.00213>.
- Orbeta Jr., Aniceto C., Kris Ann M. Melad, and Nina Victoria V. Araos. 2021. *Longer-term Effects of the Pantawid Pamilyang Pilipino Program: Evidence from a Randomized Control Trial Cohort Analysis (Third Wave Impact Evaluation)*. Philippine Institute for Development Studies. <http://hdl.handle.net/11540/13079>.
- Orbeta Jr., Aniceto C., Kris Ann M. Melad, and Nina Victoria V. Araos. 2021. "Reassessing the Impact of the Pantawid Pamilyang Pilipino Program: Results of the Third Wave Impact Evaluation." Discussion Paper. <http://hdl.handle.net/11540/13173>.
- Ozler, Berk, Çiğdem Çelik, Scott Cunningham, P. Facundo Cuevas, and Luca Parisotto. 2020. *Children on the move: Progressive redistribution of humanitarian cash transfers among refugees*. Policy Research Working Paper. Washington, DC: World Bank. doi: <https://doi.org/10.1596/1813-9450-9471>.
- Premand, Patrick, and Oumar Barry. 2020. *Behavioral Change Promotion, Cash Transfers and Early Childhood Development: Experimental Evidence from a Government Program in a Low-Income Setting*. Policy Research Working Paper 9638. Washington, DC: World Bank. doi: <https://doi.org/10.1596/1813-9450-9368>.
- Roelen, Keetie, and Catherine Müller. 2018. *Fonkoze's CLM Ultra Poverty Programme: Understanding and improving child development and child wellbeing*. Baseline report. Institute of Development Studies and Centre for Social Protection. https://fonkoze.org/assets/clm-baseline-study_ultra-poor-children_sept-2018.pdf.
- Sania, Ayesha, Christopher R. Sudfeld, Goodarz Danaei, Gunther Fink, Dana Charles McCoy, Zhaozhong Zhu, Mary C. Smith Fawzi, et al. 2019. "Early life risk factors of motor, cognitive and language development: a pooled analysis of studies from low/middle-income countries." *BMJ Open* 9(10): e026449. Doi: <http://dx.doi.org/10.1136/bmjopen-2018-026449>.
- Sudfeld, Christopher R., Lilia Bliznashka, Geoffrey Ashery, Aisha K Yousafzai, and Honorati Masanja. 2021. "Effect of a home-based health, nutrition and responsive stimulation intervention and conditional cash transfers on child development and growth: a cluster-randomised controlled trial in Tanzania." *BMJ Global Health* 6(4): e005086. Doi: [10.1136/bmjgh-2021-005086](https://doi.org/10.1136/bmjgh-2021-005086).
- Victora, Cesar Gomes, Parul Christian, Luis Paulo Vdaletti, Giovanna Gatica-Domínguez, Purnima Menon, and Robert E. Black. 2021. "Revisiting maternal and child undernutrition in low-income and middle-income countries: variable progress towards an unfinished agenda." *The Lancet* 397(10282): 1388–99. Doi: [https://doi.org/10.1016/S0140-6736\(21\)00394-9](https://doi.org/10.1016/S0140-6736(21)00394-9).
- Von Haaren, Paula, and Stefan Klöner. 2020. *Maternal cash for better child health? The impacts of India's IGMSY/PMMVY maternity benefit scheme*. Discussion Paper no. 689. Heidelberg: University of Heidelberg. doi: [10.11588/heidok.00028856](https://doi.org/10.11588/heidok.00028856).
- Zhou, Huan, Yuju Wu, Chengfang Liu, Chang Sun, Yaojiang Shi, Linxiu Zhang, Alexis Medina, et al. 2020. "Conditional cash transfers, uptake of maternal and child health services, and health outcomes in western rural China." *BMC Public Health* 20(1): 870. Doi: <https://doi.org/10.1186/s12889-020-08996-9>.

Cahyadi, Nur, Rema Hanna, Benjamin A. Olken, Rizal Adi Prima, Elan Satriawan, and Ekki Syamsulhakim. 2020. "Cumulative Impacts of Conditional Cash Transfer programs: Experimental Evidence from Indonesia." *American Economic Journal: Economic Policy* 12(4): 88–110. Doi: 10.1257/pol.20190245.

Mustafa, Ghulam, Amanat Ali, and Nasir Iqbal. 2019. "Impact of Unconditional Cash Transfer on Child Nutrition in Pakistan: Evidence from Benazir Income Support Program (BISP)." *Global Economics Review* 4(4): 71–88. Doi: [http://dx.doi.org/10.31703/ger.2019\(IV-IV\).07](http://dx.doi.org/10.31703/ger.2019(IV-IV).07).



Pathways for Nutrition-Sensitive Social Protection

Harold Alderman

1. INTRODUCTION

The motivation for bringing a nutritional lens to social protection programs stems from a widely used conceptual framework for nutrition interventions that groups programs into nutrition-specific and those deemed nutrition-sensitive (Black et al. 2013). Various modeling exercises make it clear that, to address undernutrition, both kinds of program—not just nutrition-specific—need to be components of a long-term strategy. For example, Bhutta et al. (2013) have projected that expanding 10 effective nutrition-specific interventions to meet the needs of 90 percent of the children in the most malnourished countries would decrease stunting by only 20 percent. Similarly, Shekar et al. (2017) envision that scaling up nutrition-specific interventions could achieve only roughly half of the World Health Assembly Target for reducing stunting by 40 percent by 2025. In short, although the arsenal of effective nutrition-specific interventions has been reinforced in recent years (Bhutta et al. 2020, Keats et al. 2021), they remain inadequate to fully address the problem of undernutrition without nutrition-sensitive programs sharing the task.

However, from the standpoint of any contribution to reducing undernutrition efforts leveraging the extensive social protection investments to accelerate reductions in stunting have not always lived up to their potential (Manley et al. this volume; Manley et al. 2022). Similarly, the evidence on the impact of cash programs on birth outcomes is encouraging but limited (Leroy et al., 2021). Although the quality of the few studies investigating birth outcomes reviewed was less than desired, all four of the programs that looked at birth weight found increases.

Of course, not all cash transfers include features designed to enhance their impact on nutrition. This review explores such features, both the barriers to, and enablers of, nutrition sensitivity. To a degree, all safety net programs address key determinants of nutrition by increasing the resources under a low-income household's control, enabling them to purchase more food and access health services. This is intrinsic to all income transfers. Nutrition-sensitive assistance programs aim to build upon this by incorporating specific nutrition goals and actions and, at times, serve as a platform for other

nutrition-specific programs designed to address the proximate causes of malnutrition. The specific program features are sometimes referred to as cash-plus.

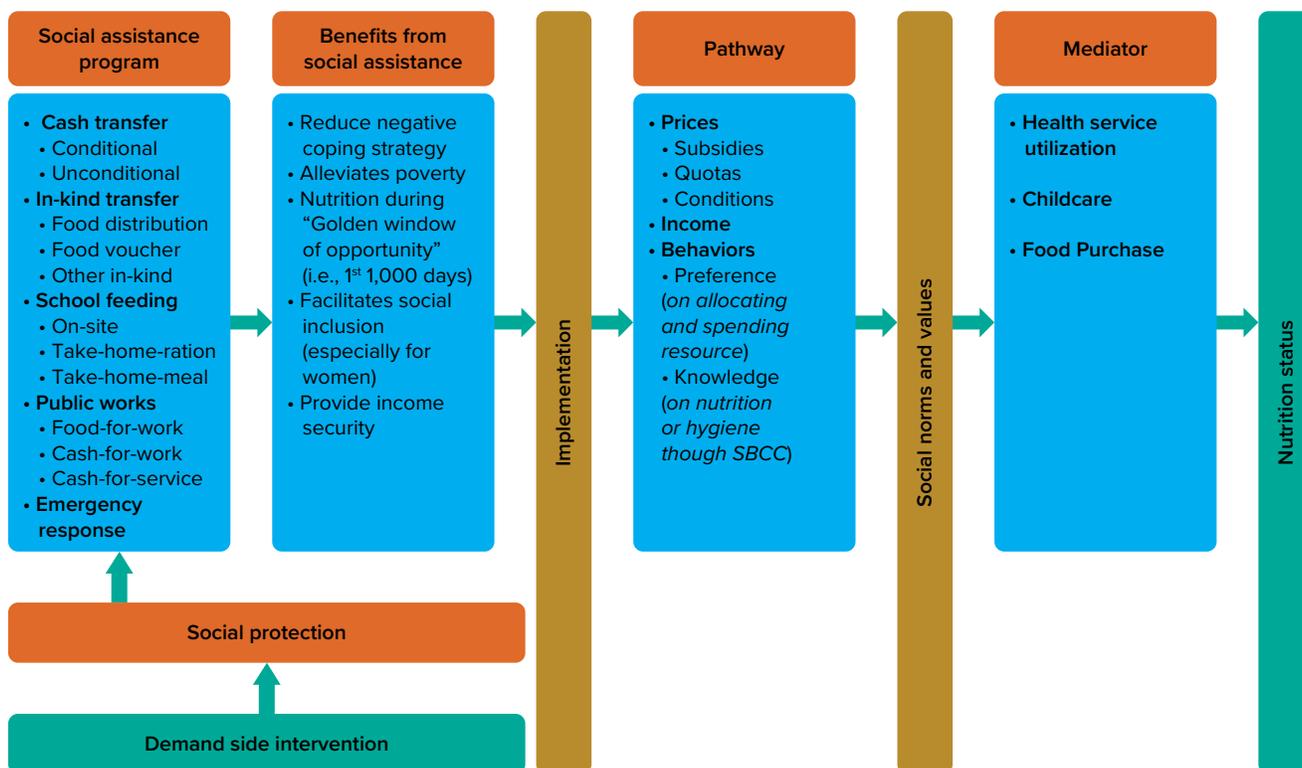
A meta-analysis of such programs indicates that cash-plus supplementary food can be more effective than cash alone. But to date, cash-plus behavioral change communication—or BCC, also called social BCC (SBCC)—does not dominate over cash alone (Little et al. 2021). However, there are methodological nuances to consider. For example, a study in Myanmar by Field and Maffioli (2021) that we included in our meta-analysis rejects the equality of the cash-plus BCC and the cash-only treatment effects on stunting (p -value=0.02) in a regression that includes covariates, and the study by Little et al. converts the means into an odds ratio and finds no significant difference at $p < 0.05$.

Similarly, although Ahmed et al. (2019) found a difference in height-for-age between cash transfers with and without BCC in Bangladesh that is significant at the 1 percent level in regression analysis, Little et al. do not report a significant difference for the means from this study in the forest plots they illustrate. Thus, evidence on such design features is still very much a work in progress. This chapter illustrates the framework that motivates their inclusion in nutrition-sensitive transfers. That is, it drills down on the pathways by which transfer programs can influence nutritional outcomes. Rather than focus on net impacts as in Manley et al. (this volume), it draws upon studies that are explicitly designed to investigate the determinants of successful programs.

The levers by which a transfer program can influence nutrition can be described in terms of a health or nutrition production function: depending on the prevailing prices and the resources that a household controls, it obtains inputs and combines these to achieve health. Most simply, this implies that social protection can improve nutrition by affecting the prices a household faces or the income it receives (Alderman 2015). Figure 3.1 presents a stylized pathway from social protection programs to potential improvements in nutrition.

Additionally, the standard health production model indicates that changes in the efficiency by which inputs are utilized can also affect outcomes at any given level of income and prices. The provision of information can, thus, affect the efficiency by which health is improved. It may also prompt a revision of household preferences. These preferences are mediated by individual empowerment within the household as well as aspirations, expectations, and attitudes regarding risk. Similarly, stress and depression can affect the ability of a caregiver to use available resources. As experience with transfer programs has improved, there has been an increased understanding of how a program can affect this ability to achieve nutritional objectives, which in turn can lead to improved program design. We will touch upon these new insights below; but first this review begins with the basics—income and prices.

FIGURE 3.1: Pathways from social protection to nutrition



Source: Generated by author.

2. INCOME PATHWAY

All transfers have a role in reducing undernutrition in the sense that a portion of any increase in income is devoted to food purchases. A useful starting point for consideration of the role of a transfer is the stylized fact that poor households typically spend half or more of their budgets on food (Lipton 1983). Like most stylized facts, this clearly needs to be treated as a working hypothesis subject to confirmation, but this already suggests that tests of whether there is any increase at all in food expenditures when a transfer increases income are useful mainly to generate a t-statistic suitable for publication. True, some evaluations report that the hypothesis that marginal food consumption is zero is not rejected, but this would most likely indicate a data problem.

To elaborate: all income must either be saved or consumed. This is an identity, not a behavioral question, although the share that goes to each is clearly of interest in transfer programs, particularly large transfers designed to offset poverty traps. Unless the sum of changes in consumption and savings is more or less equal to the value of the transfer received by the household, little can be inferred from a failure to observe increased food expenditures. To be sure, an exception might be if the transfer reduced labor income (which is, technically, an increase of leisure, which is a form of consumption that is hard to measure). But the preponderance of evidence finds little or no labor reduction associated with social protection (Banerjee et al. 2017). Indeed, Carneiro et al. (2021) found that cash transfers in Nigeria promoted an increase in the labor supply

of women, which may have enhanced the nutritional impact of the program, although they were unable to formally test this. That study did not determine the impact of labor participation on time allocation to childcare, but it chips away at the fiction that transfer programs discourage work.

There should be little doubt that income transfers foster increased food expenditures, and thus tests of that hypothesis are not reviewed here. However, an exploration of how these increases manifest can contribute to program design. For example, from the standpoint of nutrition sensitivity, it is of interest to ascertain whether the program has a greater impact on food consumption than a similar increase of income from other sources. Here, the evidence is extensive. For example, there is a history of studies in the United States—Hastings and Shapiro (2018) being only one of the more recent examples—indicating that the propensity to spend on food increases with food stamps compared to cash equivalents. Many of the studies on the impact of transfer programs on food purchases point to the role of female control of resources. For instance, studies from programs in Colombia, Mexico, and Macedonia indicate that food consumption increases when women have more control, with the latter evidence coming from a randomized controlled trial [RCT] (Attanasio and Lechene 2014; Tommasi 2019; Armand et al. 2016). Akresh et al. (2016), however, found no evidence that gender control influences health outcomes, although they do not report on food expenditures.

Another useful question for understanding nutrition sensitivity is how the increased expenditures on food are allocated. In general, one would expect that, following an income transfer, the proportional increase of animal-sourced foods as well as fruits and vegetables, from their low base, would be greater than the increase of grains and tubers. This is expected based on a body of research on relative income elasticities even in the absence of measures designed to enhance nutrition sensitivity. In studies of impacts on nutrition, shifts in food intake are often tracked in terms of diet diversity, which measures the frequency a particular category of food is consumed, and less often in terms of dietary adequacy, which reflects quantities. In their meta-analysis, Manley et al. (this volume) found that both the consumption of animal-sourced foods and diet diversity increased significantly. Similarly, a systematic review of transfer programs that were published between 2010 and 2020 (Olney et al. 2021) found that 70 percent of the studies that had results on diet diversity for women identified significant effects, although less than 50 percent of the studies with results of child diversity did so. Relatively few studies look at the diet composition of all family members. Similarly, few studies report the impact on ultra-processed foods or other broader measures of the nutritional impact of transfers.¹

With increased purchases of food and increased diet diversity, why is the impact of cash transfer on anthropometric indicators generally low? Ruel and Alderman (2013) speculated that the limited evidence of the impact of cash transfers on various measures of anthropometry could be due to the fact that a high proportion of the studies available at the time came from Latin American samples that had lower stunting rates than observed in Asia or Africa. However, the most recent reviews include more studies from low-income settings than in an earlier similar review (Manley et al. 2013) and do not find larger point estimates for height improvement than noted in the paper by Ruel and Alderman. While the meta-analyses confirm the extensive heterogeneity in the different studies, the sample is not ideal for more robust analysis. Other reviews also point out program

heterogeneity—see, for example, de Groot et al. (2017). This heterogeneity is the basis for the discussion in the next section, but prior to that inquiry, it would be useful to review what is known regarding the response of anthropometric indicators of nutrition to increased income from transfers as well as from other income sources.

Using both cross-country, fixed-effects data and household expenditure data, Haddad et al. (2003) estimated that stunting declines at half the rate that either GNP or household income increases, a rate that they claimed was small relative to the decline in poverty. Ruel and Alderman (2013), using a similar fixed-effects approach but using later observations, found a slightly more rapid decline of 5.9 percent per 10 percent GNP growth. Smith and Haddad (2015) also found similar results with this model, in which many of the fixed effects reflected gaps of 10 years or more between surveys. But they also noted that when focusing on a first difference of 5 years rather than the decade differences in their fixed-effect regressions, the response to income growth is only 1.7 percent for a 10 percent income growth. This hints that the short-term response to income changes may be far less than cumulative effect. In the short run, a cash transfer often does not allow a household to change its access to health care nor the water and sanitation environment and, thus, it is possible that the limited response to transfer programs in studies of a few years are underestimates compared to what might be observed were the recipients followed beyond that period in more RCTs.

For various reasons, randomized pilot programs are either ended, or the control communities are included in program expansion, at the end of a specified trial period, often two years or less. However, Cahyadi et al. (2020) were able to study an RCT in Indonesia in which the initial randomization of sub-districts to treatment and control status of a CCT provided random variation in program placement six years later. Although no significant improvement in stunting was recorded in the initial 2-year trial, there was a 23–27 percent reduction in stunting in the longer-term study. It is noteworthy that this improvement occurred under a business-as-usual, government-run program, rather than a program with extensive researcher or NGO supervision. The authors interpreted this as reflecting cumulative investments. If this is a common pattern, then the modest results from RCTs underestimate the full impact of CCT and UCT programs on nutrition.²

Carneiro et al. (2021) followed an RCT sample for 4 years from gestation. They found no significant difference between the effect size of HAZ at 2 years and that at 4 years; and the 5.6 percentage point reduction of stunting at midline was virtually unchanged at endline, well after the program had ceased. Thus, there was neither a measurable acceleration nor a depreciation of the initial impacts. The absolute difference in centimeters increased over time, but the effect size decreased. This reinforces a point regarding catch-up growth, that it may differ depending on whether one assesses it in terms of Z-scores or absolute differences (Leroy et al. 2015).

Cahyadi et al. (2020) found no impact on the probability of wasting, which is generally viewed as a short-run or acute measure. However, a cross-country regression that accounted for the seasonality of wasting (higher in the monsoon season in Asia and in the dry season in Africa) found an income elasticity for wasting of -0.71 (Headey and Ruel 2022). This result is similar to the cross-country fixed-effects regression results for stunting. Moreover, that study estimated that moderate and severe wasting was twice

as responsive to GNP changes (with an elasticity of 1.44), and that severe wasting alone was 3 times as responsive.

Another perspective on the impact of changes in income on anthropometric measures of nutrition comes from Buser et al. (2017). Using regression discontinuity following a revision of the poverty index and the resulting changes in eligibility for receipt of a cash transfer in Ecuador, they found that the impact of losing transfer eligibility on stunting was much greater than that of gaining it. This is interpreted in terms of income gains versus losses and is in keeping with the commonly noted consequences of economic shocks (see, for example, Maccini and Yang 2009). The observation may be relevant for adaptive safety nets addressing shocks, including COVID-19 (Bowen et al. 2020).

Ruel and Alderman (2013) showed that national obesity rates increased with income as fast as, or faster in proportional terms than, stunting declines. Hawkes et al. (2020) highlighted this as a risk of transfer programs. These observations are based primarily on cross-country evidence. There are relatively fewer RCT studies that have measured obesity as an outcome; generally, weight gain in pregnancy or changes in BMI are studied among populations where the downside risk is the primary outcome of concern. However, excessive weight gains have been found in populations of women receiving transfers in rural Mexico and in Guatemala (Leroy et al. 2013; Leroy et al. 2019).

3. THE COST OF AN ADEQUATE DIET AND THE ROLE OF PRICES

Recent reconsideration of the cost of a diet implies that the gap between what households can afford and what is needed for an adequate diet is larger than previously considered. Many indications of the impact of poverty and nutrition—from Reutlinger and Selowsky (1976) to the FAO's measure of undernourishment, which has been an indicator for the Millennium Development Goals and Sustainable Development Goals—have focused on calorie consumption, as have poverty lines derived from calorie adequacy (see also chapter 1). In contrast, the 2020 State of Food Security report (FAO 2020) analyzed the costs of three diets: calorie-adequate diets, diets that meet the required level of all essential nutrients, and diets that are nationally adapted to a country's cultural context through national food-based dietary guidelines.³

The cost of diets that are adequate in all nutrients was more than twice that of calorie-adequate diets that underpin poverty lines. Without even allowing for necessary nonfood expenditures, the cost of diets based on nutrient requirements exceeded the US\$1.90 international poverty line.

The cost of healthy diets based on national contexts was, in turn, double the cost of nutrient-adequate diets. Accordingly, although only 2.3 percent of the world's population cannot afford a calorie-sufficient diet, nearly 14 percent cannot afford a nutritionally adequate diet, and more than 30 percent cannot afford a healthy diet based on national recommended diets. While it is unlikely surprising that the share of Africa's population that cannot afford a nutritionally adequate diet (29.5 percent) is higher than the share in other regions, it is perhaps surprising that the region with the next highest share is Latin America, driven in part by the fifth of the Caribbean residents who are unable to afford a nutritionally adequate diet at local prices. Raghunathan et al. (2021) employed this

methodology to estimate that 63–76 percent of the rural poor in India could not afford a recommended diet in 2011.

This issue here is that calories are relatively cheap but foods that are good sources of nutrients often are not. While few safety nets, even those with in-kind distribution, influence the marginal prices of foods, price considerations are nevertheless relevant to the challenge of increasing the nutrition sensitivity of social protection. Headey and Alderman (2019) showed that the ratios of the prices of animal-sourced foods, including milk and eggs, to those of staples are higher in low-income countries compared to similar ratios in upper-income settings, while the ratios of the prices of sugar and fats to those of staples are not. Similarly, the prices of fruits and vegetables are relatively higher in low-income settings than in well-off countries. Thus, the poor pay more in relative terms for an adequate diet; price responsiveness shifts diets toward starchy staples.

4. THE PATHWAY FROM BEHAVIOR CHANGE TO IMPROVED NUTRITION

As illustrated in figure 3.1, safety nets can also influence nutritional outcomes by transforming behaviors. Strictly speaking, changes in price and incomes modify behaviors but many programs aim to reorient behaviors so that, at any given mix of prices and budgets, nutritional outcomes will be enhanced compared to the outcome at the same budget without the program focus. This can occur through two distinct channels. One is through changes in preferences. It is widely recognized that what are often termed as household budgetary preferences are in fact the interplay of individual preferences mediated by the dynamics of intra-household decision making. As mentioned, transfer programs often influence this dynamic.

Second, in addition to changes in preferences for investing in child health, safety net programs endeavor to enhance the ability of caregivers to use their resources more effectively. Programs often include subtle nudges and less subtle conditionalities—in effect, a form of price change—to shift behaviors. Furthermore, the nutrition sensitivity of transfer programs may be prompted by BCC. These programs communicate information about childcare and are discussed in the following section.

5. ENHANCING NUTRITION SENSITIVITY: IMPLICATIONS FOR PROGRAM DESIGN

Few studies are designed to rigorously distinguish implementation components from program features that contribute to program outcomes through a comparison of different modalities in the same trial setting. Such studies highlight particularly promising interventions among the heterogeneous evidence base.

Behavioral Change Communication (BCC)—that is, training on specific related childcare issues and hygiene—often is an element of nutrition-sensitive transfer programs, frequently, but not exclusively, in the form of conditions. Although the review by Olney et al. (2021) provides supporting evidence that BCC enhances nutritional impacts, BCC is by no means a sufficient condition for success. Of the 19 reviewed social protection

transfer programs with BCC components that measured stunting among young children, 36 percent had significant improvements, while only 1 of the 10 cash transfers without BCC had positive results.

Given that BCC is often an obligatory condition in a transfer program, it is difficult to measure the complementarity. Ideally, the specific role of BCC requires a program that distinguishes a pure transfer modality from a more nutritional orientation in the same environment. For example, Little et al. (2021) found only 6 studies—most with relatively wide confidence intervals on the risk of stunting—in which BCC had been added to a cash transfer. One study in that review, an RCT in Bangladesh, compared various combinations of cash and food transfers with and without BCC (Akhter et al. 2019). That study, the Transfer Modality Research Initiative (TMRI), implemented four arms plus a control group in two regions: a cash transfer; a food ration; a half-cash payment, half-food ration; and a cash transfer plus weekly group-based BCC.⁴ Although cash or food alone did not lead to statistically significant improvements in HAZ, the combination of cash and BCC in the north led to a 0.25 SD increase in HAZ⁵ among young children. The BCC cost approximately US\$100 per household over the 2-year program, that is, the BCC provision was 18 percent of the total program costs, including the US\$19 monthly transfer.

Similar results to TMRI, in which cash transfers plus BCC have had favorable impacts on nutrition when cash alone did not have a significant impact, were observed in neighboring Myanmar (Field and Maffioli 2021). In that study, the combination of interventions significantly reduced the proportion of stunted children, while cash alone had no impact on stunting. Moreover, only the cash-plus-BCC arm indicated improvements in childcare and diet quality, although both treatment arms increased calorie consumption relative to the control, with the increase larger in the cash-plus-BCC arm.

However, as it is apparent in much of the literature on transfer programs, context matters. In contrast to TMRI and the Myanmar study, an unconditional cash transfer in Pakistan that included BCC in one arm did not reduce stunting relative to cash alone (Soofi et al. 2021). Similarly, a trial in Niger that compared cash and cash-plus-BCC did not find impacts on anthropometry, although the cash-plus-BCC did have an impact on some indicators of child development that were not observed with cash alone (Premand and Barry 2020). Still, as with TMRI, the Niger study observed that the BCC-inclusive arm reoriented diverse food choices toward children.

Grellety et al. (2017) analyzed the combination of health services and cash, in which the control group received treatment for acute malnutrition and the treatment group received this service as well as a cash transfer. In this trial in the DRC, the provision of cash significantly improved the long-term recovery of the previously acutely malnourished children. On one level, however, it is debatable whether this intervention, together with some of the other programs that combine BCC and cash, should even be categorized as a social protection intervention or as a nutrition-specific health intervention that was coordinated with social protection administrators. Also, regarding the recovery from wasting, Manley et al. (this volume) note that, in regressions of outcomes on program characteristics, BCC was significantly associated with reductions in diarrheal disease.

Stress: It has been regularly shown that maternal stress as well as depression influence childcare and subsequent nutritional outcomes (Ozer et al. 2011; Surkan et al. 2011; Nguyen et al. 2018). Evidence is also accumulating that safety net programs can reduce stress (Baird et al. 2013; Haushofer et al. 2020; Ridley et al. 2020). Thus, it is logical that reducing stress is one pathway for nutrition-sensitive programs to achieve results. While this plausible path has not been directly elucidated in RCTs, at least one study takes this logic a step further. Baird et al. (2019) found that although many of the effects of a cash-transfer program for adolescents in Malawi dissipated after the payments were discontinued, the beneficiaries' children who were born during the program had higher HAZ outcomes, although the study cannot attribute this directly to the reduction in stress observed.

There are a number of questions as to what dimension of stress is more responsive to transfer programs. For example, Haushofer and Shaprio (2016) found that large transfers in Kenya reduced perceived stress as reported by the participants but had no effect on an objective measure of stress, cortisol levels. Nor are such results consistently noted; for example, smaller transfers in Zambia did not have the influence on perceived stress that was observed in either Kenya or Malawi (Hjelm et al. 2017).

Intimate partner violence (IPV) is both a consequence, and a cause, of stress. There is a growing body of evidence that cash transfers reduce the risk of IPV (Roy et al. 2019; Buller et al. 2018). Such evidence counters initial fears that targeting of support to women might increase this risk because of partners who may feel jealous or threatened. Similarly, earlier fears that cash transfers might increase alcohol consumption have been dismissed as evidence-free politically motivated canards (Evans and Popova 2017). Indeed, studies of IPV show that cash transfers can reduce alcohol-mediated violence (Buller et al. 2018). This, in turn, could plausibly promote resource allocation toward childcare (Rao 1998). Still, despite some evidence that the BCC in the TMRI project was a necessary component for the observed reduction in IPV, the literature on IPV, and on stress in general, has not yet highlighted complementary features that can enhance the role of stress reduction in nutrition-sensitive transfer programs.

Age targeting and duration. Virtually all programs with nutritional objectives include children under 2 years, and many also include pregnant women. How age influences the impact plausibly depends on both when a program begins and how long it runs. Larger impacts of transfers for children older than 2 years, as reported by Manley et al. (this volume), do not necessarily provide information useful for age targeting. That is, the age of the trial baseline does not always indicate the time that the child began to benefit from the transfers or any BCC offered to the care provider. However, it is difficult to assess whether entry or program duration is important for results in most trials because the two are hard to separate. Moreover, results can be biased downward in studies that are unable to capture the full evolution of cumulative contributions to child growth, which would be the expected result with regular transfers (Alderman and Headey 2018). Cahyadi et al. (2020) provide both an illustration of the cumulative nature of impacts as well as a discussion of the difficulty in designing a randomized trial that can provide evidence on this process.

A trial in Burundi with three alternative treatments plus a control was designed to explicitly assess the timing of individual supplements delivered in the context of in-kind family

transfers (Leroy et al. 2018). All treatments received individual rations and BCC, plus a family ration of additional corn-soy blend [CSB] and cooking oil that was twice as large as the allocation for pregnant women per month. The control group received neither CSB nor BCC. Stunting was lowest when the program ran for the 1,000 days from conception to the child's second birthday; next lowest if the benefits were distributed from pregnancy until the child was 18 months; and greatest for the group that received benefits only from birth until 24 months. All three of these treatment groups had significantly less stunting than the control, although the differences between treatments were not statistically significant. This study also investigated whether the BCC had impacts on caregiving and diet after the food rations had been discontinued and concluded that there were sustained changes in diets that benefited younger siblings.

A recent study confirmed that starting a cash transfer program before the child turns 4 has greater impact on nutrition than if started later (Sánchez et al. 2020). This study followed up an earlier investigation of the Juntos program in Peru that found significant impacts on the height of boys after the program was reoriented to focus on children younger than 36 months (Andersen et al. 2015). These results are consistent with the practice of prioritizing the youngest children that is widely supported by nutritionists, although this age targeting is a prioritization that is often not aligned with other motives for cash transfers.

In contrast to height-for-age and stunting, weight-for-height and wasting are not generally cumulative. The risk of wasting is generally highest before a child's first birthday (Victora et al. 2010). Thus, while it is unlikely to see a short-term improvement in height-for-age, it is possible that short-term transfer programs can affect weight-for-height. For example, Bliss et al. (2018) reported increased weight gain of over 1 kilogram per child in a three-month period when a CCT was included with community management of acute malnutrition in Niger. This may have implications for emergency programs or seasonal protective measures in a manner similar to that of the protective provision of ready-to-use therapeutic foods (Isanaka et al. 2009). However, most transfer programs are planned as more regular and sustained interventions. As indicated, in such cases, the trial period necessary for an RCT may underestimate the impact, for statistical as well as functional reasons.

A different issue to do with duration—one that also has a bearing on transfer amount—is the risk of the fading out of impacts on anthropometry after a short-term transfer program. Fenn et al. (2017) noted that improvements in weight-for-height observed at 6 months in a program of that duration were not present at 12 months, although reductions in stunting were present at both measurements. Similarly, although Saville et al. (2018) found that food supplements to pregnant women in Nepal increased birth weight while cash did not lead to significant improvements, neither treatment led to higher weight-for-age scores at endline when the children were 0–16 months. Arguably, the provision of food supplements during pregnancy is a nutrition-specific intervention, but the authors' conclusion that interventions need to be sustained past pregnancy is relevant to nutrition-sensitive social protection.⁶ Only the larger transfer had a significant impact on wasting. Trenouth et al. (2018) also included a fresh-food voucher program worth US\$14 per month. Although the voucher also reduced stunting prevalence (but not wasting), once the time costs to the households were included in the cost-effectiveness estimates, the voucher proved less cost-effective than the similarly sized

cash transfer. Moreover, the voucher had an unexpected deleterious effect on hemoglobin (Fenn et al. 2017).

In Rwanda, McIntosh and Zeitlin (2021) tested a lump-sum transfer of US\$124 relative to one of US\$517 and found that only the latter had had an impact on anthropometry after a year. Although the larger transfer exceeds the amount in some safety net programs, it is slightly smaller than the total provided in the US\$22-a-month transfer from pregnancy until a child's second birthday that Carneiro et al. (2021) studied. The study also found no difference between receiving a lump sum and receiving monthly transfers. McIntosh and Zeitlin also compared the smaller cash transfer to a similarly valued nutrition intervention, but because that intervention did not directly transfer budgets to the households, it is not directly comparable to most studies of in-kind transfers relative to cash. Moreover, although the study provides insights on a range of behaviors including savings and asset accumulation, the one-year duration, coupled with the fact that children were up to 6 years old at baseline, limits its implications for nutrition-sensitive cash transfers.

Aker et al. (2016) also showed the importance of considering the cost of program participation. They compared mobile money to direct cash distribution in Niger and found that the time savings from using mobile money contributed to a significantly higher diet diversity and meal frequency than observed with the direct cash program. This study did not have a naïve control without a transfer, so the results pertain to the relative value of different modalities of delivery. Extrapolating well outside of anything discussed in Aker et al., the time obligations of participation in public works as well as CCTs and even UCTs may be a barrier to caregiving. Reducing such costs may increase program nutritional impacts.

Does in-kind distribution still have a niche? Although there is a clear trend toward cash distribution in social protection programs, in-kind distribution programs have not disappeared (Alderman et al. 2017). They have the potential to provide fortification with more precise targeting than voluntary programs, or even indifferently implemented mandatory fortification regulations. India's Public Distribution System (PDS), the largest in-kind safety net in the world, has a wide range of pilots and pipeline project for fortification of oil, salt, wheat flour and extruder rice (FSSAI 2021). There are, however, few assessments of its implementation to date. Fiedler et al. (2012) studied a program in the PDS in Gujarat, India that, in parallel with fortification of foods for children in the Integrated Child Development Service, reduced inadequate iron intake by 94 percent. The program, however, was discontinued. This was due to a combination of claims of low-quality flour and opposition from private mill owners. The latter had been milling the grain provided to the PDS beneficiaries in small batches and would lose this business if the PDS shifted to the provision of centralized milled and fortified flour instead of grain. Moreover, although the central government subsidized the grain distributed to the PDS, the cost of milling was the responsibility of the state, creating a clear disincentive for local flour provision. Makkar et al. (2022) modeled the potential effectiveness of double-fortified salt distributed through the PDS. The World Bank (2022) has made a similar argument for fortified rice. Neither of the studies, however, has direct causal evidence.

Cunha (2014) found that most of the 10 commodities in an in-kind distribution program in Mexico that was implemented in areas where the PROGRESA cash transfer program was not available substituted for similar goods that would otherwise have been purchased. But because the milk powder distributed was fortified with iron and zinc, the program increased micronutrient consumption. Moreover, a follow-up study indicated that cash transfers in the more remote villages of that sample of relatively inaccessible communities led to higher prices. Similarly, Filmer et al. (2021) found that a cash transfer that had a favorable impact on severe stunting in the treatment group led to increased stunting in non-beneficiaries because it raised the prices of perishable foods.

In-kind distribution and coupon programs can coexist with cash transfer programs. For example, although the flagship of Mexico's program is a well-known (and regularly re-branded) cash grant, Mexico also subsidizes the distribution of milk that is fortified in the Liconsa program (De la Cruz-Góngora et al. 2019). Similarly, the United States maintains the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) with an overlap with the electronic benefit program (formerly food stamps), the Supplemental Nutrition Assistance Program (SNAP). WIC targets pregnant and lactating women and children under 4 and supplies participants with a free bundle of foods deemed particularly important for the nutrition of the target population. Both WIC and SNAP have been reformed several times—for example, SNAP now allows beneficiaries to redeem their allocations at farmers' markets—and have been regularly evaluated with favorable impacts on nutrition (Hoynes et al. 2016; Hoynes et al. 2011).

By offering only a restricted list of nutritious foods WIC addresses a nutritional shortcoming of SNAP; the SNAP program does not limit purchases of unhealthful foods such as sugary beverages or high-sugar or high-fat foods, although this has been advocated. Still, coupons or food stamp programs may be formulated with such goals. For example, Indonesia replaced an inframarginal in-kind rice distribution program with an electronic food voucher program that initially permitted the purchase of eggs and rice, with a measurable increase in the consumption of the former (Banerjee et al. 2021). Subsequently, a wider variety of foods were included but even then the only processed foods included were tofu and tempeh, both of which are high-protein sources.

A range of program that combine family-based cash transfers or in-kind support in combination with specific targeted food supplements for child and pregnant women balance nutrition objectives with broader social protection aims. For example, although overall eligibility in PROGRESA was not associated with improved nutritional status, Behrman and Hoddinott (2005) found that after controlling for unobserved heterogeneity correlated with actual access to the program's supplementary food 12- to 36-month-old children who received the supplements had a significant positive and substantial reduction in stunting. The reduction was greatest among the poorest families that had a functionally literate woman present. Similarly, Ramírez-Silva et al. (2013) observed that increased micronutrient intake in PROGRESA'S successor, Oportunidades, was attributable to the supplemental foods, rather than any other changes in household food intake.

A few trials have been designed to explicitly test such mixed strategies. For example, Langendorf et al. (2014) compared various combinations of cash and supplements during the six-month hungry season in Niger and found that combining supplementary food and cash had a larger impact on weight-for-length or mid-upper arm circumference than cash or supplementary food alone. Soofi et al. (2021) looked at an unconditional cash transfer program that had no other features, a second program that combined the transfer with lipid-based nutrient supplements (LNSs),⁷ another that combined the transfer with BCC, and a fourth that combined both LNSs and BCC with cash. The comparisons therefore were between modes of program design and not with a naïve sample. The two arms that provided LNSs reduced the risk of stunting more than cash alone. The arm with BCC and cash did not, however, differ from cash alone, nor did cash plus both BCC and LNS differ from cash plus LNS. In this trial, LNS but not BCC increased the nutritional impact of the transfer.

Similarly, an RCT in Guatemala with five treatment arms as well as a control (Olney et al. 2018) explored the type of food rations that would most effectively support nutritional objectives. Family-based rations of different sizes providing corn, beans, and oil were combined with either individual distributions of corn-soy blended supplements, micro-nutrient powders, or LNSs. Heckert et al. (2020) assessed the cost-effectiveness of these treatment arms. The arm with the lowest cost per percentage point reduction in stunting was the one that provided the full-size family ration with an individual ration of CSB or micronutrient powder. Reducing family ration size lowered costs but failed to reduce stunting. The arm with no family ration (combined with individual corn-soy blend) was not significantly different from the control.

The Burundi and Niger trials, like the Guatemala study of Leroy et al. (2018), or the investigation of Grellety et al. (2017) in DRC, can be described as nutrition-specific interventions that include family support, or equally be considered nutrition-sensitive social protection programs. Nevertheless, the comparison of alternative treatment modes provides insights applicable to both types of programs.

School programs. To the degree that school-feeding programs are an in-kind transfer to households, they can influence nutritional status in the same manner that other transfers do. This income effect may not be easily measurable in school-aged children for a combination of reasons: i) the overall value of a school meal program in low-income countries is only around US\$5 per pupil per month on an annualized basis (WFP 2020); ii) income response for nutrition is, as discussed above, moderate; and iii) few studies have looked at children at ages where their growth velocity is highest. The income effect of the implicit transfer in schools may, however, affect the nutrition of these students' younger siblings (Kazianga et al. 2013).

There is evidence that the rollout of a midday school meal program in India contributed to a decline in stunting among the children of mothers who were school aged when the program was introduced in their district (Chakrabarti et al. 2021). This appears to be a result of the well-known contribution of maternal education and the ability of school meal programs to encourage girls' enrollment. Thus, it does not reflect any specific design features aimed at improving nutrition sensitivity.

Glewwe (1999) contends that while education enables caregivers to obtain nutrition knowledge that leads to favorable outcomes, this knowledge is acquired outside the classroom as a result of the women’s literacy and numeracy. However, schools often include nutrition education in their curricula, generally concerning healthy diets for students rather than designed for imparting child-caregiving skills. Schools can also be platforms for exercise programs, periodic health checkups, deworming and meal supplementation—all of which are valuable for health promotion (Bundy et al. 2018) but none of which are strongly tied to the provision of daily meals or take-home rations *per se*.

Nevertheless, school meal programs may reorient students’ menu choices toward fresh fruits and vegetables, part of a strategy to address trends in obesity, particularly for adolescents, rather than prevent or reduce stunting. In other programs where undernutrition is still a problem, meal programs may benefit by including eggs in school meals (Drèze 2019). Another way nutrition sensitivity can be enhanced is to include fortified foods in the menu or as take-home rations. Two-thirds of all school meal programs in the world in 2019 included some fortified foods (Global Child Nutrition Foundation 2021).⁸ Iron fortification in schools has reduced anemia rates in Bangladesh, Ghana, and India (Adams et al. 2017, Adelman et al. 2019, Mahapatra et al. 2021). Biofortification of beans, lentils, and pearl millet are also potential additions to a nutrition-sensitive school meal aimed at reducing anemia.

6. A FINAL NOTE ON THE ASSESSMENT OF NUTRITION-SENSITIVE SOCIAL PROTECTION PROGRAMS

Transfers have multiple goals. They seek both to address current consumption poverty and to facilitate investments that will reduce future poverty (Das et al. 2005). The twin objectives of equity and efficiency are a drawback for economic analysis as they are not assessed using the same metric. It is unlikely that transfer programs are cost-effective on a single dimension relative to specific sectoral investments in nutrition. Similarly, as shown in Trenouth et al. (2018), increasing transfer size can reduce the apparent cost-effectiveness of delivering nutritional impacts. However, the full impact on beneficiaries’ welfare cannot be assessed from a single-dimensional cost-effectiveness ranking. Nevertheless, the examples of complementarity discussed here indicate that addressing current poverty can also make investments in nutrition more effective.

REFERENCES

- Adams, Alayne M., Rushdia Ahmed, A.H.M. Mahbub Latif, Sabrina Rasheed, Sumon Kumar Das, Enamul Hasib, Fahmida Dil Farzana, et al. 2017. "Impact of fortified biscuits on micronutrient deficiencies among primary school children in Bangladesh," *PloS One* 12(4). Doi: 10.1371/Journal.pone.0174673.
- Adelman, Sarah, Daniel O. Gilligan, Joseph Konde-Lule, and Harold Alderman. 2019. "School feeding reduces anemia prevalence in adolescent girls and other vulnerable household members in a cluster randomized controlled trial in Uganda." *The Journal of Nutrition* 149(4): 659–666. Doi: <https://doi.org/10.1093/jn/nxy305>.
- Adubra, Laura, Agnes Le Port, Yves Kameli, Sonia Fortin, Tanimoune Mahamadou, Marie T Ruel, Yves Martin-Prevel, and Mathilde Savy. 2019. "Conditional cash transfer and/or lipid-based nutrient supplement targeting the first 1000 d of life increased attendance at preventive care services but did not improve linear growth in young children in rural Mali: Results of a cluster-randomized controlled trial." *American Journal of Clinical Nutrition* 110(6): 1476–90. Doi: 10.1093/ajcn/nqz238.
- Ahmed, Akhter, John Hoddinott, and Shalini Roy. 2019. "Food transfers, cash transfers, behavior change communication and child nutrition: Evidence from Bangladesh." Discussion Paper 1868. Washington, DC: International Food Policy Research Institute (IFPRI). Doi: <https://doi.org/10.2499/p15738coll2.133420>.
- Aker, Jenny C., Rachid Boumnijel, Amanda McClelland, and Niall Tierney. 2016. "Payment mechanisms and antipoverty programs: Evidence from a mobile money cash transfer experiment in Niger." *Economic Development and Cultural Change* 65(1): 1–37. Doi: <https://doi.org/10.1086/687578>.
- Akresh, Richard, Damien De Walque, and Harounan Kazianga. 2016. "Evidence from a randomized evaluation of the household welfare impacts of conditional and unconditional cash transfers given to mothers or fathers." World Bank Policy Working Paper #7730. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/24647>.
- Alderman, Harold, Sophie Hawkesworth, Mattias Lundberg, Afia Tasneem, Henry Mark, and Sophie E. Moore. 2014. "Supplemental feeding during pregnancy compared with maternal supplementation during lactation does not affect schooling and cognitive development through late adolescence." *American Journal of Clinical Nutrition* 99(1): 122–129. Doi: <https://doi.org/10.3945/ajcn.113.063404>.
- Alderman, Harold, Ugo Gentilini and Ruslan Yemtsov, eds. 2017. *The 1.5 Billion People Question: Food, Vouchers, or Cash Transfers?* Washington, DC: World Bank. doi: 10.1596/978-1-4648-1087-9; <https://www.worldbank.org/en/topic/safetynets/publication/food-vouchers-or-cash-transfers>.
- Alderman, Harold. 2015. "Leveraging social protection programs for improved nutrition: Summary of evidence prepared for the global forum on nutrition-sensitive social protection programs, 2015." Doi: <https://doi.org/10.1596/24450>.
- Alderman, Harold and Derek Headey. 2018. "The timing of growth faltering has important implications for observational analyses of the underlying determinants of nutrition outcomes." *PloS One* 13(4): Apr 25. <https://doi.org/10.1371/journal.pone.0195904>.
- Andersen, Christopher, Sarah A. Reynolds, Jere R. Behrman, Benjamin T. Crookston, Kirk A. Dearden, Javier Escobal, Subha Mani, Alan Sánchez, Aryeh D. Stein, and Lia C. H. Fernald. 2015. "Participation in the Juntos Conditional Cash Transfer Program in Peru Is Associated with Changes in Child Anthropometric Status but Not Language Development or School Achievement." *Journal of Nutrition* 145 (10): 2396–2405. Doi: 10.3945/jn.115.213546.

- Armand, Alex, Orazio Attanasio, Pedro Manuel Carneiro, and Valérie Lechene. 2016. "The Effect of Gender-Targeted Conditional Cash Transfers on Household Expenditures: Evidence from a Randomized Experiment." Cemap Working Paper No. CWP33/18. London: Centre for Microdata Methods and Practice. <https://doi.org/10.1093/ej/ueaa056>.
- Attanasio, Orazio P., and Valérie Lechene. 2014. "Efficient responses to targeted cash transfers." *Journal of political Economy* 122(1): 178–222.
- Baird, Sarah, Craig McIntosh, and Berk Özler. 2019. "When the Money Runs Out: Do Cash Transfers have Sustained Effects on Human Capital Accumulation?" *Journal of Development Economics* 140: 169–185. <https://openknowledge.worldbank.org/handle/10986/25705>.
- Baird, Sarah, Jacobus De Hoop, and Berk Özler. 2013. "Income shocks and adolescent mental health." *Journal of Human Resources* 48(2): 370–403.
- Banerjee, Abhijit, Rema Hanna, Benjamin A. Olken, Elan Satriawan, and Sudarno Sumarto. 2021. "Food vs. Food Stamps: Evidence from an At-Scale Experiment in Indonesia." Working Paper No. w28641. National Bureau of Economic Research (NBER). <https://www.nber.org/papers/w28641>.
- Banerjee, Abhijit V., Rema Hanna, Gabriel E. Kreindler, and Benjamin A. Olken. 2017. "Debunking the Stereotype of the Lazy Welfare Recipient: Evidence from Cash Transfer Programs." *World Bank Research Observer* 32(2): 155–184. <https://doi.org/10.1093/wbro/lkx002>.
- Behrman, Jere R., and John Hoddinott. 2005. "Programme Evaluation with Unobserved Heterogeneity and Selective Implementation: The Mexican PROGRESA Impact on Child Nutrition." *Oxford Bulletin of Economics & Statistics* 67(4): 547–69. Doi: 10.2139/ssrn.306121.
- Bhutta, Zulfiqar A., Jai K. Das, Arjumand Rizvi, Michelle F. Gaffey, Neff Walker, Susan Horton, Patrick Webb, Anna Lartey, and Robert E. Black. 2013. "Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?" *The Lancet* 382(9890): 452–477. Doi: [https://doi.org/10.1016/S0140-6736\(13\)60996-4](https://doi.org/10.1016/S0140-6736(13)60996-4).
- Bhutta, Zulfiqar A., Nadia Akseer, Emily C. Keats, Tyler Vaivada, Shawn Baker, Susan E. Horton, Joanne Katz, Purnima Menon, Ellen Piwoz, Meera Shekar, Cesar Victora, and Robert Black. 2020. "How countries can reduce child stunting at scale: lessons from exemplar countries." *The American Journal of Clinical Nutrition* 112(Supplement 2): 894S-904S. doi: <https://doi.org/10.1093/ajcn/nqaa153>.
- Black, Robert E., Cesar G. Victora, Susan P. Walker, Zulfiqar A. Bhutta, Parul Christian, Mercedes De Onis, Majid Ezzati, Sally Grantham-McGregor, Joanne Katz, Reynaldo Martorell, Ricardo Uauy, and the Maternal and Child Nutrition Study Group. 2013. "Maternal and child undernutrition and overweight in low-income and middle-income countries." *The Lancet* 382(9890): 427–451. Doi: [https://doi.org/10.1016/S0140-6736\(13\)60937-X](https://doi.org/10.1016/S0140-6736(13)60937-X).
- Bliss, Jessica, Kate Golden, Leila Bourahla, Rebecca Stoltzfus, and David Pelletier. 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): 010410. Doi: 10.7189/jogh.08.010410.
- Bowen, Thomas, Carlo Del Ninno, Colin Andrews, Sarah Coll-Black, Kelly Johnson, Yasuhiro Kawasoe, Adea Kryeziu, Barry Maher, and Asha Williams. 2020. *Adaptive Social Protection: Building Resilience to Shocks*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/33785>.
- Briaux, Justine, Yves Martin-Prevel, Sophie Carles, Sonia Fortin, Yves Kameli, Laura Adubra, Andréa Renk, Yawavi Agboka, Magali Romedenne, Félicité Mukantambara, John Van Dyck, Joachim Boko, Renaud Becquet, and Mathilde Savy. 2020. "Evaluation of an unconditional cash transfer program targeting children's first-1,000-days linear growth in rural Togo: A cluster-randomized controlled trial." *PloS Medicine* 17(11): doi: <https://doi.org/10.1371/journal.pmed.1003388>.

- Buller, Ana Maria, Amber Peterman, Meghna Ranganathan, Alexandra Bleile, Melissa Hidrobo, and Lori Heise. 2018. "A Mixed-Method Review of Cash Transfers and Intimate Partner Violence in Low-and Middle-Income Countries." *World Bank Research Observer* 33(2): 218–258. Doi: <https://openknowledge.worldbank.org/handle/10986/33274>.
- Bundy, Donald AP, Nilanthi de Silva, Susan Horton, George C. Patton, Linda Schultz, Dean T. Jamison. 2018. "Investment in child and adolescent health and development: key messages from Disease Control Priorities, 3rd Edition." *The Lancet* 391(10121): 687–699. Doi: [https://doi.org/10.1016/S0140-6736\(17\)32417-0](https://doi.org/10.1016/S0140-6736(17)32417-0).
- Buser, Thomas, Hessel Oosterbeek, Erik Plug, Juan Ponce, and José Rosero. 2017. "The Impact of Positive and Negative Income Changes on the Height and Weight of Young Children." *World Bank Economic Review* 31(3): 786–808. <https://doi.org/10.1093/wber/lhw004>.
- Cahyadi, Nur, Rema Hanna, Benjamin A. Olken, Rizal Adi Prima, Elan Satriawan, and Ekki Syamsulhakim. 2020. "Cumulative Impacts of Conditional Cash Transfer programs: Experimental Evidence from Indonesia." *American Economic Journal: Economic Policy* 12(4): 88–110. Doi: 10.1257/pol.20190245.
- Carneiro, Pedro Manuel, Lucy Kraftman, Giacomo Mason, Lucie Moore, Imran Rasul, and Molly Scott. 2021. "The Impacts of a Multifaceted Pre-Natal Intervention on Human Capital Accumulation in Early Life." *American Economic Review* 111(8): 2506–2549. <http://ftp.iza.org/dp13955.pdf>.
- Chakrabarti, Suman, Samuel Scott, Harold Alderman, Purnima Menon, and Daniel Gilligan. 2021. "Intergenerational nutrition benefits of India's national school feeding program." *Nature Communications*. 12(1): 1–10. Doi: <https://doi.org/10.1038/s41467-021-24433-w>.
- Cunha, Jesse M., Giacomo De Giorgi, and Seema Jayachandran. 2019. "The price effects of cash versus in-kind transfers." *The Review of Economic Studies* 86(1), 240–281. Doi: <https://doi.org/10.1093/restud/rdy018>.
- Das, Jishnu, Quy-Toan Do and Berk Özler. 2005. "Reassessing Conditional Cash Transfer Programs." *World Bank Research Observer* 20(1): 57–80. <https://doi.org/10.1093/wbro/lki005>.
- de Groot, Richard, Jennifer Yablonski, and Elsa Valli. 2022. "The impact of cash and health insurance on child nutrition during the first 1000 days: Evidence from Ghana." *Food Policy* 107: 102217. Doi: <https://doi.org/10.1016/j.foodpol.2021.102217>.
- De Groot, Richard, Tia Palermo, Sudhanshu Handa, Luigi Peter Ragno, and Amber Peterman. 2017. "Cash transfers and child nutrition: pathways and impacts." *Development Policy Review* 35(5): 621–643. Doi: <https://doi.org/10.1111/dpr.12255>.
- De la Cruz-Góngora, Vanessa, Brenda Martínez-Tapia, Lucía Cuevas-Nasu, Eduardo Rangel-Baltazar, María Concepción Medina-Zacarías, Armando García-Guerra, Salvador Villalpando, Rosario Rebollar, and Teresa Shamah-Levy. 2019. "Anemia, deficiencias de zinc y hierro, eature de suplementos y morbilidad en niños mexicanos de 1 a 4 años: resultados de la Ensanut 100k." *Salud Pública de México* 61(6): 821–832. Doi: <https://doi.org/10.21149/10557>.
- Dewey, Kathryn G., K. Ryan Wessells, Charles D. Arnold, Elizabeth L. Prado, Souheila Abbeddou, Seth Adu-Afarwuah, Hasmot Ali et al. 2021. "Characteristics that modify the effect of small-quantity lipid-based nutrient supplementation on child growth: an individual participant data meta-analysis of randomized controlled trials." *American Journal of Clinical Nutrition* 114(Suppl. 1):15S-42S. doi: 10.1093/ajcn/nqab278.
- Drèze, Jean. 2019. *Sense and Solidarity: Jholawala Economics for Everyone*. Oxford: Oxford University Press. Doi: 10.1093/oso/9780198833468.001.0001.
- Evans, David K., and Anna Popova. 2017. "Cash transfers and temptation goods." *Economic Development and Cultural Change* 65(2): 189–221. Doi: <https://doi.org/10.1086/689575>.
- FAO. 2020. *The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets*. Rome: Food and Agriculture Organization (FAO).

- Fenn, Bridget, Tim Colbourn, Carmel Dolan, Silke Pietzsch, Murtaza Sangrasi, and Jeremy Shoham. 2017. "Impact evaluation of different cash-based intervention modalities on child and maternal nutritional status in Sindh Province, Pakistan, at 6 mo and at 1 y: A cluster eatureed controlled trial." *PloS Medicine* 14(5): e1002305. Doi: <https://doi.org/10.1371/journal.pmed.1002305>.
- Fiedler, John L., Sunil Babu, Marc-Francois Smitz, Keith Lividini, and Odilia Bermudez. 2012. "Indian Social Safety-Net Programs as Platforms for Introducing Wheat Flour Fortification: A Case Study of Gujarat, India." *Food and Nutrition Bulletin* 33(1): 11–30. Doi: [10.1177/156482651203300102](https://doi.org/10.1177/156482651203300102).
- Field, Erica M., and Elisa M. Maffioli. 2021. "Are behavioral change interventions needed to make cash transfer programs work for children? Experimental evidence from Myanmar." Working Paper no. 28443. National Bureau of Economic Research. doi: [10.3386/w28443](https://doi.org/10.3386/w28443).
- Filmer, D., Jed Friedman, Eeshani Kandpal, and Junko Onishi. 2021. "Cash Transfers, Food Prices, and Nutrition Impacts on Ineligible Children." *Review of Economics and Statistics*, 1–45. Doi: [10.1162/rest_a_01061](https://doi.org/10.1162/rest_a_01061).
- Filmer, Deon, and Norbert Schady. 2011. "Does More Cash in Conditional Cash Transfer Programs Always Lead to Larger Impacts on School Attendance?" *Journal of Development Economics* 96(1): 150–157. Doi: <http://dx.doi.org/10.1016/j.jdeveco.2010.05.006>.
- FSSAI. "Safety Net Programs." Integrated Child Development Services (ICDS) website. Food Safety and Standard Authority of India. <https://ffrc.fssai.gov.in/snp>.
- Glewwe, Paul. 1999. "Why does mother's schooling raise child health in developing countries? Evidence from Morocco." *Journal of Human Resources* 34(1): 124–159. <https://doi.org/10.2307/146305>.
- Grellety, Emmanuel, Pélagie Babakazo, Amina Bangana, Gustave Mwamba, Ines Lezama, Noël Marie Zagre, and Eric-Alain Ategbo. 2017. "Effects of unconditional cash transfers on the outcome of treatment for severe acute malnutrition (SAM): a cluster-randomised trial in the Democratic Republic of the Congo." *BMC Medicine* 15(1): 1–19. Doi: [10.1186/s12916-017-0848-y](https://doi.org/10.1186/s12916-017-0848-y).
- Haddad, Lawrence, Harold Alderman, Simon Appleton, Lina Song, and Yisehac Yohannes. 2003. "Reducing Child Malnutrition: How Far Does Income Growth Take Us?" *World Bank Economic Review* 17(1): 107–131. <https://openknowledge.worldbank.org/handle/10986/17172>.
- Hastings, Justine, and Jesse M. Shapiro. 2018. "How are SNAP Benefits Spent? Evidence from a Retail Panel." *American Economic Review* 108(12): 3493–3540. Doi: [10.1257/aer.20170866](https://doi.org/10.1257/aer.20170866).
- Haushofer, Johannes, and Jeremy Shapiro. 2016. "The Short-term Impact of Unconditional Cash Transfers to the Poor: Experimental Evidence from Kenya." *The Quarterly Journal of Economics* 131(4): 1973–2042. Doi: <https://doi.org/10.1093/qje/qjx039>.
- Haushofer, Johannes, Robert Mudida, and Jeremy P. Shapiro. 2020. "The Comparative Impact of Cash Transfers and a Psychotherapy Program on Psychological and Economic Well-being." NBER Working Paper no. 28106. National Bureau of Economic Research. doi: [10.3386/w28106](https://doi.org/10.3386/w28106).
- Hawkes, Corinna, Marie T. Ruel, Leah Salm, Bryony Sinclair, and Francesco Branca. 2020. "Double-duty actions: seizing programme and policy opportunities to address malnutrition in all its forms." *The Lancet* 395(10218): 142–155. Doi: [https://doi.org/10.1016/S0140-6736\(19\)32506-1](https://doi.org/10.1016/S0140-6736(19)32506-1).
- Headey, Derek D., and Marie T. Ruel. 2022. "Economic shocks predict increases in child wasting prevalence." *Nature Communications* 13(1): 2157. Doi: <https://doi.org/10.1038/s41467-022-29755-x>.
- Headey, Derek D. and Harold H. Alderman. 2019. "The Relative Caloric Prices of Healthy and Unhealthy Foods Differ Systematically across Income Levels and Continents." *The Journal of Nutrition* 149(11): 2020–2033. Doi: <https://doi.org/10.1093/jn/nxz158>.

- Heckert, Jessica, Jef L. Leroy, Deanna K. Olney, Susan Richter, Elyse Iruhiriye, and Marie T. Ruel. 2020. "The cost of improving nutritional outcomes through food-assisted maternal and child health and nutrition programmes in Burundi and Guatemala." *Maternal and Child Nutrition* 16(1): e12863. Doi: 10.1111/mcn.12863.
- Herforth, Anna, Yan Bai, Aishwarya Venkat, Kristi Mahrt, Alissa Ebel, and William A. Masters. 2020. *Cost and affordability of healthy diets across and within countries: Background paper for The State of Food Security and Nutrition in the World 2020*. Agricultural Development Economics Technical Study no. 9. vol. 9. Food and Agriculture Organization (FAO). Doi: <https://doi.org/10.4060/cb2431en>.
- Hjelm, Lisa, Sudhanshu Handa, Jacobus de Hoop, Tia Palermo, Zambia CGP and MCP Evaluation Teams. 2017. "Poverty and perceived stress: Evidence from two unconditional cash transfer programs in Zambia." *Social Science and Medicine* 177: 110–117. Doi: <https://doi.org/10.1016/j.socscimed.2017.01.023>.
- Hoynes, Hilary, Diane Whitmore Schanzenbach, and Douglas Almond. 2016. "Long-run impacts of childhood access to the safety net." *American Economic Review* 106(4): 903–34. Doi: 10.1257/aer.20130375.
- Hoynes, Hilary, Marianne Page, and Ann Huff Stevens. 2011. "Can targeted transfers improve birth outcomes? Evidence from the introduction of the WIC program." *Journal of Public Economics* 95(7–8): 813–827. Doi: <https://doi.org/10.1016/j.jpubeco.2010.12.006>.
- Isanaka, Sheila, Nohelly Nombela, Ali Djibo, Marie Poupard, Dominique Van Beckhoven, Valérie Gaboulaud, et al. 2009. "Effect of preventive supplementation with ready-to-use therapeutic food on the nutritional status, mortality, and morbidity of children aged 6 to 60 months in Niger: a cluster randomized trial." *Jama* 301(3): 277–285. Doi: 10.1001/jama.2008.1018.
- Kazianga, Harounan, Damien de Walque and Harold Alderman. 2014. "School Feeding Programs, Intrahousehold Allocation and the Nutrition of Siblings: Evidence from a Randomized Trial in Rural Burkina Faso." *Journal of Development Economics* 106: 15–34. Doi: 10.1016/j.jdeveco.2013.08.007.
- Keats, Emily C., Jai K. Das, Rehana A. Salam, Zohra S. Lassi, Aamer Imdad, Robert E. Black, and Zulfiqar A. Bhutta. 2021. "Effective interventions to address maternal and child malnutrition: an update of the evidence." *The Lancet Child and Adolescent Health* 5(5): 376–384. Doi: 10.1016/S2352-4642(20)30274-1.
- Langendorf, Céline, Thomas Roederer, Saskia de Pee, Denise Brown, Stéphane Doyon, Abdoul-Aziz Mamaty, Lynda W-M. Touré, et al. 2014. "Preventing acute malnutrition among young children in crises: a prospective intervention study in Niger." *PLoS Medicine* 11(9): e1001714. Doi: 10.1371/journal.pmed.1001714.
- Leroy, Jef L., Bastien Koch, Shalini Roy, Daniel Gilligan, and Marie Ruel. 2021. "Social assistance programs and birth outcomes: a systematic review and assessment of nutrition and health pathways." *The Journal of Nutrition* 151(12): 3841–3855. Doi: <https://doi.org/10.1093/jn/nxab292>.
- Leroy, Jef L., Deanna K. Olney, and Marie T. Ruel. 2019. "PROCOMIDA, a food-assisted maternal and child health and nutrition program, contributes to postpartum weight retention in Guatemala: a cluster-randomized controlled intervention trial." *The Journal of Nutrition* 149(12): 2219–2227. Doi: 10.1093/jn/nxz175.
- Leroy, Jef L., Deanna K. Olney, Lilia Bliznashka, and Marie T. Ruel. 2020. "Tubaramure, a Food-Assisted Maternal and Child Health and Nutrition Program in Burundi, Increased Household Food Security and Energy and Micronutrient Consumption, and Maternal and Child Dietary Diversity: A Cluster-Randomized Controlled Trial." *The Journal of Nutrition* 150(4): 945–957. <https://doi.org/10.1093/jn/nxz295>.

- Leroy, Jef L., Deanna Olney, and Marie Ruel. "Tubaramure, a food-assisted integrated health and nutrition program, reduces child stunting in Burundi: a cluster-randomized controlled intervention trial." *The Journal of Nutrition* 148, no. 3 (2018): 445–452.
- Leroy, Jef L., Marie Ruel, Jean-Pierre Habicht, and Edward A. Frongillo. 2015. "Using height-for-age differences (HAD) instead of height-for-age z-scores (HAZ) for the meaningful measurement of population-level catch-up in linear growth in children less than 5 years of age." *BMC Pediatrics* 15(1): 1–11. Doi: 10.1186/s12887-015-0458-9.
- Leroy, Jef L., Paola Gadsden, Teresa González de Cossío, and Paul Gertler. 2013. "Cash and in-kind transfers lead to excess weight gain in a population of women with a high prevalence of overweight in rural Mexico." *The Journal of Nutrition* 143(3): 378–383. Doi: 10.3945/jn.112.167627.
- Lipton, Michael. 1983. *Poverty, Undernutrition, and Hunger*. World Bank Staff Working Paper no. 597. Washington, DC: World Bank.
- Little, Madison T., Keetie Roelen, Brittany CL Lange, Janina I. Steinert, Alexa R. Yakubovich, Lucie Cluver, and David K. Humphreys. "Effectiveness of cash-plus programmes on early childhood outcomes compared to cash transfers alone: A systematic review and meta-analysis in low-and middle-income countries." *PloS Medicine* 18(9): 2021: e1003698. Doi: <https://doi.org/10.1371/journal.pmed.1003698>.
- Maccini, Sharon and Dean Yang. 2009. "Under the Weather: Health, Schooling, and Economic Consequences of Early-Life Rainfall." *American Economic Review*. June 99(3): 1006–26. Doi: 10.1257/aer.99.3.1006.
- Mahapatra, Sudip, Megan E. Parker, Niraj Dave, Stephanie C. Zobrist, Danie Shajie Arul, Allie King, Arvind Betigeri, et al. 2021. "Micronutrient-fortified rice improves haemoglobin, anaemia prevalence and cognitive performance among schoolchildren in Gujarat, India: a case-control study." *International Journal of Food Sciences and Nutrition* 72(5): 690–703. Doi: 10.1080/09637486.2020.1855126.
- Makkar, Sanchit, Sumedha Minocha, Kishor Govinda Bhat, Anjaly Teresa John, Sumathi Swaminathan, Tinku Thomas, M.G. Venkatesh Mannar, et al. 2022. "Iron Fortification through Universal Distribution of Double-Fortified Salt Can Increase Wages and Be Cost-Effective: An Ex-Ante Modeling Study in India." *The Journal of Nutrition* 152(2): 597–611. Doi: <https://doi.org/10.1093/jn/nxab378>.
- Manley, James, Harold Alderman, and Ugo Gentilini. 2022. "Evidence on Cash Transfers and Child Nutritional Outcomes: A Systematic Review and Meta-Analysis." This volume.
- Manley, James, Harold Alderman, and Ugo Gentilini. 2022. "More Evidence on Cash Transfers and Child Nutritional Outcomes: A Systematic Review and Meta-Analysis." *BMJ Global Health* 7(4): e008233. doi: <http://dx.doi.org/10.1136/bmjgh-2021-008233>.
- Manley, James, Seth Gitter, and Vanya Slavchevska. 2013. "How Effective are Cash Transfers at Improving Nutritional Status?" *World Development* 48: 133–55. Doi: <https://doi.org/10.1016/j.worlddev.2013.03.010>.
- McIntosh, Craig, and Andrew Zeitlin. 2021. "Cash versus Kind: Benchmarking a Child Nutrition Program against Unconditional Cash Transfers in Rwanda." arXiv preprint arXiv:2106.00213. doi: <https://doi.org/10.48550/arXiv.2106.00213>.
- Nguyen, Phuong Hong, Jed Friedman, Mohini Kak, Purnima Menon and Harold Alderman. 2018. "Maternal depressive symptoms are negatively associated with child growth and development: Evidence from rural India." *Maternal and Child Nutrition* 14(4). Doi: <https://doi.org/10.1111/mcn.12621>.

- Olney, Deanna, Aulo Gelli, Neha Kumar, Harold Alderman, Ara Go, Ahmed Raza, Jessica Owens, et al. 2021. "Nutrition-sensitive social protection programs within food systems." IFPRI Discussion Paper 2044. Washington, DC: IFPRI. Doi: <https://doi.org/10.2499/p15738coll2.134593>.
- Olney, Deanna K., Jef Leroy, Lilia Bliznashka, and Marie T. Ruel. 2018. "PROCOMIDA, a food-assisted maternal and child health and nutrition program, reduces child stunting in Guatemala: a cluster-randomized controlled intervention trial." *The Journal of Nutrition* 148(9): 1493–1505. Doi: [10.1093/jn/nxy138](https://doi.org/10.1093/jn/nxy138).
- Ozer, Emily J., Lia CH Fernald, Ann Weber, Emily P. Flynn, and Tyler J. VanderWeele. 2011. "Does alleviating poverty affect mothers' depressive symptoms? A quasi-experimental investigation of Mexico's Oportunidades programme." *International Journal of Epidemiology* 40(6): 1565–76. Doi: [10.1093/ije/dyr103](https://doi.org/10.1093/ije/dyr103).
- Premand, Patrick, and Oumar Barry. 2020. *Behavioral Change Promotion, Cash Transfers and Early Childhood Development: Experimental Evidence from a Government Program in a Low-Income Setting*. Policy Research Working Paper 9638. Washington, DC: World Bank. doi: <https://doi.org/10.1596/1813-9450-9368>.
- Raghunathan, Kalyani, Derek Headey, and Anna Herforth. 2021. "Affordability of nutritious diets in rural India." *Food Policy* 99 (August): 101982. Doi: <https://doi.org/10.1016/j.foodpol.2020.101982>.
- Ramírez-Silva, Ivonne, Juan A. Rivera, Jef L. Leroy, and Lynnette M. Neufeld. 2013. "The Oportunidades program's fortified food supplement, but not improvements in the home diet, increased the intake of key micronutrients in rural Mexican children aged 12–59 months." *The Journal of Nutrition* 143(5): 656–663. Doi: [10.3945/jn.112.162792](https://doi.org/10.3945/jn.112.162792).
- Rao, Vijayendra. 1998. "Domestic Violence and Intra-Household Resource Allocation in Rural India: An Exercise in Participatory Econometrics." In *Gender, Population, and Development*, edited by Maithreyi Krishnaraj, Ratna M. Sudarshan, and Abusaleh Shariff, chap. 5: 2–31. Oxford and Delhi: Oxford University Press.
- Reutlinger, Shlomo, and Marcelo Selowsky. 1976. *Malnutrition and poverty: magnitude and policy options*. World Bank Staff Occasional Papers no.23. Baltimore: The Johns Hopkins University Press.
- Ridley, Matthew, Gautam Rao, Frank Schilbach, and Vikram Patel. 2020. "Poverty, depression, and anxiety: Causal evidence and mechanisms." *Science* 370(6522). Doi: [10.1126/science.aay0214](https://doi.org/10.1126/science.aay0214).
- Roy, Shalini, Melissa Hidrobo, John Hoddinott, and Akhter Ahmed. 2019. "Transfers, Behavior Change Communication, and Intimate Partner Violence: Postprogram Evidence from Rural Bangladesh." *Review of Economics and Statistics* 101(5): 865–77. Doi: https://doi.org/10.1162/rest_a_00791.
- Ruel, Marie and Harold Alderman. 2013. "Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition?" *The Lancet* 382(9891): 536–51. Doi: [http://dx.doi.org/10.1016/S0140-6736\(13\)60843-0](http://dx.doi.org/10.1016/S0140-6736(13)60843-0).
- Saville, Naomi M., Bhim P. Shrestha, Sarah Style, Helen Harris-Fry, B. James Beard, Aman Sen, Sonali Jha, et al. 2018. "Impact on birth weight and child growth of Participatory Learning and Action women's groups with and without transfers of food or cash during pregnancy: Findings of the low birth weight South Asia cluster-randomised controlled trial (LBWSAT) in Nepal." *PLoS One* 13(5): e0194064. Doi: <https://doi.org/10.1371/journal.pone.0194064>.
- Shekar, Meera, Jakub Kakietek, Julia Dayton Eberwein, and Dylan Walters. 2017. *An Investment Framework for Nutrition: Reaching the Global Targets for Stunting, Anemia, Breastfeeding and Wasting*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/26069>.
- Smith, Lisa C., and Lawrence Haddad. 2015. "Reducing Child Undernutrition: Past Drivers and Priorities for the Post-MDG Era." *World Development* 68: 180–204. Doi: <https://doi.org/10.1016/j.worlddev.2014.11.014>.

- Soofi, Sajid Bashir, Shabina Ariff, Gul Nawaz Khan, Atif Habib, Sumra Kureishy, Yasir Ihtesham, Masawar Hussain et al. 2021. “Effectiveness of unconditional cash transfers combined with lipid-based nutrient supplement and/or behavior change communication to prevent stunting among children in Pakistan: a cluster randomized controlled trial.” *The American Journal of Clinical Nutrition* 115(2): 492–502. Doi: <https://doi.org/10.1093/ajcn/nqab341>.
- Surkan, Pamela J., Caitlin E. Kennedy, Kristen M. Hurley, and Maureen M. Black. 2011. “Maternal depression and early childhood growth in developing countries: systematic review and meta-analysis.” *Bulletin of the World Health Organization* 89(8): 608–615. Doi: 10.2471/BLT.11.088187.
- Sánchez, Alan, Guido Meléndez, and Jere R. Behrman. 2020. “Impact of the Juntos Conditional Cash Transfer Program on Nutritional and Cognitive Outcomes in Peru: Comparison between Younger and Older Initial Exposure.” *Economic Development and Cultural Change* 68(3): 865–97. Doi: <https://doi.org/10.1086/701233>.
- Tommasi, Denni. 2019. “Control of resources, bargaining power and the demand of food: evidence from PROGRESA.” *Journal of Economic Behavior & Organization* 161(May): 265–86. Doi: <https://doi.org/10.1016/j.jebo.2019.04.008>.
- Trenouth, Lani, Timothy Colbourn, Bridget Fenn, Silke Pietzsch, Mark Myatt, and Chloe Puett. 2018. “The cost of preventing undernutrition: cost, cost-efficiency and cost-effectiveness of three cash-based interventions on nutrition outcomes in Dadu, Pakistan.” *Health Policy and Planning* 33(6): 743–54. Doi: 10.1093/heapol/czy045.
- Victora, Cesar Gomes, Mercedes de Onis, Pedro Curi Hallal, Monika Blössner, and Roger Shrimpton. 2010. “Worldwide Timing of Growth Faltering: Revisiting Implications for Interventions.” *Pediatrics* 125(3): e473–80. Doi: <https://doi.org/10.1542/peds.2009-1519>.
- World Bank. 2022. “Cost Benefit Analysis: Rice Fortification in India”.
- World Food Program. 2020. “State of School Feeding Worldwide 2020 Report.” Rome: World Food Program. <https://www.wfp.org/publications/state-school-feeding-worldwide-2020>.

ENDNOTES

- 1 Indeed, household measures may improve while individual outcomes do not. De Groot et al. (2022) find evidence of a transfer program that results in improved food security at the household level, but a decrease in child meal frequency, and no improvement in young child anthropometry.
- 2 This was speculated by Ruel and Alderman (2013) as a reason for meta-analysis results available at the time. See also Alderman and Headey (2018) for a generalization.
- 3 Additional details on the cost methodology can be found in Herforth et al. (2020).
- 4 There was no arm with BCC alone, although this is a common component in nutrition-specific programs.
- 5 HAZ was not included as an outcome in the meta-analysis in Little et al. (2021).
- 6 This conclusion echoes the results of a follow-up to a supplementation in pregnancy in The Gambia in which one of the largest impacts on birth weight in such trials was found to have no long-term impacts (Alderman et al. 2014).
- 7 A recent meta-analysis of LNS indicates that regular provision can reduce stunting by as much as 12 percent (Dewey et al. 2021).
- 8 A preliminary analysis of the GCNF data indicates that programs were most likely to fortify foods with vitamin A, followed by iodine.

4

Social Protection Responses to COVID-19 in South Asia: A Rapid Review

Mohamed Almenfi and Hrishikesh TMM Iyengar

1. INTRODUCTION

Food security and nutrition have been a serious global challenge, especially for low-income and lower-middle-income countries. This situation has been worsened by the COVID-19 pandemic and exacerbated by price shocks induced by the Ukraine-Russia crisis. Even before these crises, most countries were not on track to achieve Targets 2.1 and 2.2 of the Sustainable Development Goals (SDGs)—ending global hunger and ending global malnutrition by 2030, respectively (FAO et al. 2021). But the situation is even worse in the South Asia Region (SAR), home to the largest share of children with wasting and the second-highest share of stunted children (after Sub-Saharan Africa). In 2021 global organizational authorities estimated that about 32 percent of SAR children under 5 were affected by stunting and 15 percent by wasting (UNICEF, WHO and World Bank 2021). SAR also has the highest share of women with anemia and the second-largest share of undernourished people.

The COVID-19 pandemic has led to the loss of income and livelihoods for millions of families, and resulted in unprecedented reversals in poverty reduction trends. In 2020, about 97 million more people globally were pushed into poverty by the pandemic, 58 million (60 percent) of whom were in South Asia (Mahler et al. 2021). Poverty- and shock-induced food insecurity has been further exacerbated by rising inflation and the effects of the war in Ukraine. It is estimated that, in 2022, these combined crises will lead to an additional 75 million to 95 million people living in extreme poverty compared to pre-pandemic projections (Mahler et al. 2022). As things currently stand, ending global hunger and malnutrition by 2030 will be even more challenging because as more and more people fall into extreme poverty, they and their families will almost certainly become even more food insecure and malnourished.

This makes it particularly urgent to address the increasing prevalence of food insecurity and malnutrition across the globe, and especially in the SAR region. Social protection (specifically, social assistance) can potentially address food security and nutrition concerns through instruments such as cash transfers, food distribution (for example, hot

meals and dry rations), other in-kind transfers (for example, fertilizer and seeds), school feeding, and utility and financial obligation discounts (for example, subsidies on water bills and reductions in indirect taxes on food items).

This chapter therefore offers a rapid review of Social Protection and Labor responses to COVID-19 in the South Asia region and highlights the performance of various program parameters (for example, coverage, expenditure, and benefit size). In the process, the report discusses the programs that are particularly relevant to food security and nutrition. The analyses performed are based purely on data from Version 16 of the World Bank's global tracker on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

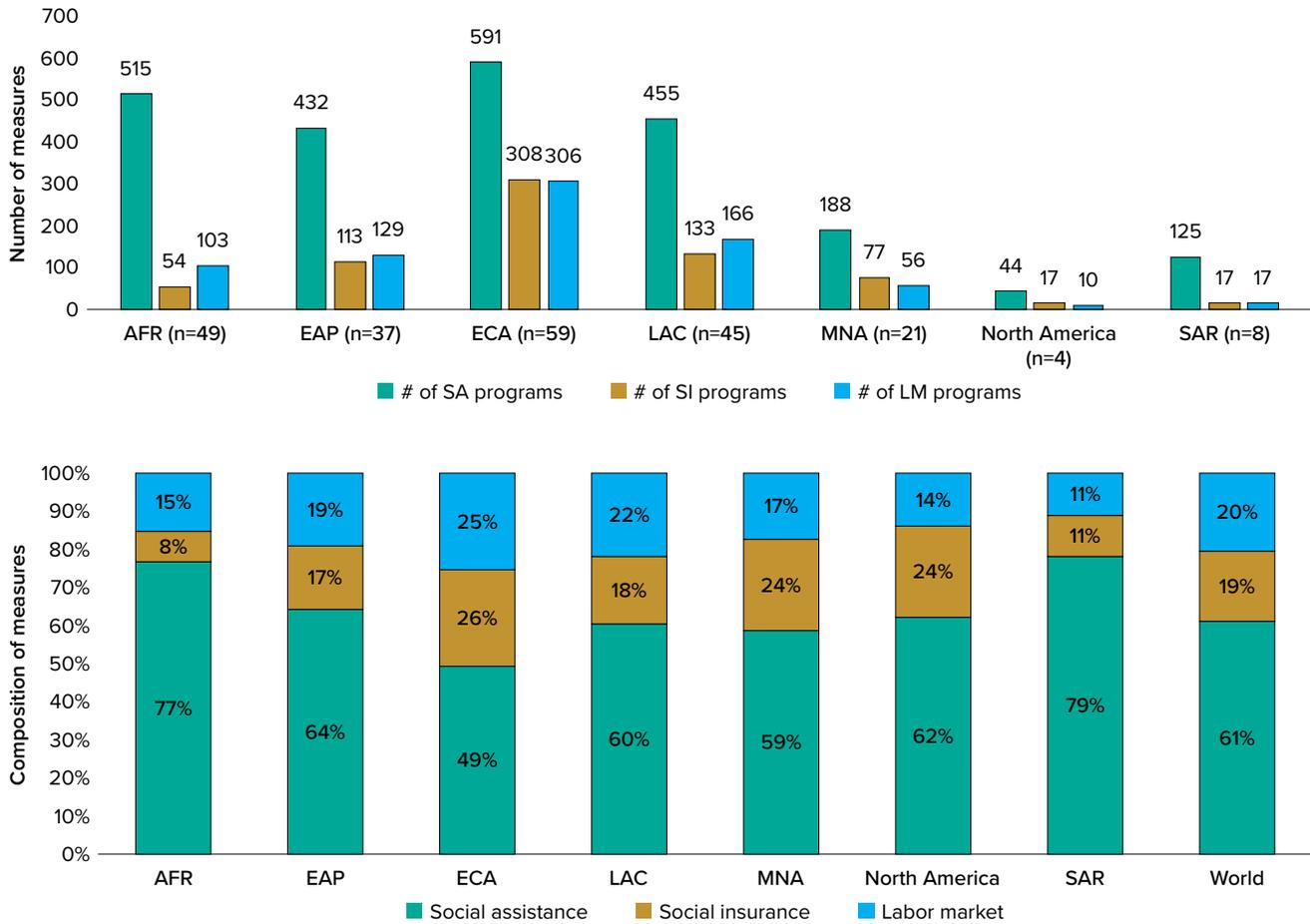
The chapter starts by providing an **overview** of the landscape of social protection responses in South Asia during COVID-19. The three sections that follow this—2, 3, and 4—examine the performance of the social assistance measures using three different program parameters: **expenditure**, **coverage** and **benefit size**. The fifth section examines the **speed of these responses**—that is, how quickly or not governments responded. Section 6 highlights the relationship between **coverage and food security**. The seventh section discusses **trends** in social assistance programs that have food security and nutrition objectives. Section 8 examines the **effectiveness of the social protection** response in the SAR region. The concluding section, 9, summarizes some **key thoughts** and discusses the **way forward** as the world faces compounded, interlocking challenges resulting from COVID-19 and inflation pressures.

2. OVERVIEW OF SOCIAL PROTECTION AND LABOR MEASURES IN THE SAR DURING COVID-19

As of February 2022, South Asian countries had implemented 159 Social Protection and Labor (SPL) measures. Of these, social assistance accounts for the largest share (125 measures or 79 percent). Labor market and social insurance account for 17 measures (11 percent) each. Among all global regions, social assistance measures represent a larger share of SPL measures in South Asia—at 79 percent—than their share in any other region, and is well above the global average of 61 percent of SPL measures. On the other hand, labor market and social insurance in SAR represent the smallest share of SPL measures, among the regions (see figure 4.1).

Within social assistance, cash and in-kind transfers account for about half of the social protection responses in the region. This is similar to the global trend as of February 2022: 1,509 cash and in-kind measures have been recorded in 216 economies, accounting for about 40 percent of the total measures. The regional social assistance responses were a combination of new programs and adaptations of existing programs¹ (see Appendix 1 for the full list of social assistance programs).

FIGURE 4.1: COVID-19 SPL program distribution by region (above), and SPL composition by region (below), as of February 2022



Source: Generated by the authors based on version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

Note: Here AFR stands for Sub-Saharan Africa, SAR for South Asia, EAP for East Asia and Pacific, MNA for the Middle East and North Africa, LAC for Latin America and the Caribbean, and ECA for Europe and Centra Asia.

Labor market measures consist of 12 programs on labor regulatory adjustments, 3 on active labor market programs and 2 on wage subsidies. Several social insurance measures were implemented, with pension programs taking the largest share (over 40 percent).

TABLE 4.1: Number of new and adapted SPL programs in response to COVID-19 in South Asia

SPL responses to COVID-19 in SAR	Number of measures	Countries
1. Social assistance	125	
1.1. Unconditional cash transfers	40	Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka
1.2. Conditional cash transfers	1	India
1.3. Social pensions (non-contributory)	2	Bangladesh and India
1.4. Unconditional food and in-kind transfers	24	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka
1.5. Conditional in-kind transfers (School feeding)	12	Bangladesh, Bhutan, India, Nepal, and Sri Lanka
1.6. Public works	7	Bhutan, India, Nepal, and Pakistan
1.7. Utility and financial obligations waivers/reductions	39	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka
2. Social insurance	17	
2.1. Pensions	7	Afghanistan, India, Pakistan, and Sri Lanka
2.2. Social security contributions	5	India, and Nepal
2.5. Health insurance	5	Bangladesh, India, Nepal, and Pakistan
3. Labor market programs	17	
3.2. Activation measures	3	Afghanistan, Maldives, and Pakistan
3.4. Wage subsidies	2	Bangladesh, and Bhutan
3.7. Labor regulatory adjustment and enforcement	12	Bangladesh, India, Maldives, Pakistan, and Sri Lanka
Total measures	159	

Source: Generated by the authors based on version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

3. SPENDING

Globally, about 63 percent (\$1.97 trillion) of SPL spending was devoted to social assistance during 2020–21. In comparison with other regions, SAR had one of the lowest total expenditures (US\$34.7 billion). Only Sub-Saharan Africa and MENA spent less. For the region, SPL spending, on average, was US\$46 per capita—again, one of the lowest—compared to US\$173 in MNA, and US\$285 in LAC. In terms of SPL spending as a share of GDP, South Asia increased its spending on COVID responses, reaching 1.8 percent of GDP, compared to 1.13 percent of GDP during pre-COVID during 2020–21. The breakdown, from largest to smallest, is Afghanistan (4.5 percent), Sri Lanka (3 percent), Maldives (2.2 percent), Pakistan (2.2 percent), India (0.9 percent), Bangladesh (0.7 percent), Nepal (0.4 percent), and Bhutan (0.3 percent).

TABLE 4.2: Spending by SPL component, region and country income group (US\$)

Region	Social assistance	Social insurance	Labor markets	Total spending (US\$)	Average spending per capita (US\$)
AFR (n=45)	14,574,407,914	4,331,266,979	101,674,068	19,007,348,960	28
EAP (n=34)	348,397,989,478	176,875,399,808	42,022,664,602	567,296,053,888	687
ECA (n=51)	152,749,959,607	7,788,474,320	119,747,065,082	280,285,499,008	287
LAC (n=38)	49,419,744,009	12,934,584,200	1,232,470,503	63,586,798,712	285
MENA (n=16)	17,735,478,089	1,218,006,236	4,870,312,243	23,823,796,568	173
N. America (n=2)	1,362,830,897,714	592,003,902,305	56,973,647,966	2,011,808,447,985	4,130
SAR (n=8)	23,009,089,430	9,600,134,191	2,082,976,064	34,692,199,685	46
Total (n=194)	1,968,717,566,240	804,751,768,037	227,030,810,528	3,000,500,144,805	314

Source: Generated by the authors based on version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

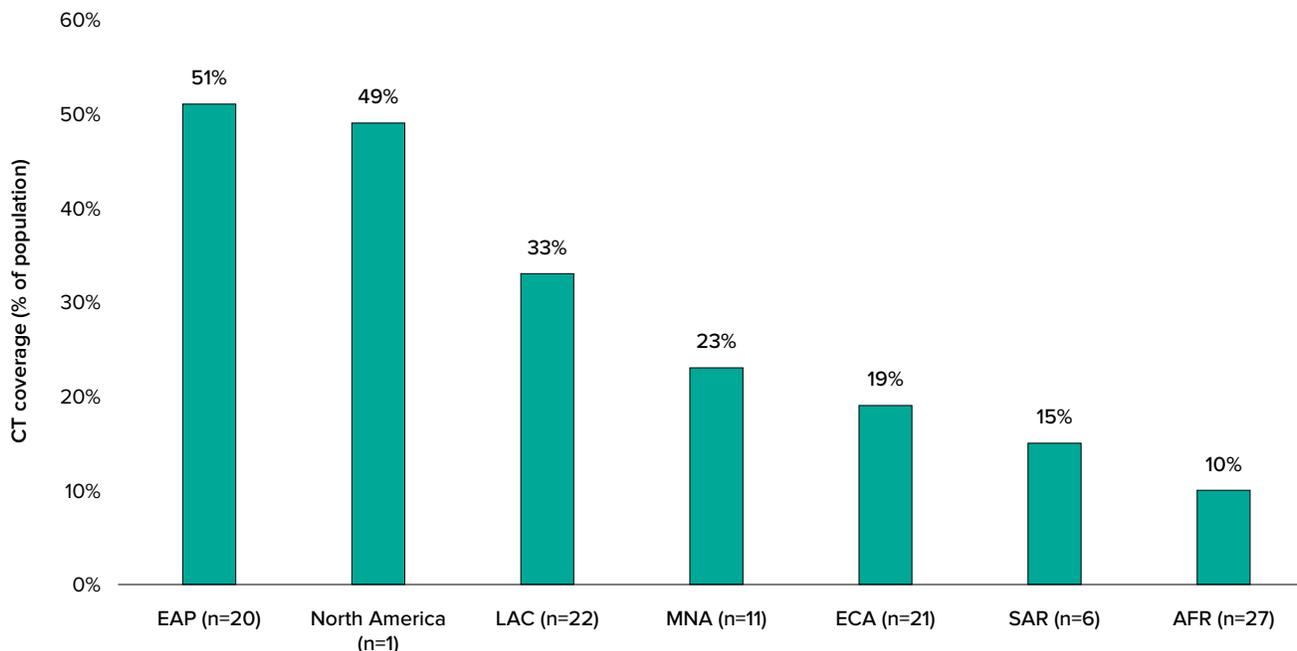
Note: Data on SPL program spending are available for 23 percent of all programs from all the regions in the World Bank's version 16 of the global database (Gentilini et al. 2022). More specifically, spending information is available for 32 percent of programs in SAR. All the data are on planned spending (that is, what the governments announced they plan on spending). Here, AFR stands for Sub-Saharan Africa, SAR for South Asia, EAP for East Asia and Pacific, MNA for the Middle East and North Africa, LAC for Latin America and the Caribbean, and ECA for Europe and Centra Asia.

4. COVERAGE²

As of February 2022, South Asian countries had reached more than 335 million beneficiaries; most of these are from India's Pradhan Mantri Jan Dhan Yojana (PMJDY) and Pakistan's Ehsaas Emergency Cash (EEC) programs. These two programs are among the top 10 programs³ globally in terms of absolute numbers of beneficiaries covered during COVID-19: India's PMJDY program ranked first, reaching 200 million people (14.5 percent of the population). Pakistan's EEC program, with 115.7 million beneficiaries, ranked fourth.⁴ However, in terms of the overall share of population reached, in contrast to absolute numbers, the region as a whole performs poorly compared to other regions. Sub-Saharan Africa and India have the lowest coverage, reaching only 10 percent and 15 percent of their populations, respectively (see figure 4.2), while East Asia & Pacific and North America have the highest coverage, reaching about 50 percent of their population.

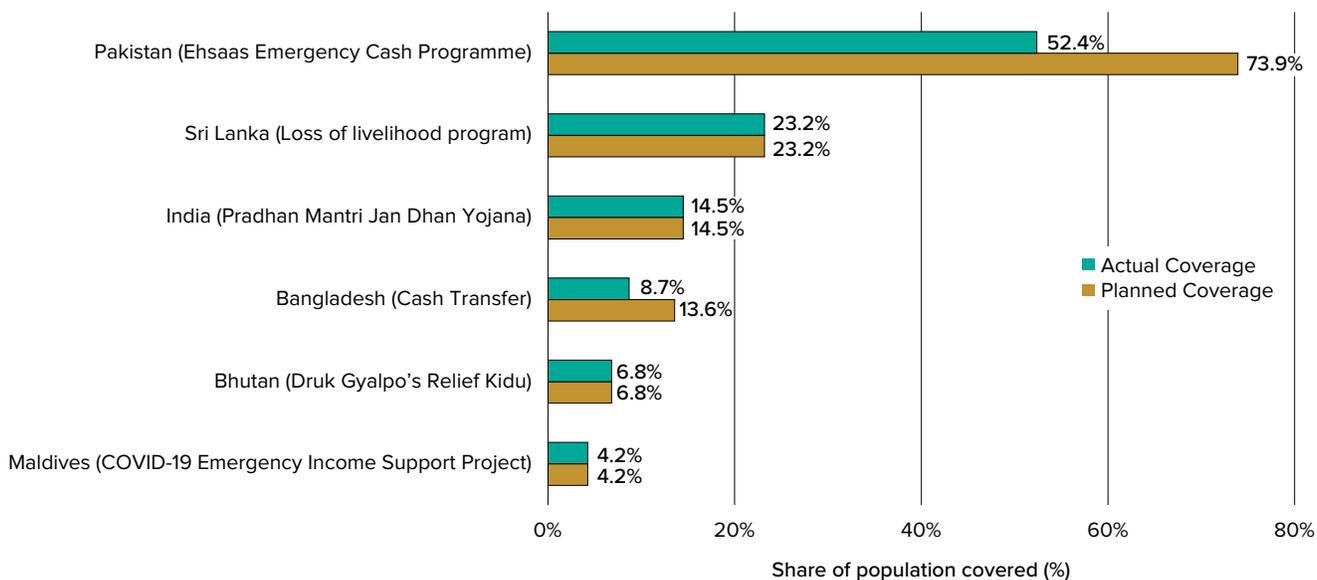
Within SAR, Pakistan's EEC program tops the list in terms of the share of population reached (52 percent; see figure 4.3), followed by Sri Lanka⁵ and India,⁶ with population coverage of 23 percent and 14.5 percent, respectively. Cash transfers from Bangladesh, Bhutan and Maldives covered less than 10 percent of their populations, with the Maldives reaching only about 4 percent.

FIGURE 4.2: Coverage of cash transfers by region (% population)



Source: Generated by the authors based on version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

FIGURE 4.3: Planned versus actual coverage of horizontal expansion in SAR countries



Source: Generated by the authors based on version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

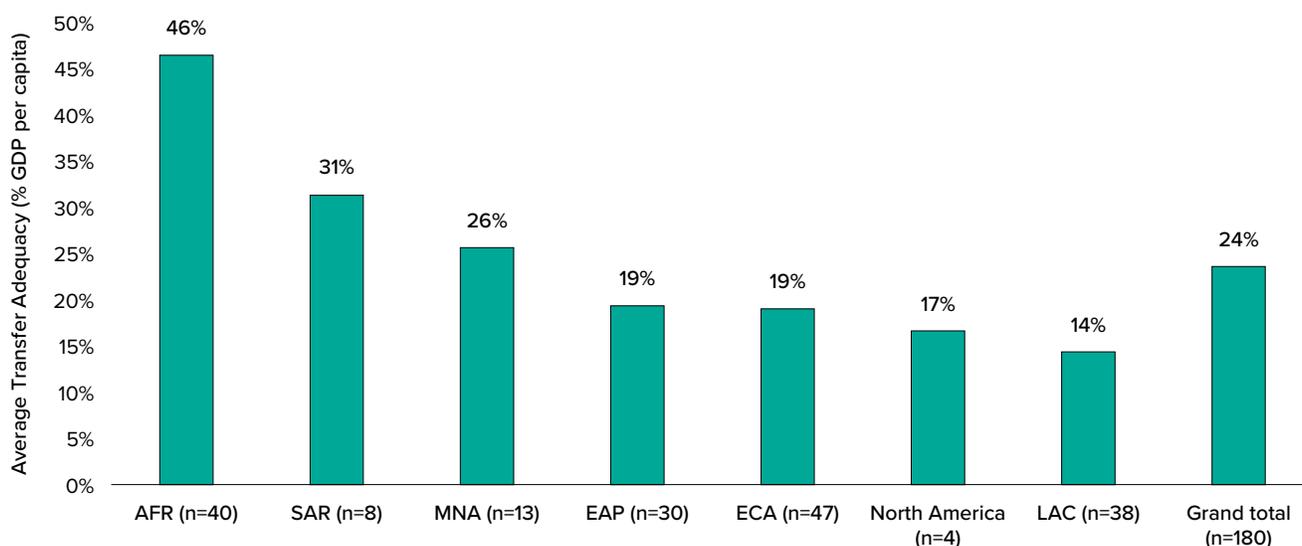
5. SIZE OF CASH TRANSFERS

During 2020–21, South Asian countries on average provided income support in the form of cash transfers equivalent to 31 percent of their monthly GDP per capita. The region has the largest benefit size after Sub-Saharan Africa (see figure 4.4). The size of cash transfer (that is, adequacy) figures are obtained by computing a daily rate for COVID cash transfers for each country and then comparing this rate with their monthly GDP per capita. For example, if a program provides benefits monthly, it is divided by 30 to get the daily rate (for further details on the methodology, see end note 7).⁷

The average transfer adequacy of cash assistance for countries within the region can be categorized into two clusters: Countries with adequacy above 50 percent, and those below 50 percent. Three countries (including Nepal, Afghanistan, and Bhutan) on average offered generous transfers equal to more than 50 percent of monthly GDP per capita during 2020–21. For example, Nepal’s Urban Governance and Infrastructure Project (NUGIP), a public works program, provided beneficiaries with transfers ranging from Rs 33,500 (US\$284) to Rs 47,500 (US\$403) in exchange for performing 50 days of work, which represents about 221 percent of monthly GDP per capita. Another example is Afghanistan’s REACH program, which as of August 2021 had provided US\$100 as one-off transfers (79 percent of monthly GDP per capita, assuming that the US\$100 is for three months) to more than 181,770 households in urban areas.

In the other cluster, Pakistan, Maldives, Bangladesh, India, and Sri Lanka fall well below the 50 percent adequacy level (see figure 4.5). Bangladesh, India, and Sri Lanka have cash transfer adequacy equal to or below 10 percent, while Pakistan and Maldives have transfer adequacy of 45 percent and 38 percent, respectively.

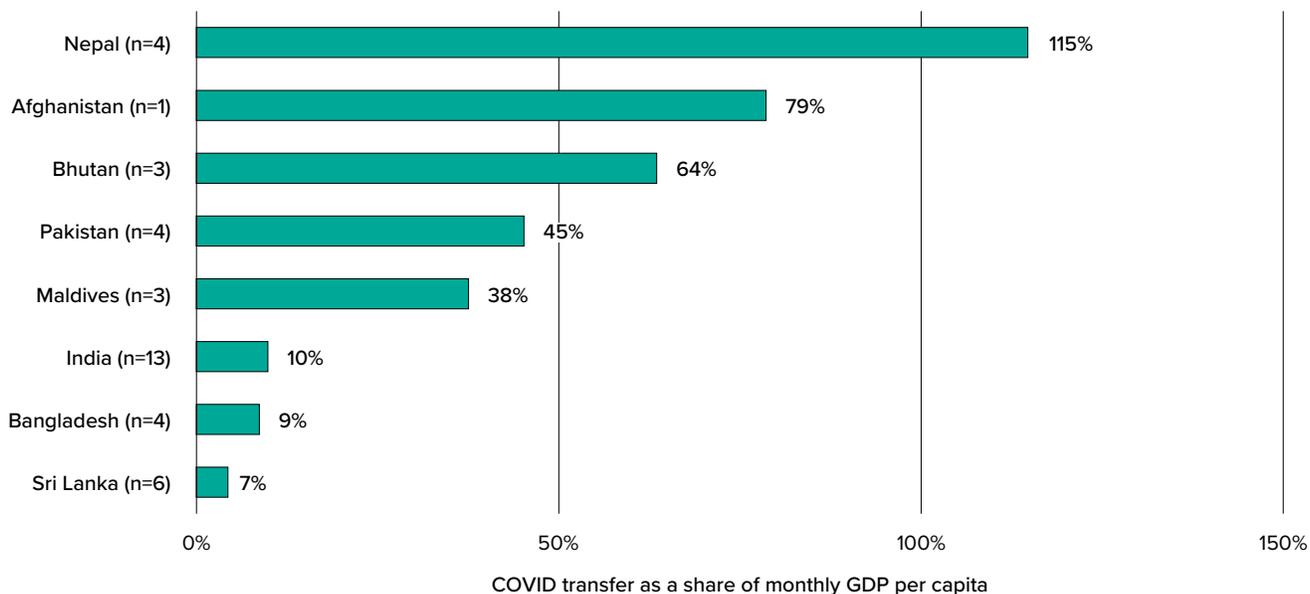
FIGURE 4.4: Average cash transfer adequacy (as a percentage of GDP per capita)



Source: Generated by the authors based on version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

Note: Values are the sample average for the countries.

FIGURE 4.5: Average transfer adequacy of COVID-19 cash assistance (n=number of programs)



Source: Generated by the authors based on version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

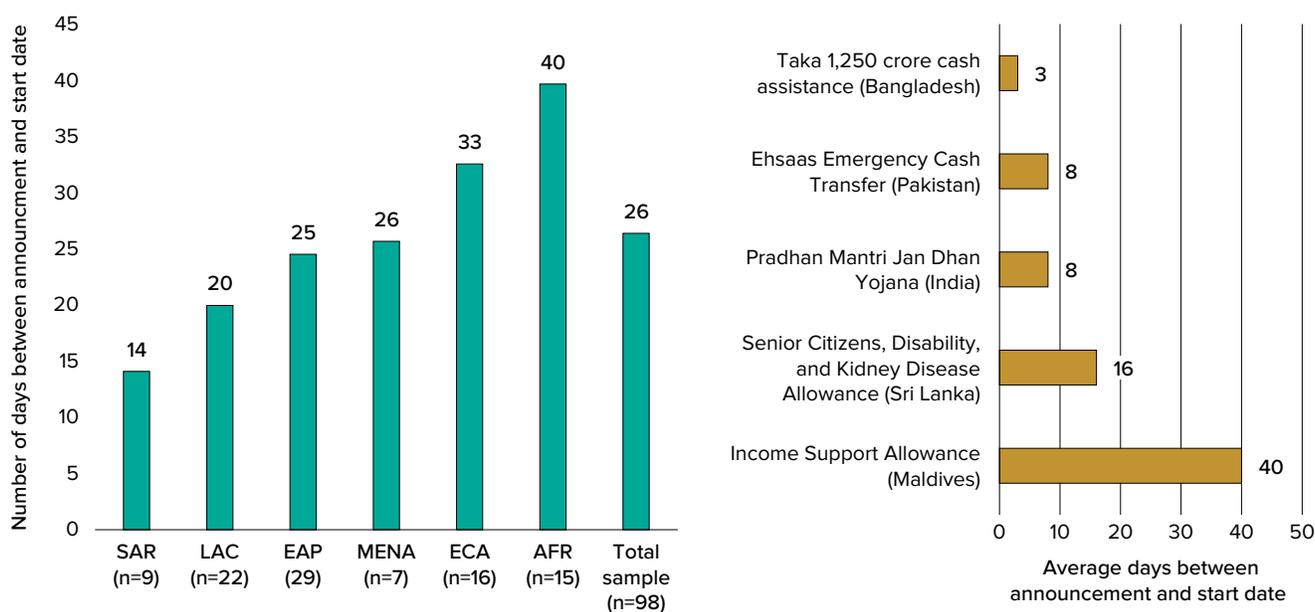
Note: Values are the sample average for the countries.

6. TIMELINESS OF RESPONSES TO COVID-19⁸

In an attempt to understand how timely⁹ national social protection responses were to COVID-19, Gentilini et al. (2022) performed speed/timeliness analyses using data from 98 cash transfer programs across 64 countries. They estimated that, globally, there were on average 26 days of lag between program announcement and first payment. The regional analyses from figure 4.6 (left panel) show that SAR countries were the fastest in paying beneficiaries, while African countries were the slowest. Countries in LAC and EAP, on average, took 20 and 25 days, respectively, to pay their beneficiaries following program announcement. This is quicker than the global average. Countries in MENA were as timely as the global average, while EAP countries, on average, paid their beneficiaries about a month after the measure was announced.

Although SAR countries responded the fastest, there were variations within the region (see right panel of figure 4.6). The fastest in implementation speed were Bangladesh, Pakistan and India. Within 3 days of program announcement on May 11, 2020, Bangladesh had disbursed Taka 2,500 (US\$29.50) in cash assistance to the 3.2 million poor families (8.7 percent of the total population) who had been hit the hardest during the pandemic. Pakistan's EEC program was announced on April 1, 2020, within the first 10 days of the nationwide lockdown, and started paying beneficiaries on April 9, 2020. Similarly, India's PMJDY program took 8 days. By contrast, Sri Lanka's Senior Citizens, Disability, and Kidney Disease Allowance program took double this time for its first payment after the announcement had been made. Other countries such as the Maldives were slower still, taking 40 days.

FIGURE 4.6: Average number of days between announcement and date of first payment, by region (left); implementation speed for some SAR programs (right)



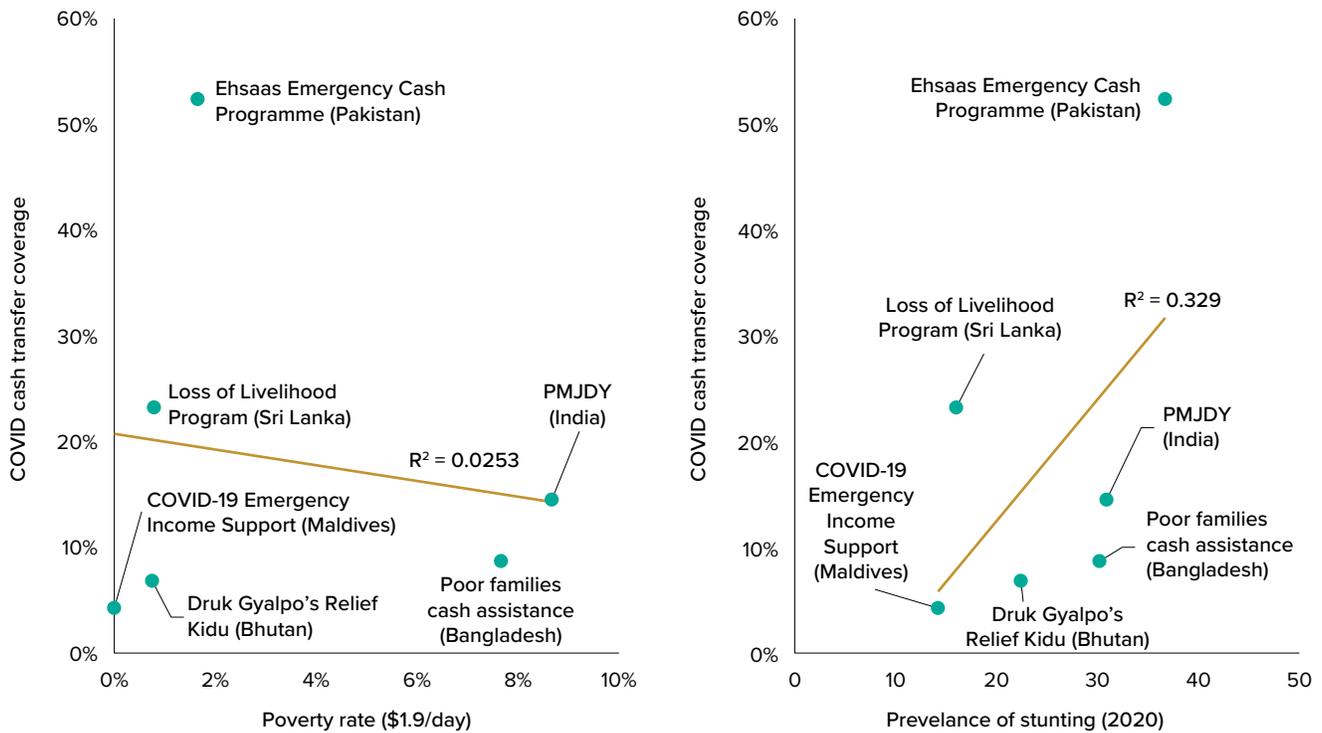
Source: Generated by the authors based on version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

Note: Here AFR stands for Sub-Saharan Africa, SAR for South Asia, EAP for East Asia and Pacific, MNA for the Middle East and North Africa, LAC for Latin America and the Caribbean, and ECA for Europe and Centra Asia.

7. RELATIONSHIP BETWEEN COVERAGE AND FOOD SECURITY INDICATORS

Coverage expansion appears to display a negative relationship with poverty and a positive relationship with food insecurity and malnutrition. The left-hand panel in figure 4.7 plots the poverty level measured using the international poverty line (US\$1.90/day) and the cash transfer coverage for 6¹⁰ of the South Asian countries. Although the correlation coefficient is low, the figure may be illustrative of the overall direction.¹¹ The right-hand panel in figure 4.7 illustrates the relationship between cash coverage and the prevalence of stunting¹² for the same set of countries. It displays a positive, but low, correlation between the two variables.

FIGURE 4.7: Poverty and cash transfers coverage (left), the prevalence of stunting and cash transfers coverage (right)



Source: Generated by the authors based on coverage data from version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022); Poverty rates are from the WBG's PovcalNet; Prevalence of stunting data are from UNICEF, WHO and World Bank (2021).

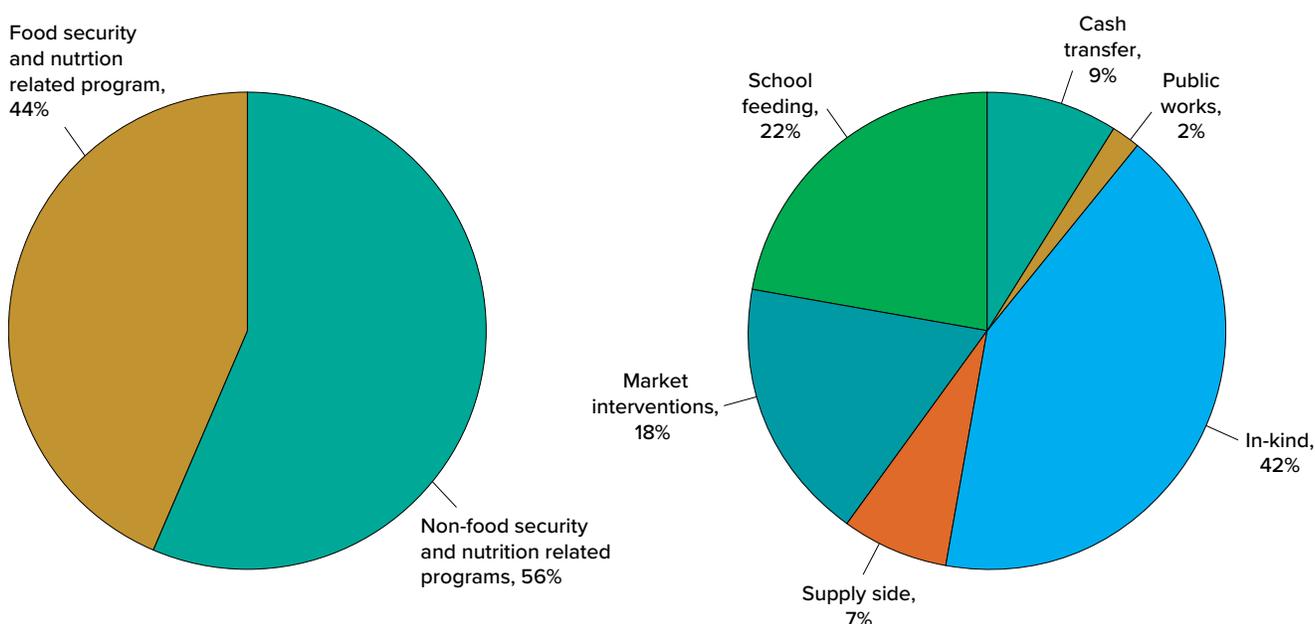
8. ADAPTING FOOD SECURITY AND NUTRITION RESPONSES TO COVID-19

There are several ways in which social protection programs can be expanded or adapted to ensure their smooth functioning during a crisis. In some countries, new temporary measures were introduced either under the scope of existing programs or as stand-alone initiatives. In others, operational adjustments were made to expand coverage to reach more households or increase the benefit size (see boxes 4.1 and 4.2).

This section provides an overview of such programs and discusses some that were implemented to address COVID-generated food security and nutrition outcomes faced by households in the region. As figure 4.8 (left panel) depicts, out of a total of 125 social assistance measures in the region, about 44 percent (55 programs) have food security and nutrition objectives or dimensions. Such measures include cash transfers (9 percent), in-kind distribution (for example, hot meals, dry rations, or free gas—42 percent), school feeding (22 percent), public works (2 percent), and utility and financial obligations (for example, indirect taxes, subsidies and price control—25 percent).

Nutrition plays a crucial role in children's health and brain development, especially during their first 1,000 days from birth. Properly utilizing this window of opportunity can yield a substantial long-term economic return in the form of higher productivity, lower health care costs, and improved intergenerational mobility.¹³ Acknowledging this,

FIGURE 4.8: Share of COVID-19 programs with a focus on food security and nutrition (left); composition of food security and nutrition responses by social assistance instruments (right)



Source: Generated by the authors based on version 16 of the global database on Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures (Gentilini et al. 2022).

Sri Lanka has continued nutrition supplement programs such as *Triplosha* even during COVID-19 to provide food transfers to pregnant women and infants who exhibit nutritional deficiencies (see box 4.1 to understand how *Triplosha* was adapted to comply with social-distancing protocols).

COVID-19-induced school closures have severely affected not just the learning of children and adolescents in the region, but also their meals. This could have long-term detrimental impacts on their health and well-being. Five SAR countries implemented 12 school-feeding programs: Bangladesh, Bhutan, India, Nepal, and Sri Lanka. During school closures, all except India replaced traditional on-site school feeding with take-home alternatives (either raw or cooked). States in India implemented a variety of modalities: some substituted school meals with cash transfers (for example, Bihar), while other states used a combination of modalities—for example, transferring cash/vouchers along with dry rations to compensate for the cooking cost, as in Gujrat state. As of February 2022, with the COVID-19 situation coming under control, India is still the only country in the region to have resumed on-site school meals, starting in November 2021, but others are likely to follow suit.

To boost food security, improve nutrition, and reduce hunger among its poorest and the most vulnerable citizens, the region has announced or implemented 23 in-kind programs (22 food distribution and 1 free gas-transfer program) and 5 cash-transfer programs. Free food and cash distribution, although targeted at the poor, varies across countries in terms of their primary target group. Some food or cash programs explicitly state their target groups and tend to reach multiple target groups.¹⁴ The targeting strategy may include sectors¹⁵ (for example, informal), vulnerable groups¹⁶

(for example, migrants, elderly, single parents, disabled, and refugees), events¹⁷ (for example, festive season), gender¹⁸ (for example, women-headed houses, and trans people) or some combination of these.

We will discuss examples from each target category. Nepal provided food assistance packages to informal sector laborers and people living in old-age homes. India, for its part, offered cooked meals to migrant workers through community kitchens located in prominent places across the country. Pakistan, in collaboration with UNHCR, provided an emergency cash transfer program to 36,000 of the most vulnerable Afghan refugee families (0.11 percent of the total population). Bangladesh, to take another example, provided Taka 500 (US\$ 5.9) in cash to 1.75 million widows and deserted or destitute women (1.1 percent of the total population) from 112 poverty-prone Upazilas¹⁹ to improve their nutrition.

Another program in Bangladesh, in 2020 and again in 2021, announced an offer of 10 kg of free rice to more than 10 million “ultra-poor and destitute” families (27.1 percent of the population) ahead of the Eid-ul-Azha festive season. In terms of the selection process, the Eid-ul-Azha beneficiaries had to meet at least 4 out of 12 eligibility criteria. The criteria included landless households and households dependent on daily wage labor, or women's income, or begging.²⁰ In India, the Assam government's *Orunodoi* was launched in October 2020 with the intention of achieving the SDG nutrition goals and targeted households that have women as their primary caretakers. As of October 2021, the program had provided Rs 1000 (US\$13.7) per month and spent Rs 1.9 billion (US\$26 million; 0.001 percent of the country's GDP) to cover 1.93 million families with pregnant women (0.64 percent of the total population).

In contrast, certain in-kind and cash transfers to poor families in Afghanistan, India, Pakistan, and Sri Lanka²¹ had no specific target groups. In April 2020, India provided 80 million poor families (26.5 percent of the total population) with free gas cylinders for 3 months under *Pradhan Mantri Ujjwala Yojana* (PMUY) program. Although food security was not its primary objective, the measure not only reduced cooking costs but also encouraged people to switch their cooking fuel to a safer alternative than burning fossil fuels.

By contrast, Pakistan's EEC program, initiated in early April 2020 to address COVID-related economic hardship and the impending risk of hunger, mentioned food security and nutrition as explicit objectives. It allocated close to PKR 205.3 billion (US\$1.23 billion; 0.4 percent of the country's GDP) to deliver one-time emergency cash to 115.7 million individuals, including minorities and transgender citizens (52 percent of the total population).



Horizontal expansion

- On April 8, 2020, during the lockdown, India's Gujrat government extended its free grain program to additional 6 million families (2 percent of the total population) who were above-the-poverty line (APL). Each APL-1²² cardholder could obtain 10kg of wheat, 3kg of rice, 1kg of sugar and 1kg of pulses per month. Before the pandemic, APL people were not eligible for free grain under the National Food Security Act.
- In Bangladesh, the Open Market Scheme (OMS) offered subsidized rice and other staples to about 5 million poor and vulnerable people (3 percent of the total population), sold at designated areas between 10:00 am and 3:00 pm. During the lockdown, the government doubled its ration cards, which offered subsidized rice at BDT 10 (US\$0.12) per kg to 10 million people (6 percent of the total population). Each consumer with a valid national ID card could buy up to 5kg of rice per week (bdnews24 2020).

Vertical expansion

- On March 21, 2020, India's Delhi government increased rations by 1.5 times for the 7.2 million beneficiaries (0.5 percent of the total population) under the Public Distribution System (PDS). The beneficiaries received 6 kg of wheat and 1.5 kg of rice for April 2020.
- India's Gujrat government, on the other hand, provided cash transfers on top of the take-home ration (school feeding) to parents with children ages 3 to 6 to cover cooking expenses.

Both horizontal and vertical expansion

- In India, the Assam government's *Orunodoi* cash-transfer scheme was launched on October 2, 2020, to empower women and, second, to achieve the SDG goals for health and nutrition. It provided assistance of Rs. 830 (US\$ 11.40) per month through a Direct Benefit Transfer (DBT) scheme to about 1.7 million households (0.56 percent of the total population) that have women as their primary caretakers. In October 2021, the state increased the cash assistance to Rs. 1000 (US\$13.70) per month, and as of November 2021, it has already covered more than 1.93 million beneficiary households (0.64 percent of the total population).

In addition to the measures discussed so far, governments have implemented 10 utility programs that have either reduced indirect taxes (for example, Pakistan) to ensure the availability of food, especially for the poor, or have intervened in markets for essential items (for example, Bangladesh, Bhutan, Maldives, Nepal, and Sri Lanka). The market interventions have been executed by introducing either price ceilings (in Bhutan, Maldives, and Sri Lanka) or alternatively price subsidies or discounts (in Bangladesh, Pakistan, Maldives, and Nepal).

Regarding indirect taxes, in late March 2020, Pakistan reduced taxes on the supply of various food items. For example, it reduced the advance tax on the import of various food items from 2 to 0 percent. It also exempted soya bean, canola, palm and sunflower oil from custom duty, which had stood at 2 percent.

Concerning market interventions, in March 2020, Sri Lanka tried to control price hikes in food items by introducing a price ceiling on certain essential food items such as tinned fish, eggs and lentils. In April 2020, Bangladesh introduced food subsidies by selling rice at Tk 5 (US\$0.06) per kg instead of Tk 30 (US\$0.40) per kg. However, it is important to note that such government-led market interventions tend not to work very well. Thus, in April 2020, Sri Lanka²³ had to withdraw its month-old price ceiling because of a corresponding increase in the sale of food commodities on the black market. Likewise, Bangladesh temporarily had to suspend one of its rice-subsidy programs because of irregularities in selling or food distribution created by corruption and grain theft.

Finally, there were three programs aimed at boosting food production, procurement and/or distribution. In an attempt to increase food production, India provided advance payments of Rs. 2,000 (US\$27.4) in the first week of April 2020 instead of June 2020 as income support to small and marginal farmers under its PM-KISAN scheme. The program aimed to supplement farmers' expenses incurred in procuring various inputs in order to ensure proper crop health and appropriate yields.²⁴ It is thought that about 86.9 million people (6.3 percent of the total population) benefited from the advance payment (The Economic Times 2020).

Second, through public works, Pakistan has generated 85,000 new jobs for youths and daily-wage workers to achieve its "10-Billion Tree Tsunami" project. The project aims to plant 10 billion trees by 2023 by setting up nurseries and natural forests and promoting the planting of olive, fruit and bee-attracting honey trees throughout the country.

Third, because of COVID-related disruptions in the food supply chain, many food producers have experienced large losses in perishable and nutritious food. To address this issue, a number of governments have taken active steps to ensure smoother transportation. India, for example, has introduced 67 new railway routes for running 235 parcel specials (out of which 171 were time-tabled parcel trains) to transport essential commodities, including perishable horticultural products and agricultural inputs. Various governments have introduced creative delivery mechanisms (see box 4.2) to improve food distribution—by easing their requirements, introducing flexible collection, adapting their modality, or adding new beneficiaries. Such initiatives improve the delivery of food distribution.

BOX 4.2 EXAMPLES OF INNOVATIVE MODIFICATIONS TO DELIVERY ARRANGEMENTS



Easing of eligibility rules: India's Delhi government, on March 31, 2020, provided rations to poor people even if they had no ration card²⁵ to enable them to fight hunger during the lockdown.

Advance delivery: To make it unnecessary for people to have to gather twice and to encourage the observance of social distancing protocols at ration shops, India's Karnataka state government provided double portions (that is, two-month equivalent rations for April and May) in the month of April.

Change in modality: During COVID-19, various program delivery modifications were made to reduce the spread of the virus and adhere to social distancing protocols. Examples include Sri Lanka's *Tripasha* and other nutrition supplement programs. The supplements are typically provided to households with pregnant mothers and nutrition-deficient infants. Before COVID-19, beneficiaries were required to pick up their nutrition supplement packages from the nearest health facility. During COVID-19, they were delivered directly to beneficiaries' doorsteps.

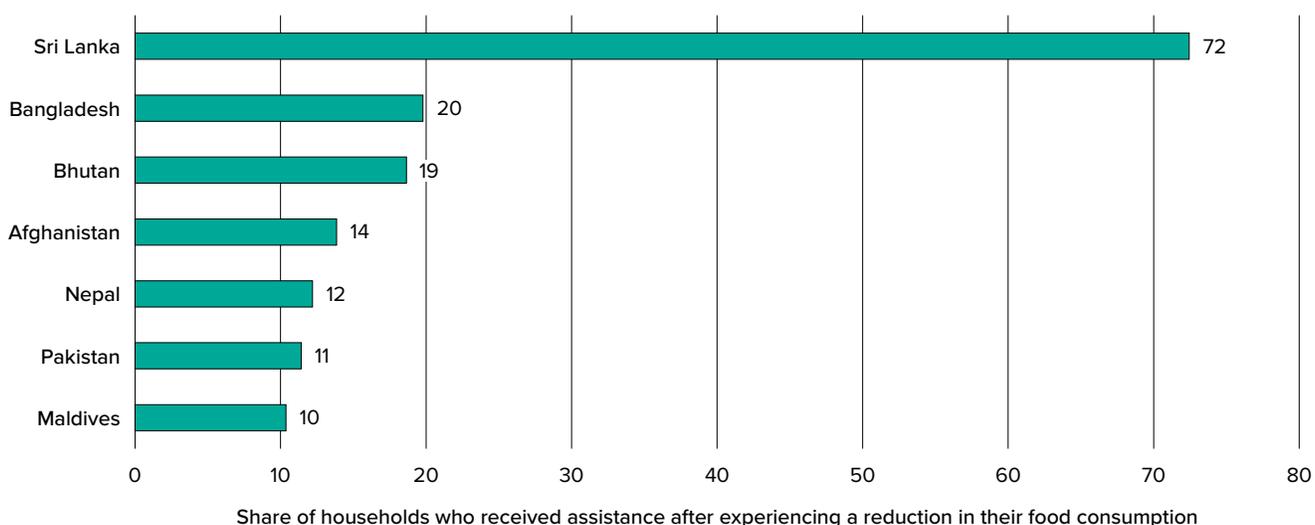
Issuance of new ration cards: State governments in India (Bihar, for example) and Bangladesh identified newly vulnerable families and issued them with ration cards. In April 2020, the Bangladesh government announced it would provide ration cards to additional 5 million poor and unemployed people (3 percent of the total population) in city corporations, districts and municipality areas. This announcement was in addition to the already existing allotment of 5 million ration cards (3 percent of the total population) to enable cardholders to buy open-market-sale (OMS) rice at Tk 10 (US\$0.12) per kg.

9. EFFECTIVENESS OF COVID-ERA SOCIAL PROTECTION RESPONSES

As discussed above, SAR countries have been trying to cushion the impact of COVID on food security and nutrition by deploying various social assistance schemes. What is not so clear is the effectiveness of these responses. Empirical data on the impact of these measures are still emerging. The World Bank's High-Frequency Phone Surveys (HFPSs), conducted during the first COVID-19 wave in 2020, showed that countries in the region reached only a small share of the population who were experiencing a decline in food consumption as a result of the pandemic. The only outlier was Sri Lanka, which managed to reach 72 percent²⁶ of its people who had reduced consumption (see figure 4.9).

Similarly, evidence from India suggests that coverage varied widely based on the type of social assistance used. For example, Drèze and Somanchi (2021) suggest that India's Public Distribution System (PDS) reached the vast majority of the population. Six large-

FIGURE 4.9: Share of population who received government assistance after experiencing a reduction in food consumption during COVID-19 (% of households with reduced food consumption)



Source: Generated by the authors based on World Bank’s High-Frequency Phone Surveys (World Bank 2021).

Note: India was not included in the graph as it was not part of the World Bank’s HFPS

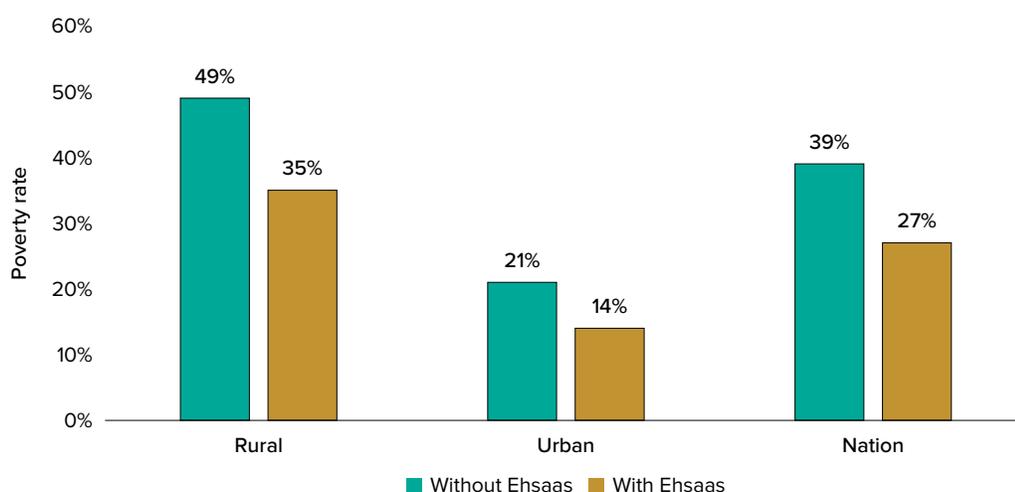
scale, multi-state surveys conducted between April and November 2020 indicate that the share of households who own a ration card varied from 75 percent to 90 percent. In addition, access to the PDS was likely to be higher than average among poor households. The authors also observed that among people with ration cards, the share of respondents who received grain from the PDS was higher than 80 percent in 5 surveys, and 90 percent in 4 surveys.

In contrast to this, in India’s Cash Transfer program for women account holders (PMJDY) in April–June 2020, it was observed that close to 40 percent of poor households were left out because they had failed to include a woman’s name on their PMJDY account (Pande et al., 2020). In addition, based on surveys, Drèze and Somanchi highlight that about one-third of women who did have a PMJDY account stated that they did not receive any benefits.

However, a more recent study (Makkar et al. 2022) from India’s Bihar State uses a longitudinal study and provides positive evidence on the role of social assistance in reducing food security during COVID-19. It highlights that families that received cash transfers were somewhat less likely (43.6 percent) to be food insecure than those who did not receive the transfers (49.7 percent).

Similarly, in Pakistan, recent poverty estimates indicate that social assistance programs have managed to reduce the pandemic’s impact on poverty. The Ehsaas Emergency Cash (EEC) program, which provided direct cash transfers to almost half of the population, turned out to be highly effective in minimizing the poverty impact of the pandemic. Due to this program, the national poverty rate decreased by 11.2 percent, and the rural and urban poverty rates dropped by 14 percent and 7 percent, respectively (figure 4.10). By the end of 2020, the estimated poverty rate was only one percentage point higher than pre-COVID levels (Moeen et al. 2021).

FIGURE 4.10: Pakistan’s poverty rate with and without the “Ehsaas” Cash Transfer program



Source: Generated by authors based on data from IFPRI's discussion paper titled estimating the economic impacts of the first wave of COVID-19 in Pakistan using a SAM multiplier model (Moeen et al. 2021).

10. CONCLUDING REFLECTIONS

Even before the pandemic, food insecurity and malnutrition indicators such as stunting, wasting and anemia were already high in the South Asia region and were not on track to achieve the SDGs of ending hunger and malnutrition by 2030 (FAO et al. 2021). This situation has only worsened with COVID. To address this issue, SAR countries have expanded social assistance measures to support households struggling to meet their most basic needs. All SAR governments have responded with relief packages, albeit to varying extents: out of a total of 124 social assistance SAR responses to COVID-19, close to 45 percent (54 programs) had some form of food security and nutrition objective associated with them.

These initiatives typically included cash transfers (9 percent), food and other in-kind distributions (43 percent—for example, hot meals, dry rations, gas) school feeding programs (20 percent), and utility and financial obligation schemes (26 percent—for example, subsidies, price controls, or reduced indirect taxes on food items). Such measures target a wide variety of population groups, ranging from specific groups to a broader swath of the general population. The specific-group category includes measures targeting children during their first 1000 days—approximately 2 years and 9 months—pregnant and lactating women, school-age children, and poor people with more specific targets such as informal workers, migrants, the elderly, and women-headed households. The general population category includes measures such as price controls on food items and reductions in excise duty on food items.

In terms of their parameters, the performance of such SPL programs in the region during COVID-19 has been mixed, with significant scope for improvement. On the one hand, the region has performed well on benefit size and timeliness of assistance. On average, SAR has provided the second-largest benefit size among all regions—

28 percent of the region's monthly GDP per capita. In addition, SAR was the quickest to roll out assistance to its beneficiaries—just 14 days from the announcement date, compared to the global average of 26.

On the other hand, per capita spending in SAR is the lowest after Sub-Saharan Africa—US\$46 per capita, compared to the global average of US\$314. Similarly, in terms of coverage, SAR has reached the lowest share of its population after Sub-Saharan Africa, despite implementing two of the global top 10 programs in terms of absolute numbers of beneficiaries covered.

The emerging evidence suggest that, overall, SPL programs for food security and nutrition have worked well in the region's largest countries. In India, families that received cash transfers in the state of Bihar, for example, were less likely (43.6 percent) to be food insecure than those who did not receive them (49.7 percent). Similarly, Pakistan's Ehsaas program helped curb rising poverty by holding it to just one percentage point higher than the pre-pandemic level.

Despite some evidence of resilience in social protection systems during the pandemic, the region still faces growing risks of food insecurity and malnutrition. South Asia is already one of the most vulnerable regions to climate change and its profoundly adverse effects on food security. More than 800 million people in the region are vulnerable to the negative impacts of covariate shocks, especially climate change. Some 50 percent of the SAR population are exposed to climate hazards. In 2020, the fall armyworm devastated Afghanistan, Pakistan, and parts of India and Nepal; Bangladesh struggled with floods during the pandemic; and bird flu caused a nationwide food-safety scare in India.

To add to these, the consecutive and prolonged nature of the economic shocks (exacerbated by Ukraine crisis) come at a time when food supply chains have already been choked, and inventories exhausted, owing to the pandemic. Moreover, events such as the currency crisis resulting in drying of foreign reserves, import bans, among others have restricted people's access to nutrition supplements as in Sri Lanka's *Triposha* program. These factors risk pushing a large portion of the population to resort to negative coping mechanism which in turn can have long term impacts on their overall consumption patterns. Overall, the true impact of the pandemic—and more significantly the economic crisis—on the food system disruptions and their consequent effect on food security is yet to be fully assessed. Moving forward, this is one such area which requires more focused and rigorous research to inform policy decisions.

APPENDIX

TABLE A.4.1: List of social safety nets programs (new and adapted)

Country Name	Program Name	Social Protection category	Benefit type (New/Adapted)
Afghanistan	REACH Program—Urban cash transfer	1. Unconditional cash transfers	1. New
Afghanistan	Citizens' Charter Afghanistan Project	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
Afghanistan	REACH program	4. Unconditional food and in-kind transfers	1. New
Afghanistan	Citizens' Charter Afghanistan Project	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
Afghanistan	Free distribution of Baked Bread (Naan)	4. Unconditional food and in-kind transfers	1. New
Afghanistan	Wheat distribution	4. Unconditional food and in-kind transfers	1. New
Afghanistan	Dastarkhan-e-Milli program	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
Afghanistan	Dastarkhan-e-Milli program	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
Bangladesh	Taka 1,250 crore cash assistance	1. Unconditional cash transfers	1. New
Bangladesh	10kg rice to 10 million "ultra-poor and destitute families"	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
Bangladesh	Special bonus for frontline workers	1. Unconditional cash transfers	1. New
Bangladesh	Cash compensation for infected and deceased frontline workers	1. Unconditional cash transfers	1. New
Bangladesh	Cash assistance to workers	1. Unconditional cash transfers	1. New
Bangladesh	Old-age allowance	3. Social pensions (non-contributory)	0. Adaptation or new benefit of a previously existing program
Bangladesh	Allowances for Destitute Women	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
Bangladesh	School feeding	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
Bhutan	Druk Gyalpo's Relief Kidu—Income support to affected individuals	1. Unconditional cash transfers	1. New
Bhutan	Build Bhutan Initiative	6. Public works	1. New
Bhutan	Tourism Stimulus Package (cash-for-work/reskilling)	6. Public works	1. New

Country Name	Program Name	Social Protection category	Benefit type (New/Adapted)
Bhutan	Stocking of essential items	4. Unconditional food and in-kind transfers	1. New
Bhutan	WFP and UNICEF's take-home-ration	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
India	Pradhan Mantri Jan Dhan Yojana (PMJDY)	1. Unconditional cash transfers	1. New
India	Bihar's Corona Sahayata (Assistance) scheme	1. Unconditional cash transfers	1. New
India	Pradhan Mantri Kisan Samman Nidhi (PM-Kisan)	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
India	Mahatma Gandhi National Rural Employment Guarantee Scheme	6. Public works	0. Adaptation or new benefit of a previously existing program
India	UP's cash assistance to daily wage earners and laborers	1. Unconditional cash transfers	1. New
India	Assam's Orunodoi Scheme	1. Unconditional cash transfers	1. New
India	Mahatma Gandhi National Rural Employment Guarantee Scheme	6. Public works	0. Adaptation or new benefit of a previously existing program
India	Gujarat's Public Distribution System	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
India	Delhi's Public Distribution System	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
India	Public Distribution System	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
India	Ex-grante cash assistance National Social Assistance Program (NSAP) under Pradhan Mantri Garib Kalyan Yojana (PMGKY)	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
India	Delhi's Social Pension	3. Social pensions (non-contributory)	0. Adaptation or new benefit of a previously existing program
India	Kerala's Midday Meals	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
India	Cash assistance to Building and Other Construction Workers (BOCW)	1. Unconditional cash transfers	1. New
India	Gujrat's child cash assistance to Adarsh Nivasi Shalas, Ashram Shalas and Child Protection homes	1. Unconditional cash transfers	1. New
India	Bihar's Public Distribution System	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
India	Bihar Midday meals	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program

Country Name	Program Name	Social Protection category	Benefit type (New/Adapted)
India	Gujrat's Take Home Ration (Midday Meals)	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
India	Take Home Ration (Midday Meals)	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
India	Andhra Pradesh's Take Home Ration (Midday Meals)	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
India	Pradhan Mantri Garib Kalyan Ann Yojana (PM-GKAY)	4. Unconditional food and in-kind transfers	1. New
India	Delhi's medical assistance (cash) to COVID-19 positive construction workers	2. Conditional cash transfers	1. New
India	Maharashtra's cash assistance to domestic workers	1. Unconditional cash transfers	1. New
India	Cooked meals for migrant workers	4. Unconditional food and in-kind transfers	1. New
India	Tamil Nadu's maintenance allowance	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
India	UP's cash allowance to poor	1. Unconditional cash transfers	1. New
India	Midday Meals	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
India	Karnataka's Public Distribution System	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
India	Tamil Nadu's Midday Meals	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
Maldives	UNICEF's Food basket	4. Unconditional food and in-kind transfers	1. New
Maldives	COVID-19 Emergency Income Support Project	1. Unconditional cash transfers	1. New
Maldives	Financial Aid for Students Abroad	1. Unconditional cash transfers	1. New
Maldives	COVID-19 special income support allowance	1. Unconditional cash transfers	1. New
Nepal	COVID relief cash transfer	1. Unconditional cash transfer	1. New
Nepal	Prime Minister's Employment Program (PMEP)	6. Public works	0. Adaptation or new benefit of a previously existing program
Nepal	Food relief to poor families and informal sector workers	4. Unconditional food and in-kind transfers	1. New
Nepal	Social Security Allowances (SSA) for children	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program

Country Name	Program Name	Social Protection category	Benefit type (New/Adapted)
Nepal	Nepal Urban Governance and Infrastructure Project (Labor-Intensive Public Works)	6. Public works	1. New
Nepal	Cash compensation for deceased depositors of Employee Provident Fund	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
Nepal	WFP's School feeding	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
Nepal	National school feeding program	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
Pakistan	Punjab daily wage worker cash transfer	1. Unconditional cash transfers	1. New
Pakistan	Sindh ration distribution	4. Unconditional food and in-kind transfers	1. New
Pakistan	Sindh cash grant	1. Unconditional cash transfers	1. New
Pakistan	Ehsaas Emergency Cash Program	1. Unconditional cash transfers	1. New
Pakistan	Eid relief packages for COVID-19 affected transgenders	4. Unconditional food and in-kind transfers	1. New
Pakistan	UNHCR Cash Assistance Program for Refugee Families	1. Unconditional cash transfers	1. New
Pakistan	Green Stimulus package	6. Public works	1. New
Pakistan	Ehsaas Koye Bhooka Na Soye (EKBNS) Scheme	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
Pakistan	Sindh cash assistance to pandemic-hit people	1. Unconditional cash transfers	1. New
Pakistan	National Rural Support Program cash grant	1. Unconditional cash transfers	1. New
Pakistan	National Rural Support Program in-kind grant	4. Unconditional food and in-kind transfers	1. New
Pakistan	Punjab government cash compensation for frontline workers (officials, health workers and Rescue 1,122 personnel)	1. Unconditional cash transfers	1. New
Pakistan	Cash compensation to deceased healthcare workers	1. Unconditional cash transfers	1. New
Pakistan	Ehsaas Rashan (Ehsaas Targeted Commodity Subsidy program)	4. Unconditional food and in-kind transfers	1. New
Sri Lanka	Samurdhi	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
Sri Lanka	Tripasha	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
Sri Lanka	Farmers and Fishermen's pension	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program

Country Name	Program Name	Social Protection category	Benefit type (New/Adapted)
Sri Lanka	Senior Citizens' Allowance	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
Sri Lanka	Disability Allowance	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
Sri Lanka	Kidney Disease Allowance	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
Sri Lanka	Loss of livelihood program	1. Unconditional cash transfers	0. Adaptation or new benefit of a previously existing program
Sri Lanka	National School Meals Program	5. Conditional in-kind transfers (School feeding)	0. Adaptation or new benefit of a previously existing program
Sri Lanka	Relief package (dry rations) to families quarantined in their homes	4. Unconditional food and in-kind transfers	0. Adaptation or new benefit of a previously existing program
Sri Lanka	Emergency food aid—Wait for us, stay home	4. Unconditional food and in-kind transfers	1. New

REFERENCES

- Bdnews24. 2020. "Bangladesh to issue 10m OMS cards to buy Tk 10 rice during virus shutdown." *Bdnews24*, April 16, 2020. Accessed July 8, 2022. <https://bdnews24.com/economy/2020/04/16/bangladesh-to-issue-10m-oms-cards-to-buy-tk-10-rice-during-virus-shutdown>.
- Drèze, Jean, and Anmol Somanchi. 2021. "The Covid-19 crisis and food security." *Ideas For India*, June 21, 2021. Accessed July 8, 2022. <https://www.ideasforindia.in/topics/poverty-inequality/the-covid-19-crisis-and-food-security.html>.
- FAO, IFAD, UNICEF, WFP and WHO. 2021. *The State of Food Security and Nutrition in the World 2021: Transforming Food Systems for Food Security, Improved Nutrition and Affordable Healthy Diets for All*. Rome: FAO. https://docs.wfp.org/api/documents/WFP-0000130141/download/?_ga=2.38456036.654724886.1656015896-2067075898.1654889977.
- Gentilini, Ugo, Mohamed Bubaker Alsafi Almenfi, Hrishikesh T.M.M. Iyengar, Yuko Okamura, John Austin Downes, Pamela Dale, Michael Weber, et al. 2022. *Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures*. Living paper version 16. Washington, DC: World Bank Group. <https://openknowledge.worldbank.org/handle/10986/37186>.
- Mahler, Daniel G., Nishant Yonzan, Christoph Lakner, R. Andres Castaneda Aguilar, and Haoyu Wu. 2021. "Updated Estimates of the Impact of COVID-19 on Global Poverty: Turning the Corner on the Pandemic in 2021?" *World Bank Blogs* 24. Accessed June 9, 2022. <https://blogs.worldbank.org/opendata/updated-estimates-impact-covid-19-global-poverty-turning-corner-pandemic-2021>.
- Mahler, Daniel Gerszon, Nishant Yonzan, Ruth Hill, Christoph Lakner, Haoyu Wu, and Nobuo Yoshida. 2022. *Pandemic, prices, and poverty*. Accessed June 9, 2022. <https://blogs.worldbank.org/opendata/pandemic-prices-and-poverty>.
- Makkar, Sanchit, Jawahar Ramasamy Manivannan, Sumathi Swaminathan, et al. 2022. "Role of cash transfers in mitigating food insecurity in India during the COVID-19 pandemic: a longitudinal study in the Bihar state." *BMJ Open* 12: e060624. Accessed July 8, 2022. <https://bmjopen.bmj.com/content/bmjopen/12/6/e060624.full.pdf>.
- Ministry of Education, Science and Technology, Government of Nepal. 2021. *School Sector Program Implementation Manual*. MOEST, Kathmandu, Nepal. https://cehrd.gov.np/file_data/mediacenter_files/media_file-13-1282591290.pdf
- Moeen, Muhammad Saad, Zeeshan Haider, Sania Haider Shikoh, Noormah Rizwan, Amna Ejaz, Stephen Davies, and Abdul Wajid Rana. 2021. *Estimating the Economic Impacts of the First Wave of COVID-19 in Pakistan Using a SAM Multiplier Model*. IFPRI Discussion Paper 2001. Accessed June 29, 2022. <http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/134273/filename/134483.pdf>.
- Pande, Rohini, Simone Schaner, Charity Troyer Moore, and Elena Stacy. 2020. *A Majority of India's Poor Women May Miss COVID-19 PMJDY Cash Transfers*. Policy Brief, April 17, 2020. Yale Economic Growth Center. Accessed July 8, 2022. <https://egc.yale.edu/reaching-indias-poorest-women-covid-19-relief>.
- The Economic Times. 2020. "Govt to transfer Rs 2,000 under PM-KISAN scheme to 8.69 crore farmers in April 1st week." *The Economic Times*. March 26, 2020. <https://economictimes.indiatimes.com/news/economy/policy/govt-to-transfer-rs-2000-under-pm-kisan-scheme-to-8-69-crore-farmers-in-april-1st-week/articleshow/74827334.cms>.
- Tilakarathna, Ganga, Ayodya Galappattige, and Roshini Jayaweera. 2013. *Safety Nets in Sri Lanka: An Overview*. World Bank.

UNICEF, WHO, and World Bank. 2021. *Joint child malnutrition estimates—levels and trends—* 2021 edition. New York: UNICEF. Accessed July 8, 2022. <https://data.unicef.org/resources/jme-report-2021>.

World Bank. 2021. *COVID-19 Household Monitoring Dashboard*. Washington, DC: World Bank Group. Accessed June 9, 2022. <https://www.worldbank.org/en/data/interactive/2020/11/11/covid-19-high-frequency-monitoring-dashboard>.

World Bank. 2021. *PovcalNet*. Washington, DC: World Bank Group. Accessed June 9, 2022. <http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx>.

ENDNOTES

- 1 It refers to programs that existed even before the pandemic and were adapted to meet current needs. The adaptations include horizontal expansion, vertical expansion, advance payment, administrative adaptations, and simplification (for example, suspension of reapplication and re-verification of beneficiaries whose benefits have expired).
- 2 The coverage of direct beneficiaries of cash transfers for each country was estimated by considering the beneficiaries of the program with the highest coverage in each country. This approach has the advantage of avoiding the likely double-counting of beneficiaries (that is, individuals who are eligible to participate in more than one program simultaneously). However, it has the downside of possibly underestimating coverage because there may be beneficiaries participating in programs other than the flagship scheme or the program with the highest coverage.
- 3 See figure 12 in Gentilini et al. (2022, 14).
- 4 Ranked fourth after the US government's stimulus checks (162 million beneficiaries) and Japan's universal hand-out initiatives (116 million beneficiaries).
- 5 Sri Lanka's Loss of Livelihood Program.
- 6 India's PMJDY program.
- 7 Adequacy is derived by computing a daily rate for COVID-19 cash transfers for each country and then compared this rate with the monthly GDP per capita. COVID transfers are provided at various frequencies and for various durations (for example, daily, weekly, bi-weekly, monthly, bi-monthly, or quarterly). Therefore, for the analysis to be comparable, and given that the median income/expenditure is available in daily rates, all COVID cash transfers are converted into daily rates. For example, if a program provides benefits monthly, it is divided by 30 to arrive at the daily rate. The same applies to other duration frequencies (for example, bi-monthly and quarterly). When a program provides a one-off benefit, we considered this transfer for 3 months (given the average duration of COVID benefits during 2020-2021). In this case, the transfer was divided by 3 to get the monthly rate, then by 30 to get the daily rate. The COVID transfers are all converted using normal exchange rates. The exchange rates used (national currency per US dollar, period average) were for December 2020 (mid-point during the pandemic) and were obtained from the IMF's International Financial Statistics (IFS) database. For certain countries, such as Syria and Somalia, the IMF database does not include exchange rates. In such cases, we used the UN Operational Rates of Exchange database.
- 8 An important caveat is that, in most cases, the first payment date is an imperfect measure for response "start" date because many beneficiaries—mostly the poor and vulnerable—receive transfers later. In short, timely responses are not always inclusive because the responses are not always timely for all.
- 9 It compared the timeliness of programs by measuring the number of days it took for the government to make their first cash payment from the date the program was announced: that is, number of days between the announcement date of a cash transfer program and its first payment date, across countries.
- 10 Out of the 8 SAR countries, there are poverty data for 6: Bangladesh, Bhutan, India, Maldives, Pakistan, and Sri Lanka.
- 11 Poverty data are from the World Bank's PovCalNet.
- 12 Prevalence of stunting is used as a proxy for food security and nutrition.
- 13 In simple terms, intergenerational mobility refers to the extent to which individuals can move (typically) up the social ladder compared to their parents. Intergenerational mobility captures one's chances of success and tends to be lower in less developed countries, where the trajectory of a person's life, and the opportunities open to them, tend to be relatively more dependent on preexisting factors such as their parents' socioeconomic status, educational level, and the area they grew up in.

- 14 For example, in Maldives, UNICEF provided food baskets to 691 of the most vulnerable families with children on three islands that were under lockdown. Nearly 300 of them were people with disabilities and about 400 were single parents.
- 15 Three programs from Nepal and Pakistan.
- 16 Four programs from India, Maldives and Pakistan.
- 17 Two programs from Bangladesh and Pakistan.
- 18 Two programs from Bangladesh and Pakistan.
- 19 An administration sub-unit of a district.
- 20 Households headed by widowed, divorced or separated women; households headed by a freedom fighter with disability, and households without access to at least two full meals a day for most of the year.
- 21 N.B.: Although the share of the population covered is considerably high in Sri Lanka, under-optimal targeting resulted in only less than 32 percent of all Samurdhi beneficiaries belonging to the bottom 20 percent of households (personal communication, World Bank staff). It is also worth noting that the targeting has worsened over time with a lesser proportion of deserving households benefiting each year (see Tilakaratnaas et al. 2013).
- 22 There are 4 types of ration cards in Gujarat, first is Below Poverty Line (BPL) ration cards and second is Above Poverty Line (APL-1) ration cards, Antyodaya Anna Yojana (AAY), APL2.
- 23 In spite of the failure of the preceding price ceiling policy, the government in August 2021 decided to re-introduce the policy on essential food items to contain the rise in food prices.
- 24 As a result, the farmers receive farm income at the end of the crop cycle, as anticipated. In addition, it protects farmers from falling into the clutches of “loan shark” moneylenders willing to lend them money at exorbitant interest rates for purchasing inputs, and ensures that farmers can continue working on their farm rather than seek alternative employment.
- 25 The ration card is an official document issued by state governments in India to eligible households typically to purchase subsidized grains and other essential commodities under the National Food Security Act.
- 26 As a result, spending on unconditional cash transfers increased drastically during both crises. However, the adequacy of benefit was undermined by the increase in inflation. Hence the impact of cash transfer on improving consumption was under optimal. Same with conditional transfer. Next, school meal continued during the economic crisis, but the food inflation resulted in either generosity (or quality) of the meal to decrease.



5

Improving In-kind Food-based Safety Nets: The Case of India's Public Distribution System

Raghav Puri

1. INTRODUCTION

India's Public Distribution System (PDS), the country's food-based safety net program, has seen significant changes over the past three decades. Synonymous with corruption in the 1990s, experiencing a "revival" in the 2000s, and becoming a legal entitlement in the 2010s, the PDS has come a long way. This evolution has resulted from a grassroots movement for the "right to food" and state-level initiatives to improve the implementation of the PDS. State-level reforms have played a pivotal role in providing the impetus for how to turn around an ailing national food-based safety net. This chapter focuses on the PDS in select states in India to highlight reforms that can improve the performance of in-kind food-based safety nets in varied contexts.

The first section provides a brief overview of the PDS by highlighting important changes in the food-based safety net since the early 1990s. The next three sections present case studies that showcase PDS reforms in three states: Tamil Nadu, Chhattisgarh, and Bihar. These states were selected to ensure that the varied experiences of PDS reforms across all Indian states were represented in this chapter. The fifth section concludes the chapter by discussing recent national-level reforms such as the National Food Security Act (NFSA) of 2013, Aadhaar-Based Biometric Authentication (ABBA), and the One Nation, One Ration Card (ONORC).

2. THE EVOLUTION OF INDIA'S PUBLIC DISTRIBUTION SYSTEM: A BRIEF OVERVIEW

The PDS was created in the 1940s to address food shortages resulting from the Second World War in large Indian cities. In the 1970s, its coverage was gradually expanded to all Indians and the PDS remained universal till the economic reforms of the early 1990s. In 1992, the universal PDS was replaced by the Revamped Public Distribution System

(RPDS), which provided subsidized grain to households living in tribal, hilly, drought-prone, or remote areas. Five years later, in 1997, the RPDS was replaced by the Targeted Public Distribution System (TPDS), which expanded coverage of the PDS by providing subsidized grain to low-income households across the country.

All subsequent references to the PDS will refer to the TPDS. The entity is funded by the central government and jointly implemented by the central and state governments. The central government is responsible for procuring and storing grain through the Food Corporation of India (FCI) and transporting it to storage facilities in each state. More recently, State Food Corporations (SFCs) have also started playing a role in the procurement and storage of grain as part of the central government's "Decentralized Procurement Scheme." States are responsible for transporting the grain to their network of PDS outlets (commonly known as Fair Price Shops or FPSs), identifying PDS beneficiaries, and licensing FPSs. Once the grain is transported to the FPSs, PDS households can purchase it from their FPS. PDS households are "attached" to their nearest FPS and can only buy their PDS grain entitlement from this FPS.

Under the TPDS, households were divided into two categories: above the poverty line (APL) and below the poverty line (BPL). Each category was eligible for different quantities of grain at different prices. BPL households initially received 20kg of grain (a combination of wheat and rice depending on the state) at fixed subsidized rates, but this quantity was increased to 35 kg in 2001 (Khera 2011a). APL households could purchase 15kg of grain from the PDS but at higher prices than BPL households. For more information about the PDS, see Bhattacharya et al. (2017).

By the mid-2000s, many studies had started criticizing the PDS for being highly inefficient and corrupt (Government of India 2005; Wadhwa 2007). An evaluation by the Government of India's Planning Commission found that only 42 percent of the grain issued by the central government was reaching low-income households; the remainder was either being siphoned off or erroneously provided to non-poor households (Government of India 2005). The report identified flawed targeting of households and high diversion (or "leakage") of subsidized grain from the PDS as major factors responsible for its poor functioning.

With the introduction of the RPDS and TPDS, the government had the mammoth task of identifying low-income households that would be able to access the PDS. In 1992, the government conducted a household survey that used household income to identify BPL households. This BPL survey was severely criticized for including many non-poor households (high inclusion errors) and excluding many poor households (high exclusion errors) in the list of BPL households (Ram et al. 2009).

A second BPL survey was therefore conducted in 1997 which relied on a set of exclusion criteria to exclude "visibly non-poor" households from the list of BPL households. However, this list also was fraught with inclusion and exclusion errors (Ram et al. 2009). Finally, a third BPL survey was conducted in 2002 that relied on a 13-point scale to provide each household with a score. This score was used to determine which households would be included in the BPL list. Once again, there were major issues in the identification of BPL households as many low-income households were excluded from this list (Drèze and Khera 2011). Besides being difficult to implement, this method of

identification of BPL households used arbitrary caps, determined by the central government, on how many households could be considered BPL in each state, and there was no clear mechanism to add or remove households to the BPL lists in the case of future changes in the socio-economic status of households (Drèze and Khera 2011; Ram et al. 2009; Sundaram 2003).

A second concern related to the functioning of the PDS was the inefficient supply chain. Most of the procurement, storage, transportation, and distribution of grain was being done manually, with records being maintained in hand-written registers. This created many avenues for corruption as officials and FPS owners could divert highly subsidized grain from the PDS and sell it at higher rates on the open market. A common source of diversion of PDS grain involved siphoning off PDS grain by creating “ghost beneficiaries” (beneficiaries who have either died or do not exist) or by forging the signatures of beneficiaries who did not purchase their monthly entitlement.

These challenges in the implementation of the PDS made the food-based safety net synonymous with corruption and inefficiency (Government of India 2005; Wadhwa 2007). However, by the late 2000s, evidence started emerging of a “revival” or “turn-around” of the TPDS in some states (Khera 2011a). This revival was attributed to state-level reforms of the PDS that included expanding program coverage, reducing prices of PDS grain, increasing transparency, and improving the supply chain.

Khera (2011a) illustrates these state-level differences in the performance of the PDS by analyzing data from multiple rounds of the National Sample Survey (NSS). These are nationally representative surveys that collect information on household-level consumption and expenditure. The author estimated trends in monthly per capita purchases of PDS grain among rural households between 2000–2001 and 2007–2008, and classified Indian states into three categories: functioning, reviving, and languishing. States where the monthly per capita purchase of PDS grain remained above 1kg throughout the study period are classified as “functioning” states. These include Himachal Pradesh and Tamil Nadu.

States where the monthly per capita purchase of PDS grain was below 1kg in the early years of the study, but above 1kg in the later years, are classified as “reviving” states. These include Chhattisgarh and Odisha. The “revival” of the PDS in these states is corroborated by household surveys of PDS beneficiaries in Chhattisgarh (Puri 2012) and Odisha (Chatterjee 2014; Aggarwal 2011).

Finally, states where the monthly per capita purchase of PDS grain did not rise above 1kg during the study period are classified as “languishing” states. These include Bihar and Rajasthan. Table 5.1 provides a snapshot of these estimates of PDS grain consumption for the states mentioned above.

Khera (2011a) also estimated the diversion of PDS grain by combining consumption data from the NSS with official PDS grain “offtake” data from the Food Corporation of India (FCI). She found that although states such as Chhattisgarh showed a large reduction in the diversion of grain from the PDS, the “languishing states” of Bihar and Rajasthan did not see any such improvement.

Rahman (2014) extended this analysis of monthly consumption of PDS grain by using more recent data from the NSS—data from 2009–10 and 2011–12. He found that states such as Bihar, where the PDS had been “languishing” in the mid-2000s, had significantly improved the functioning of its PDS. These improvements were documented in household surveys conducted in Bihar in the early 2010s (Drèze et al. 2015). Other studies analyzing trends in utilization and diversion in the PDS using NSS data have also found similar improvements (Bhattacharya et al. 2017; Drèze and Khera 2015). Table 5.2 presents estimates of PDS coverage, utilization, and diversion from some of these studies.

This chapter highlights the PDS reforms undertaken in three states: Tamil Nadu, Chhattisgarh, and Bihar. Based on the classification developed by Khera (2011a), these states had a functioning, reviving, and languishing PDS, respectively, in the late

TABLE 5.1: Estimates of PDS utilization and diversion (2000–01 to 2007–08)

State	Consumption of PDS grain (kg/person/month)			Diversion of PDS grain (%)		
	2000–01	2004–05	2007–08	2000–01	2004–05	2007–08
Tamil Nadu	3.4	4.21	4.98	0	7.3	4.4
Himachal Pradesh	2.1	3.3	5.13	31.2	27	13.6
Chhattisgarh	0.5	1.53	3.2	43.2	51.8	–1.5
Orissa	1.2	0.9	1.93	21	76.3	50.2
Bihar	0	0.1	0.16	88.3	91	89.5
Rajasthan	0.3	0.89	0.67	75.8	93.9	81.2
India	0.9	1.19	1.57	39	54	43.9

Source: Khera (2011a).

Note: See Khera (2011a) for a detailed explanation of how diversion was estimated.

TABLE 5.2: Estimates of PDS coverage, utilization, and leakage (2004–05 to 2011–12)

State	Households buying PDS grain (%)		Consumption of PDS grain (kg/month)		Estimated leakage of PDS grain (%)	
	2004–05	2011–12	2004–05	2011–12	2004–05	2011–12
Tamil Nadu	72.7	87.1	15.71	18.15	7.3	11.9
Himachal Pradesh	51.6	89.5	15.36	23.89	27	27.1
Chhattisgarh	24.2	57.5	7.63	20.36	51.7	9.3
Odisha	18.6	63.3	4.26	16.64	76.3	25
Bihar	1.9	42.7	0.51	12.34	91	24.2
Rajasthan	10.2	25.4	4.84	6.78	93.9	60.9
India	22.4	44.5	5.6	11.17	54	41.7

Source: Bhattacharya et al. (2017), Rahman (2014), and Drèze and Khera (2015), respectively.

2000s. Examining the PDS reforms in each of these states with different starting points provides important lessons for national and subnational governments endeavoring to improve the implementation of their in-kind food-based safety nets.

3. LEADING THE WAY: TAMIL NADU'S UNIVERSAL PDS

Tamil Nadu, a state in southern India, has been a frontrunner with respect to food-based safety net programs. When the Indian government introduced the RPDS in 1992 and the TPDS in 1997, Tamil Nadu became the only state to continue providing universal access to the PDS. It was also the first state in India to provide free meals to children in government-run childcare centers and schools in 1982 (Swaminathan et al. 2004). This state-level school meal program became the precursor to India's Mid-Day Meal (MDM) program that has been providing free school meals to students in government and government-aided schools across the country since 1995.

Although the universal PDS of Tamil Nadu eliminated the likelihood of excluding low-income households, it did not provide 35kg of grain to all BPL households. Instead, Tamil Nadu provided 12 to 20kg of rice per household, depending on the number of individuals in each household. Under this system, a single-member household received 12kg of rice, a two-member household received 16kg of rice, and any household with three or more members received 20kg of rice (Government of Tamil Nadu 2021). Besides rice, each household had the option of buying 5kg of wheat and 2kg of wheat flour at subsidized rates. According to a report on the PDS in Tamil Nadu submitted to the Supreme Court of India, although it was commendable that the state had a universal PDS, it was important to ensure that all low-income households were receiving their full entitlement of 35kg of grain (Wadhwa 2010). The same report also questioned the long-run financial viability of a universal PDS, funded by the state budget, particularly for low-income states.

Besides being the only state to provide universal access to the PDS in the 1990s and early 2000s, Tamil Nadu undertook other PDS reforms that would later be emulated by several other states. These reforms included limiting the role of private players in the management of PDS shops, reducing the price of PDS grain below the prices set by the central government, and selling additional commodities such as lentils and cooking oil at subsidized rates through the PDS (Anuradha 2018).

In most states in India, Fair Price Shops (FPSs) were managed by private players in the 1990s. This created avenues for corruption because many FPS owners siphoned off grain from the PDS and sold it at higher rates on the open market (Wadhwa 2012, Khara 2011a). In Tamil Nadu, the management of FPSs was shifted from private dealers to cooperatives, government agencies, and women's self-help groups (SHGs) in the early 2000s. Today, no private ownership of FPSs is allowed in the state (Government of Tamil Nadu 2021). This reduced the likelihood of corruption as FPSs became more accountable to the community.

A second PDS reform that was unique to Tamil Nadu was the reduction in the price of PDS rice from Rs. 5.65 per kg (as prescribed by the central government) to Rs. 2 per kg in 2006, and Rs. 1 per kg in 2008. Since 2011, PDS rice has been provided free of

cost to all residents of the state. While this reform ensures that rice is available for all individuals, it requires the state to finance the reduction in prices. Similar to the financial impact of providing universal coverage to the PDS, it is unclear whether it can remain financially viable, especially in low-income states (Wadhwa 2010).

Finally, Tamil Nadu introduced the “Special PDS” in 2007 to provide additional commodities at the FPSs at subsidized prices. These commodities included lentils (red and black gram), palm oil, and spices. Not only does this increase nutritional security by diversifying the food items available through the PDS, but it also makes the FPS more financially viable because FPS owners can earn additional commission.

The successful performance of the PDS in Tamil Nadu over the past two decades is evident in the studies that estimate the coverage and utilization of the PDS across states. As seen in table 5.1, Tamil Nadu stands out in the early 2000s as one of the few states with high monthly per capita consumption and low diversion of PDS grain. Although Tamil Nadu was a frontrunner in undertaking PDS reforms, states such as Andhra Pradesh and Himachal Pradesh soon followed its lead.

4. “TURNAROUND” OF THE PDS IN THE LOW-INCOME STATES: IMPROVING LAST-MILE DELIVERY IN CHHATTISGARH

Chhattisgarh, located in eastern India, is a predominantly rural state with a large proportion of households living below the poverty line. Unlike Tamil Nadu, Chhattisgarh lacked the finances and administrative capacity to implement large-scale PDS reforms. However, reforms undertaken by Chhattisgarh to expand coverage of the PDS and improve the PDS supply chain produced impressive results (Krishnamurthy et al. 2017; Puri 2012). PDS reforms in Chhattisgarh can be divided into two phases. The first phase was in the early 2000s when the state government increased the coverage of the PDS, reduced prices, increased transparency, and improved the supply chain. The second, in the early 2010s, was when Chhattisgarh launched the Centralized Online Realtime Electronic Public Distribution System (COREPDS) to improve last-mile delivery of PDS entitlements, and enacted the Chhattisgarh Food Security Act (CFSA), which expanded the coverage of the PDS to 90 percent of state residents. While the COREPDS became a model for improving the last-mile delivery of PDS grain for other states, the CFSA became a precursor to the National Food Security Act (NFSA) that was enacted a year later. Most importantly, the success of Chhattisgarh’s PDS reforms provided a path forward for other low-income states to improve their PDS.

A major criticism of the PDS has been the high diversion of grain during its transportation to, and distribution at, FPSs. The first type of diversion takes place when trucks transporting the grain from government storage facilities to FPSs divert the highly subsidized PDS grain for sale on the open market (either siphoning off part of the grain or replacing it with poorer quality grain). Chhattisgarh undertook two major reforms in the mid-2000s to address this problem. First, it introduced “doorstep delivery” of grain to the FPSs by replacing private trucks responsible for delivering grain to FPSs with government-contracted trucks. All trucks delivering PDS grain were painted yellow to make them easily identifiable, and GPS devices were installed in each truck to monitor their movements. Once a truck left the government storage facilities to deliver PDS

grain to any village, updates about the delivery were messaged to concerned village-level functionaries (Puri 2012).

Second, end-to-end computerization of the PDS supply chain was undertaken to replace the manual record keeping of procurement, storage, and transportation of PDS grain. This resulted in streamlining of the PDS supply chain and reduced the opportunities for diversion of PDS grain. By 2009, Chhattisgarh was the only low-income state to have digitized ration cards (used by beneficiaries for purchasing PDS food entitlements), computerized the supply chain, used GPS technology, and created a web-based citizens' portal (Balani 2013; Wadhwa 2009).

The second type of diversion takes place at the FPS when FPS owners either refuse to give PDS beneficiaries their full entitlement of grain or create “ghost beneficiaries” to siphon off grain. To address this second type of diversion, Chhattisgarh shifted the management of FPSs from private owners to cooperatives, village governments (gram panchayats), and women's self-help groups. By reducing the involvement of private players in the FPSs, Chhattisgarh was able to fix this leak (Drèze et al. 2019).

One of the major challenges faced by low-income states in identifying beneficiaries during the BPL surveys was the rapid decline in the maximum number of BPL households. The maximum number of below-the-poverty-line households in each state was determined by the central government based on the estimates of poverty rates from the NSS data. Between 1992 and 2002, the official poverty rate declined considerably, which reduced the number of BPL households in each successive BPL survey.

To address this exclusion of poor households from the 2002 BPL list, in 2007 Chhattisgarh launched the *Mukhyamantri Khadyaan Suraksha Yojana* (MKSU, or the Chief Minister's Food Security Program). Under MKSU, all households that were listed as BPL in the 1992 and 1997 surveys but excluded from the 2002 BPL survey were provided “state ration cards” that allowed them to buy grain from the PDS at BPL prices. The total number of ration cards in Chhattisgarh increased from 1.33 million to 3.26 million after MKSU was introduced (Puri 2012). The additional grain required for the 1.93 million households with “state ration cards” was funded by the Government of Chhattisgarh. By expanding the coverage of the PDS, Chhattisgarh was able to reduce the high exclusion errors in the 2002 BPL list. This effort to reduce exclusion errors was followed by a state-wide verification of ration cards to reduce inclusion errors by canceling ration cards held by ineligible households (Puri 2012). By the late 2000s, it became evident that these PDS reforms initiated by Chhattisgarh had improved the functioning of the PDS. The coverage of PDS had increased significantly, while the estimates for diversion of grain were steadily declining (see table 5.2).

Having computerized the procurement, storage, and transportation processes by 2009, the last hurdle for achieving end-to-end computerization of the PDS supply chain was monitoring the final transaction between the FPS manager and PDS households. Distribution of grain at the PDS is an important avenue for diversion of PDS grain because FPS managers are responsible for manually entering all the sales in a sales register. If a beneficiary does not purchase their monthly entitlement of grain, FPS managers can forge entries in the sales register and sell this grain on the open market. As discussed

earlier in the chapter, FPS managers can also siphon off monthly grain entitlements of “ghost beneficiaries” (individuals that are either dead or do not exist).

To address this “last-mile” delivery of PDS benefits, Chhattisgarh introduced the Centralised Online Real-time Electronic Public Distribution System (COREPDS) to digitize the final transaction between FPS managers and PDS beneficiaries. COREPDS uses electronic point-of-sale (ePoS) devices and chip-based smart cards to record the final transaction. Every time a beneficiary arrives at the FPS, they insert their COREPDS smart card in the ePoS device. The ePoS device retrieves their information from the online server and provides the FPS manager with the beneficiaries’ ration card details as well as their remaining monthly entitlement of grain. Once the transaction is complete, the beneficiary gets a receipt with details of the quantity purchased and the price paid for each item.

Besides improving record keeping, COREPDS provides two additional benefits that have the potential to improve the functioning of the PDS. First, it allows benefits to be portable as beneficiaries can now buy their PDS grain from any FPS rather than being “attached” to their nearest FPS. The portability of PDS benefits provides beneficiaries with the option to choose which FPS they want to use, which creates competition among FPS. Second, it provides real-time information about the stock of grain in each FPS, which helps streamline the process of transporting grain to the FPS. Before the rollout of COREPDS, each FPS would receive grain based on the number of PDS beneficiaries “attached” to their FPS. This would incentivize the FPS manager to siphon off any grain that had not been purchased by beneficiaries. With COREPDS, the stock of grain in each FPS can be monitored in real time, and new allocations of grain can be made based on this information.

While COREPDS provided the technological solution for improving the functioning of the PDS, the Chhattisgarh Food Security Act (CFSA) of 2012 gave the political and legal impetus to further reform the PDS in Chhattisgarh. Chhattisgarh became the first state in India to make food and nutrition security a legal entitlement. The CFSA became a precursor to the National Food Security Act (NFSA) of 2013 by laying the framework for a food security law. Unlike the NFSA, which limits coverage of the PDS to 75 percent of the rural population and 50 percent of the urban population in India, the CFSA does not specify a minimum level of coverage for the PDS but ensures that all individuals who meet the eligibility criteria can access the PDS. The CFSA also provides more generous entitlements compared to the NFSA (Drèze et al. 2019).

By successfully implementing these reforms, Chhattisgarh set a good example for other low-income states on how to reform their PDS. One of the first states to adopt some of these reforms was the neighboring state of Odisha. In Odisha, the government increased coverage of the PDS, reduced prices, and improved last-mile delivery through better identification of beneficiaries (Chatterjee 2014; Aggarwal 2011).

5. FROM “LANGUISHING” TO “REVIVING”: EARLY SIGNS OF REFORM IN BIHAR’S PDS

Bihar, a state in eastern India, has had considerable challenges in managing its PDSs for many years (Drèze et al. 2015). As the state with the highest proportion of households living below the poverty line in India, Bihar can immensely benefit from a well-functioning PDS. However, years of poor implementation of the PDS have resulted in deep-rooted inefficiencies in the functioning of the PDS in the state. Mooij (2001) examined the state of the PDS in Bihar at the turn of the century and concluded that the vested interests of bureaucrats and FPS owners, along with the “underdevelopment and stagnation” in the state, were responsible for the poor performance of the PDS. A decade later, Khara (2011b) paints a similar picture as Bihar’s PDS emerges as the poorest performer in a household survey of PDS beneficiaries across nine states of India.

Unlike the PDS in Chhattisgarh and Odisha, where state governments undertook state-level reforms in the mid-2000s leading to a “revival” of their food distribution systems, Bihar’s PDS continued to “languish” up until the late 2000s. Like Chhattisgarh, the maximum number of BPL households in Bihar declined considerably from the first BPL survey to the second, and from the second to the third. However, Bihar adopted a different approach than Chhattisgarh. It decided to reduce the PDS entitlement for all BPL households from 35kg to 25kg of grain per month, and increase the number of BPL households from 6.5 million to 13.5 million (Choithani and Pritchard 2015). In addition, Bihar undertook two major reforms in the late 2000s: first, it introduced coupons to reduce the diversion of PDS grain, and second, it started implementing some reforms associated with end-to-end computerization of the PDS delivery chain.

In the early 2010s, the first signs of a potential “revival” began to emerge (Bhattacharya et al. 2017; Rahman 2014). One possible explanation for this improvement in Bihar’s PDS was the introduction of coupons. Coupons can reduce corruption as FPS managers can receive only their allocation of grain if they receive coupons from beneficiaries. However, studies examining this new system revealed many irregularities in the implementation. Choithani and Pritchard (2015) found that only 10 percent of the BPL households interviewed in a district in western Bihar had received PDS grain in each of the previous three months, and only 1 percent had received their full entitlement of grain. They provided three explanations for why coupons were unable to improve Bihar’s PDS: first, households could not use coupons for certain months because the coupons were delivered late. Second, FPS owners said they did not have enough supplies of grain (which could be a result of the diversion of grain before it arrived at the FPS). Third, FPS owners often demanded more than one coupon for a month’s supply of grain (Choithani and Pritchard 2015).

Dhorajiwala and Gupta (2012) found similar irregularities in the distribution and use of coupons in their household survey in two districts in central and eastern Bihar. It is unclear if coupons were responsible for improving the performance of the PDS in Bihar, but Choithani and Pritchard (2015) as well as Drèze et al. (2015) state that coupons may have streamlined the very inefficient PDS that existed in the mid-2000s.

Besides introducing coupons, Bihar undertook reforms to improve the PDS supply chain. These reforms included moving to an online system for the allocation of grain to

the FPSs, installing GPS devices in trucks transporting the grain, and providing doorstep delivery of grain to the FPS (Bhattacharya et al. 2017). These reforms could also have played a role in reducing the diversion of PDS grain in the state in 2011–12.

By the mid-2010s, household surveys of PDS beneficiaries in Bihar reported an increase in their purchase-entitlement ratio (PER), a good measure of the effectiveness of the PDS in ensuring that households are receiving their entitlements. Drèze et al. (2015) found that households reported receiving 69 to 79 percent of their grain entitlement from the PDS in the previous two months. This was a major improvement compared to a similar survey conducted in 2011, when the PER in Bihar was only 45 percent (Khera 2011b). Other studies conducted in Bihar also reported PERs ranging from 75 to 80 percent (Drèze et al. 2015). Drèze et al. (2015) attribute these improvements in the PDS to the rollout of the National Food Security Act (NFSA) of 2013. Bihar became one of the first states to implement the NFSA, which considerably increased the coverage of the PDS as well as the allocation of grain to the state.

6. THE WAY FORWARD: THE NATIONAL FOOD SECURITY ACT OF 2013

In September 2013, the Parliament of India passed the National Food Security Act (NFSA) that converted three existing food-based safety nets into legal entitlements. These safety nets included subsidized grain through the PDS, school meals, and the supplementary nutrition program for children aged 6 months to 6 years. Building on various state-level initiatives over the past decade, the NFSA expands the coverage of the PDS to 75 percent of the rural population and 50 percent of the urban population (with higher levels of coverage in low-income states), significantly reduces the prices of PDS grain, replaces the BPL and APL categories with a single “priority” category, and moves from a household-based entitlement of 35kg of grain to an individual-based entitlement of 5kg of grain per person.

Rather than relying on the BPL lists, the NFSA requires each state to determine the eligibility criteria for identifying priority households. Most states have developed a set of inclusion and exclusion criteria, making it easy to identify priority households. For example, in Bihar, any household with a government job, a three- or four-wheel motorized vehicle, 2.5 or more acres of irrigated land, or a house with three or more rooms is excluded from the list of priority households. To take another example: in Madhya Pradesh, on the other hand, any household that was previously a BPL household, is from a marginalized caste or tribe, has a disabled member, or has a landless agricultural laborer is included in the list of priority households (Drèze et al. 2019).

Besides determining the inclusion and exclusion criteria, each state must also decide what database to use to determine eligibility to be a priority household. In Bihar, the state government used recently collected data from the Socio-Economic Caste Census (SECC) of 2011. By applying the exclusion criteria to the SECC data, the government was able to identify priority households and issue new NFSA ration cards. In Madhya Pradesh, the state government used an existing state-level database (the *Samagra Samajik Suraksha* Mission) to identify priority households. However, in Chhattisgarh and Odisha, the state governments used a self-declaration process that required each

household to apply for a new NFSA ration card if they thought they met the inclusion criteria (Puri 2017).

The NFSA also emphasizes the importance of undertaking PDS reforms, which had been limited to a few states. Section 12 of the NFSA requires the central and state governments to “progressively undertake necessary reforms” of the PDS. These include

- doorstep delivery of grain
- the application of information and communication technologies (ICTs)
- the use of biometric identification to ensure proper targeting
- the full transparency of records
- preference given to public institutions for the management of FPSs
- the diversification of commodities distributed under the PDS, and
- the introduction of schemes such as cash transfers and food coupons.

Since the implementation of the National Food Security Act (NFSA) in 2013, there has been an improvement in the functioning of the PDS in many states across the country (Drèze et al. 2019; Puri 2017; National Council for Applied Economic Research 2015). This can be attributed to the central government’s requirement that states undertake a minimum set of PDS reforms before they can receive their new allocation of grain under the NFSA. While it is not possible to analyze the impact of the NFSA on PDS coverage, utilization, and diversion at the national level due to a lack of new data from the NSS, there is evidence emerging from independent studies that show an improvement in the implementation of the PDS in “languishing” states such as Bihar and Rajasthan (Drèze et al. 2019).

More recently, two new reforms have been implemented that have the potential to make significant impacts on the performance of the PDS: Aadhaar-Based Biometric Authentication (ABBA) and the One Nation, One Ration Card (ONORC) scheme. ABBA leverages the national biometric ID (Aadhaar) issued to individuals and the ePoS devices installed at each FPS to reduce the diversion of PDS grain by weeding out duplicate or bogus ration cards. It was introduced in most FPSs in Jharkhand in 2017 and gradually implemented in other states as well. Muralidharan et al. (2020) conducted a large experiment across 17 districts of Jharkhand to study the impact of introducing ABBA technology on the diversion of grain in the PDS. They found that the ABBA system does not reduce leakage by itself but slightly increases transaction costs for beneficiaries, and reduces the benefit amount for genuine beneficiaries who were unable to register for the ID. However, when followed up with a “reconciliation process” that uses ABBA transactions to allocate grain to FPSs, it reduces the diversion of grain and leads to significant reductions in receipt of benefits. The authors stress that attempts to use biometric authentication in the delivery of PDS benefits can lead to costs that exclude, and cause inconvenience to, genuine beneficiaries (Muralidharan et al. 2020). They also mention that their past work, which involved examining the impact of ABBA on a different welfare program in Andhra Pradesh, had yielded more positive results. They attribute this difference in results to the flexibility offered by the ABBA system in Andhra Pradesh to use manual overrides to prevent the exclusion of

genuine beneficiaries, and its focus on improving the user experience instead of only reducing costs (Muralidharan et al. 2016).

The ONORC program was introduced in 2019 on a pilot basis in a few states and eventually scaled up to more states in 2020. Like the COREPDS in Chhattisgarh, the ONORC program aims to enable the portability of PDS benefits across the country. This allows anyone with an NFSA ration card that is linked to their Aadhaar ID to buy their PDS entitlements at any FPS in the country with an ePoS machine. The urgent need for the ONORC program became evident during the first lockdown imposed by the government in response to the COVID-19 pandemic in India when many migrant workers, unable to earn their daily wages, could not access their PDS benefits. ONORC has the potential to allow everyone in a household to buy their PDS entitlement in a different part of the country.

Besides focusing on improving the delivery of grain through the PDS, there has also been a push to make the PDS more nutrition-sensitive. This includes expanding the types of food items provided through the PDS, and fortification of some commodities (such as salt, wheat and rice) to increase the nutritional value of the PDS food basket. Since the mid-2000s, many states have introduced pulses in the PDS. While this has increased the consumption of pulses, the quantity of pulses distributed is not large enough to improve nutritional outcomes (Chakrabarti et al. 2020). The evidence with rice and wheat fortification in the PDS has been mixed (Banerjee et al. 2011). With the government announcing its plan to provide fortified rice through the PDS by 2024 (PIB 2021), it will be important to examine the findings of ongoing studies on the effectiveness of fortified rice in reducing anemia (Mahajan 2019).

The COVID-19 pandemic presents a reminder of the important role played by in-kind food-based safety nets, such as the PDS, as a source of food and nutrition security. In their analysis of multiple surveys conducted during the COVID-19 pandemic in India, Drèze and Somanchi (2021) found that approximately 80 to 90 percent of households with NFSA ration cards received free grain from the PDS during COVID-19 lockdowns. This was made possible due to the reforms implemented under the NFSA that made the PDS accessible to a larger proportion of the population and improved the last-mile delivery of PDS benefits through various improvements in the supply chain. Some of these reforms are summarized in table 5.3. The three state-level cases presented in this chapter, along with the reforms under the NFSA, are an effort to provide an overview of the various ways in which the functioning of in-kind food-based safety nets can be improved at the national and subnational levels in other countries. As Drèze et al. (2019) emphasize, although PDS reforms have significantly improved the PDS over the past decade, much more needs to be done to achieve the long-term objective of ending food insecurity.

TABLE 5.3: Timeline of important PDS reforms

Year	PDS Reforms
1992	The Indian government introduces the Revamped Public Distribution System (RPDS). Targets PDS coverage to households in hilly, tribal, drought-prone, and remote locations.
1997	The Indian government replaces RPDS with the Targeted Public Distribution System (TPDS). Targets PDS coverage to “Below Poverty Line” Households.
2007	Tamil Nadu introduces “Special PDS” to provide lentils and cooking oil through the PDS at subsidized rates.
	Chhattisgarh expands coverage of its PDS to non-BPL households through the Chief Minister’s Food Relief Program (MKSY).
	Bihar introduces PDS coupons to reduce the diversion of PDS grain.
2012	The Indian government launches the “End-to-End Computerization of TPDS” program.
	Chhattisgarh introduces the Centralized Online Realtime Electronic PDS, which provides “portability of benefits” in urban areas.
	Chhattisgarh passes the Chhattisgarh Food Security Act (CFSA). Increases coverage of the PDS to 90 percent of the population.
2013	National Food Security Act (NFSA) is passed. Increases coverage of the PDS, reduces prices of PDS grain, and replaces APL and BPL with a single “priority” category.
2016	All 36 states and union territories have implemented the NFSA.
2017	Aadhaar-Based Biometric Authentication is introduced in some states.
2020	The Indian government introduces the “One Nation, One Ration Card” program to allow the portability of PDS benefits across the country.

Source: Generated by author.

REFERENCES

- Aggarwal, Ankita. 2011. "The PDS in Rural Orissa: Against the Grain?" *Economic & Political Weekly* 46(36).
- Alderman, Harold, Ugo Gentilini and Ruslan Yemtsov, eds. 2017. *The 1.5 Billion People Question: Food, Vouchers, or Cash Transfers?* Washington, DC: World Bank. <https://www.worldbank.org/en/topic/safetynets/publication/food-vouchers-or-cash-transfers>.
- Anuradha, G. 2018. Public Distribution System in *Tamil Nadu: Implications for Household Consumption*. LANSAs Working Paper Series No. 23. Brighton: LANSAs.
- Balani, Sakshi. 2013. *Functioning of the Public Distribution System: An Analytical Report*. PRS Legislative Research. <https://pdf4pro.com/view/functioning-of-the-public-distribution-system-prs-56a30f.html>.
- Banerjee, Abhijit, Esther Duflo, and Rachel Glennerster. 2011. "Is Decentralized Iron Fortification a Feasible Option to Fight Anemia Among the Poorest?" In *Explorations in the Economics of Aging*, edited by David A. Wise, Chicago: University of Chicago Press, chap. 10, 317–350. <https://www.nber.org/system/files/chapters/c11948/c11948.pdf>.
- Bhattacharya, Shrayana, Vanita Leah Falcao, and Raghav Puri. 2017. *The Public Distribution System in India: Policy Evolution and Program Delivery Trends*. doi: https://doi.org/10.1596/9781464810879_ch2.
- Chakrabarti, Suman, Avinash Kishore and Devesh Roy. 2020. "Effectiveness of Food Subsidies in Raising Healthy Food Consumption: Public Distribution of Pulses in India." *American Journal of Agricultural Economics* 100(5). doi: 10.1093/ajae/aay022.
- Chatterjee, Mihika. 2014. "An Improved PDS in a 'Reviving' State: Food Security in Koratpur, Odisha." *Economic & Political Weekly* 49(45). <https://www.epw.in/journal/2014/45/special-articles/improved-pds-reviving-state.html>.
- Choithani, Chetan and Bill Pritchard. 2015. "Assessing Bihar's Coupon-Based PDS: Importance of Local Context." *Economic & Political Weekly* 50(3). <https://www.epw.in/journal/2015/3/special-articles/assessing-bihars-coupon-based-pds.html>; <https://www.jstor.org/stable/i24479899>.
- Comptroller and Auditor General of India (CAG). 2015. *Audit on the Preparedness for the Implementation of National Food Security Act, 2013 for the year ended March 2015*. Report of the Comptroller and Auditor General of India. Report No. 54, Ministry of Consumer Affairs, Food and Public Distribution.
- Dhorajiwala, Sakina and Aashish Gupta. 2012. "Coupon fiasco." *Frontline* magazine (India), January 13. <https://frontline.thehindu.com/world-affairs/article30163922.ece>.
- Drèze, Jean, Prankur Gupta, Reetika Khera and Isabel Pimenta. 2019. "Casting the Net: India's Public Distribution System after the Food Security Act." *Economic & Political Weekly* 54(6). <https://www.epw.in/journal/2019/6/special-articles/casting-net.html>.
- Drèze, Jean, Reetika Khera and Jessica Pudussery. 2015. "Food Security: Bihar on the Move." *Economic & Political Weekly* 50(34). <https://www.epw.in/journal/2015/34/special-articles/food-security.html>.
- Drèze, Jean. 2015. "How Bihar mended its ways." *The Hindu*, May 15. <https://www.thehindu.com/opinion/op-ed/Jean-Dreze-on-Bihars-improved-public-distribution-system/article62118891.ece>.
- Drèze, Jean and Anmol Somanchi. 2021. "The COVID-19 Crisis and Food Security." Blog. Ideas for India website, June 21. <https://www.ideasforindia.in/topics/poverty-inequality/the-covid-19-crisis-and-food-security.html>.
- Drèze, Jean and Reetika Khera. 2010. "The BPL Census and a Possible Alternative." *Economic & Political Weekly* 45(9). <https://www.epw.in/journal/2010/09/special-articles/bpl-census-and-possible-alternative.html>.

- Drèze, Jean and Reetika Khera. 2015. "Understanding Leakages in the Public Distribution System." *Economic & Political Weekly* 50(7). <https://www.epw.in/journal/2015/7/insight/understanding-leakages-public-distribution-system.html>.
- Government of Tamil Nadu. 2021. Annual Report of the *Tamil Nadu Public Distribution System* 2020–21.
- Khera, Reetika. 2011a. "Trends in Diversion of Grain from the Public Distribution System." *Economic & Political Weekly* 46(21): 106–114. <https://www.epw.in/journal/2011/21/special-articles/trends-diversion-grain-public-distribution-system.html>.
- Khera, Reetika. 2011b. "Revival of the Public Distribution System: Evidence and Explanations." *Economic & Political Weekly* 46(44).
- Krishnamurthy, Prasad, Vikram Pathania, and Sharad Tandon. 2017. "Food Price Subsidies and Nutrition: Evidence from State Reforms to India's Public Distribution System." *Economic Development and Cultural Change* 66(1).
- Mahajan, Aprajit et al. 2019. *Reducing Anemia through Food Fortification at Scale*. American Economic Association (AEA) RCT Registry.
- Mooij, Jos. 2001. "Food and Power in Bihar and Jharkhand: PDS and its Functioning." *Economic & Political Weekly* 36(34).
- Muralidharan, Karthik, Paul Niehaus, and Sandip Sukhtankar. 2020. *Identity Verification Standards in Welfare Programs: Experimental Evidence from India*. NBER Working Paper No. 26744.
- Muralidharan, Karthik, Paul Niehaus and Sandip Sukhtankar. 2016. "Building State Capacity: Evidence from Biometric Smartcards in India." *American Economic Review* 106(10).
- NCAER. 2015. *Evaluation of the Targeted Public Distribution System in Selected States*. National Council for Applied Economic Research.
- PIB. 2021. *Prime Minister's Address from the Red Fort on 75th Independence Day*. Press Information Bureau, Government of India.
- Planning Commission, Government of India. 2005. *Performance Evaluation of Targeted Public Distribution System (TPDS)*. Planning Evaluation Office, Planning Commission, Government of India. <https://ideas.repec.org/p/ess/wpaper/id6773.html>.
- Puri, Raghav. 2012. "Reforming the Public Distribution System: Lessons from Chhattisgarh." *Economic & Political Weekly* 47 (5).
- Puri, Raghav. 2017. *India's National Food Security Act (NFSA): Early Experiences*. LANSAs Working Paper No. 14. Leveraging Agriculture for Nutrition in South Asia.
- Rahman, Andaleeb. 2014. "Revival of the Public Distribution System: Expansion and Outreach." *Economic & Political Weekly* 49(20).
- Ram, F., S. K. Mohanty, and Usha Ram. 2009. "Understanding the Distribution of BPL Cards: All-India and Selected States." *Economic & Political Weekly* 44(7).
- Sundaram, K. 2003. "On Identification of Households below Poverty Line in BPL Census 2002: Some Comments on the Proposed Methodology." *Economic & Political Weekly* 38(9).
- Swaminathan, Padmini, J. Jeyaranjan, R. Sreenivasan, and K. Jayashree. 2004. "Tamil Nadu's Midday Meal Scheme: Where Assumed Benefits Score Over Hard Data." *Economic & Political Weekly* 39(44).
- Wadhwa. 2007. *Justice Wadhwa Committee Report on the PDS in Delhi*. Central Vigilance Committee on the Public Distribution System, Government of India.

Wadhwa. 2009. *Justice Wadhwa Committee Report on the Computerization of the PDS Operations*. Central Vigilance Committee on the Public Distribution System, Government of India.

Wadhwa. 2010. *Justice Wadhwa Committee Report on the PDS in Tamil Nadu*. Central Vigilance Committee on the Public Distribution System, Government of India.

Wadhwa. 2012. *Justice Wadhwa Committee Report on the PDS*. Central Vigilance Committee on the Public Distribution System, Government of India.



The Evolution, Implementation, and Evidence of Indonesia's Food Assistance Program: From Rice Subsidy to Electronic Food Vouchers

Ivan Mahardika

1. INTRODUCTION

Indonesia's attempt to improve its largest social assistance program offers a good example of the intersection of social assistance, food security, and political economic interests. This case study will examine the dynamics of the country's food assistance policy over time. It will explain the inception of food assistance in the country, focusing on the political economy aspects of the process, discuss the country's experience in converting a rice subsidy scheme into a transfer program, and shed light on the reform's impact and lessons learned. Historically, the performance of Indonesia's food-based social assistance program—which accounts for more than half of the country's total social assistance budget¹—has been strained and uneven, with persistent problems including poor targeting, non-transparency, and implementation irregularities such as diversions and leakages in delivery. In the hope of improving its delivery, in 2017 the Government of Indonesia (GoI) switched the program's modality from in-kind delivery to electronic food vouchers.

The earlier (in-kind delivery) program, known as the Raskin (*Beras Miskin* or Rice for the Poor) program, provided subsidized rice to eligible low-income families. Today, the food assistance program, known as Program Sembako, or staple food program, is a non-cash transfer program disbursed to beneficiaries through electronic vouchers paid to their debit bank accounts.² Besides rice, the beneficiaries can now buy certain other high-nutrient foods containing carbohydrates, animal and plant-based protein, and/or vitamins and minerals. The program removes the subsidized price and beneficiaries are now purchasing food items ideally at market price.

The main challenges during the transition from in-kind assistance to food vouchers included the contrasting historical food security objectives and an empirical evidence of poverty reduction program with various political economy interests involved, as well

as implementation capacity and challenges in the field. But ultimately, the government was able to put in place a rigorously designed, evidence-informed social assistance program.

2. THE HISTORY OF INDONESIA'S FOOD SECURITY AND THE RASKIN RICE DELIVERY PROGRAM

Indonesia's approach to food security has been shaped by a history of recurrent food crises (Timmer, Hastuti and Sumarto 2017). From the Dutch colonial period, through the early days of independence, and toward the present day, Indonesia has faced multiple food crises that have generated food insecurity. The attempts to resolve the crises have all shared one foundational approach: achieving food self-sufficiency and maintaining the stability of food prices, particularly that of rice. This approach has become institutionalized as a set of political norms in Indonesia with leaders in favor of distributing rice directly to poor households, even creating a food logistics agency to be in charge of this function. These norms in turn then shaped the tenets of Indonesia's food security policy space: stabilizing rice prices, a widespread process of pro-poor growth, and providing direct food subsidies (Timmer, Hastuti and Sumarto 2017). Any food-based intervention has had woven into it a broader set of agricultural and price management objectives. This was reflected in the early days of Raskin.

The first food-based social assistance, initiated in 1997, was designed to address rising food costs and rising food insecurity in the wake of the 1997 Asian Financial Crisis and the El Nino drought. In response, the Gol established a food-based social safety-net program known as the Market Operation for the Sale of Subsidized Rice (*Operasi Pasar Khusus Beras* or OPK Beras), after which it was relabeled Raskin. Its twin goals were to ensure that rice would be available to everyone at a reasonable cost and to alleviate food insecurity by easing the economic strain on crisis-affected households, particularly low-income households. It was in effect from July 1998 to the end of 2001.

Launched in 1998 originally as a crisis response measure, Raskin was designed as a rice subsidy program for poor households aimed at assisting beneficiaries to meet their basic food needs. Through subsidies, the national government hoped that Raskin could enable poor households to use the savings for other necessities.

The amount of rice supplied to participants under Raskin has reduced over time. These variances were caused not just by changes in government budget, but also by changes in government policies, such as fuel price adjustments. Between July and November 1998, each beneficiary received 10 kilograms of rice per month. The government increased the monthly allocation to 20 kilograms in December 1998 due to price shocks. Starting in 2008, the rice subsidy was adjusted into 15 kilograms per month (World Bank 2012). In other words, Raskin's programmatic detail has always been sensitive to the changes in political economy circumstances.

As an attempt to improve its delivery, the Gol had made innovation on Raskin's targeting. The beneficiaries for this program were determined using available household expenditure databases with the government. When first initiated, the OPK Beras targeted around 9.3 million families considered as poor and experiencing food

insecurity. These families, labeled as “pre-prosperous families,” were determined based on data from the National Family Planning Coordinating Board (*Badan Koordinasi Keluarga Berencana Nasional* or BKKBN). Starting in 2007, the government switched to databases available at the Central Bureau of Statistics (*Badan Pusat Statistik* or BPS). This allowed the government to update the list of beneficiaries, which resulted in the inclusion of 47 percent of households in the database (SMERU 2008).

The use of data in strengthening the program’s targeting consistently undertook. To strengthen the program’s targeting, the government updated the list of beneficiaries from the Data Collection for Social Protection Programmes (*Pendataan Program Perlindungan Sosial* or PPLS), which was undertaken by BPS, starting in 2010. PPLS was upgraded several times between 2011 and 2015 to improve the precision of the targeting, which totaled 20.5 million households in 2015. The PPLS data are categorized to determine who is eligible for Indonesia’s social security programs, which cover the bottom 40 percent of the population.

The government revised the list of Raskin program participants in 2012, based on new data from the Unified Database for Social Protection Programs (*Basis Data Terpadu* or BDT). The Unified Database was created by the National Team for Poverty Reduction (*Tim Nasional Percepatan Penanggulangan Kemiskinan* or TNP2K) from PPLS. The data collection utilizes Proxy Means Testing (PMT) to rank households according to their levels of poverty or vulnerability (World Bank 2012).

Because of budget constraints, not all of the poor households indicated in PPLS could be included in the Raskin program. As a result, TNP2K had to use 2011 data, and later 2015 data, to create the final list of program recipients, which contained 61.58 percent of the initial target households. Beneficiaries came from a total of 15.5 million families, accounting for around 28 percent of the poorest from the country (World Bank 2012).

Raskin had grown to be the largest of the country’s permanent household-targeted social assistance programs in terms of expenditure, and the second-biggest in terms of official targeted coverage. The government created Raskin program implementation guidelines to ensure seamless deployment. Starting in 2013, the guidelines have been updated annually to reflect changes in the field.

To guide the implementation and for monitoring purposes, the government established what it called the *6 Tepat* (6T) of Raskin (the six qualities of Raskin). These six principles or targets summarized the standards the government expected all program participants to uphold: *Tepat Sasaran*, *Tepat Jumlah*, *Tepat Harga*, *Tepat Waktu*, *Tepat Administrasi*, and *Tepat Kualitas* (accurate targeting, the right quantity, affordable price, on-time delivery, sound administration, and high quality control). These 6T pillars became the indicators for program evaluation.

3. RASKIN CHALLENGES

For close to two decades, there was a significant discrepancy between the goals outlined in the government manuals and official guidelines of the Raskin program and the actual distribution experience on the ground. The World Bank has outlined at least

three problems: poor delivery, poor targeting, and poor management (World Bank 2012). Raskin was fraught with delivery leakages, referring to the amount and quality of benefits not received by the beneficiaries. From its point of origin in government warehouses to the thousands of distribution points across the country, Raskin rice delivery was often diluted from the intended amount. The estimates are that half or less than half of the subsidized rice actually reached the intended households. Yet the government's own budget and administrative records, readily available for inspection, could not indicate at what point along the distribution chain the "missing" rice disappeared (SMERU 2010).

As a consequence, according to the National Socioeconomic Survey or SUSENAS, poor households typically received only about a third of the intended subsidy and paid 25 percent more than the set price. Irregularities thrived in what in retrospect appears to have been a carefully maintained atmosphere of administrative confusion and disinformation that for two decades allowed officials at the village and neighborhood level to skim off the top of the enormous Raskin food assistance budget. MIT Economics professor and director of the Abdul Latif Jameel Poverty Action Lab, Abhijit Banerjee, stated: "The price [of Raskin rice] was something that was set for seven years. It was the same price. Yet many people didn't know the price" (Beaubien 2018).

Additionally, rice in Indonesia comes in a variety of grades, with lower-quality rice often including small stones, being off-color, having cracked kernels, or having an unpleasant odor. Raskin rice often received complaints due to the lower quality of rice provided in the program (Banerjee 2019).

Despite the rigorous targeting at the national level, the final list of beneficiaries would often be altered under the discretion of regional governments, local administrators (social affairs agencies and banks), and village leaders. This below-the-radar practice went on for years partly because the target beneficiaries had not been empowered with the simple knowledge of their entitlements: how much rice they were supposed to get each month, and how much they were supposed to pay. So although poorer households did have higher Raskin coverage than non-poor households, these non-poor households in practice received nearly as much rice as the vulnerable (poor and near-poor) families.

These issues may be explainable through central government oversight and a lack of compliance by local governments with standard operating procedures. In the past, local officials frequently pooled Raskin rice and distributed it evenly to all village members whom they felt were needy, regardless of their actual eligibility, resulting in mistargeting and decreased reception among eligible households. In other circumstances, social norms about sharing, neighborly conflict avoidance, and social envy, along with attitudes of entitlement among the non-poor for Raskin, resulted in a distribution of Raskin rights that leaned toward universality. Raskin rice was shared among a larger number of people in certain locations, and most people who participate buy less than the maximum amount allowed. In some circumstances, Raskin rights were rotated monthly among a larger group of people, resulting in a dilution of benefits and increased coverage. In remote areas, due dates for payments to Indonesia's Bureau of Logistics or Badan Urusan Logistik (BULOG) for Raskin rice prompted the sale of significant quantities of remaining Raskin rice to those who could afford huge deliveries.

4. INSTITUTIONAL ARRANGEMENTS

The program was initially overseen by BULOG. Historically, BULOG's role in managing food security in Indonesia has been extensive, ranging from controlling food commodities prices to supply levels, including trade policies related to agriculture. In Raskin, BULOG was in charge of the rice supply and helped deliver stocks at the regional level to the local government. The distribution to households was undertaken by the local government, where local government had the authority to allocate funds in the distribution's process. Some local governments budgeted for logistic operations that brought Raskin rice closer to households via door-to-door delivery, while others established distribution centers at strategic locations such as mosques or village offices.

Since 2007, the program's implementation generally has been managed by the Ministry of Social Affairs (MoSA) while BULOG has continued to be responsible for delivering the rice to distribution points. That said, the authority over the budget and implementation was often transferred from one institution to another. In 2007, 2008, 2010 and 2011, the authority was given to the President-Director of BULOG. For the period 2008–2009, the budget authority was under the Coordinating Ministry for Social Welfare, later renamed as the Coordinating Ministry of Human and Cultural Development (*KemenkoPMK*) and the program's design and implementation was supported by the National Team for the Acceleration of Poverty Reduction (TNP2K), and the Ministry of Planning and National Development (Bappenas). From 2012 until 2014, the budget authority was taken over by the Director-General for Poverty Management at the Ministry of Social Affairs (MoSA). These multiple oversights often create tension among ministries and created lag in decision making, particularly when it comes to innovating the program's targeting and operations.

Given the overlapping responsibilities across institutions, in 2015, a national steering committee on the program was established. Under Decree No. 57 of 2012, the team was headed by *KemenkoPMK* and supported by various secretaries—MoSA, TNP2K, and Bappenas. The steering committee includes members representing BULOG, the Central Bureau of Statistics (BPS), the Coordinating Ministry for Economic Affairs, the Ministry of Home Affairs, the Ministry for Agriculture, and the Ministry of Finance. Later, when the reform took place, the steering committee was joined by a state-owned banks group association (Himbara) and the Financial Services Authority (OJK). Each institution would update the committee regularly with a focus on program monitoring and evaluation within their purview of responsibility.

The addition of agencies in the program adds complexity of coordination as each agency is considered equally powerful. Additionally, the program's local administrators would only listen to their respective central agency, for instance, local Himbara banks could perform task related to the reform only if it comes from their bank headquarters, local social affairs agencies would only execute instruction from relevant Directorate General inside of Ministry of Social Affairs, and so forth. This hierarchical command, as well as different motivation and understanding of the program across agencies, made it strenuous for innovation to be smoothly implemented on the ground.

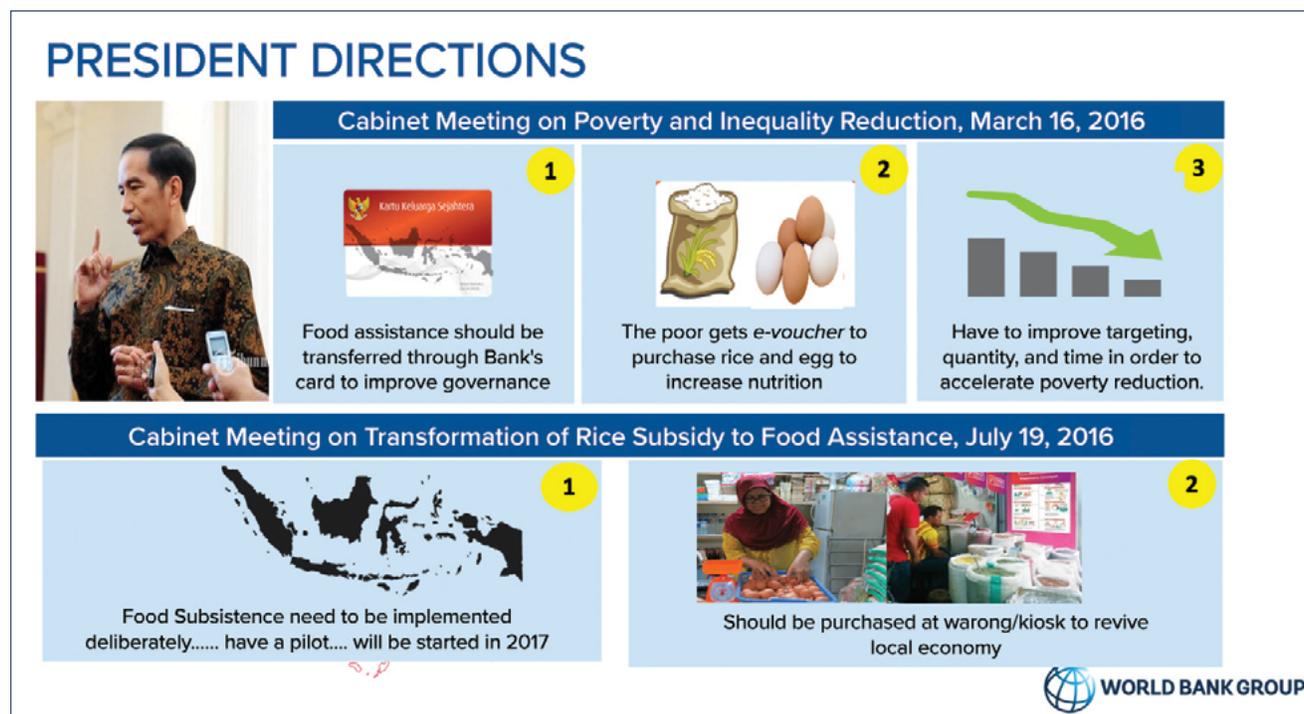
5. TRANSITION FROM RICE SUBSIDY TO ELECTRONIC TRANSFER

The persisting challenges of Raskin delivery called for a significant restructuring of the program since early 2010s. The GoI, in collaboration with universities and international organizations, brainstormed ways to effectively deliver food assistance and to enforce accountability while keeping the program cost-efficient. Numerous studies have been conducted, many of which recommend greater oversight and moving away from a single source of administering the rice (TNP2K 2020). One of the key empirical studies on the program found that introducing beneficiaries with information of the program in the form of official, government-generated ID cards, noting the kind of benefits they were entitled to, could empower beneficiaries and demand for better performance from the program administrators. Beneficiaries were able to hold government officials accountable. Consequently, this kind of intervention improved the delivery of the program (Banerjee, 2018).

At the same time, technology advanced and, in 2016, the newly elected president, Joko Widodo, issued an executive order to transform all social assistance programs into non-cash in order to push for greater financial inclusion by 2020 (TNP2K 2020). This became the starting point for the reform to use electronic vouchers to deliver Raskin. Raskin, being the largest social assistance program, was chosen to be the first program to undertake the reform.

Raskin was relabeled Rastra (*Beras Sejahtera* or Prosperous Rice). In 2015 and 2016, TNP2K led several pilot programs to deliver food assistance electronically. In the vision

FIGURE 6.1: Visuals of President Joko Widodo’s direction to switch all cash transfer programs into electronic transfer, starting with food assistance



Source: Bappenas, Workshop on Food Subsidies, May 20, 2019.

of Indonesia's policymakers, to ensure the quantity and quality of the rice received, the new mechanism would grant more authority and control to the beneficiaries. Instead of simply receiving a sack of rice monthly, the Gol envisioned that beneficiaries should have power over where to buy, what kinds of food items, how much quantity, and how much they pay for the chosen items. The idea behind this proposal was to introduce a market competition component into food assistance, where rice is outsourced and beneficiaries are rational enough to choose the delivery modality that is best for them (TNP2K 2020).

In parallel to mainstream financial inclusion of the poorest households, the Gol has been promoting the use of debit cards for transfer programs and the setup of state-owned enterprise branchless banking agents (*Agen Himpunan Bank Negara* or *Agen Himbara*) (SMERU 2020). The idea is to expand coverage of financial services to poor households so they can use banking features, including opening new bank accounts, saving, transferring, and withdrawing cash. Another social assistance program, Program Keluarga Harapan (PKH), has been using a similar mechanism to transfer its benefits.

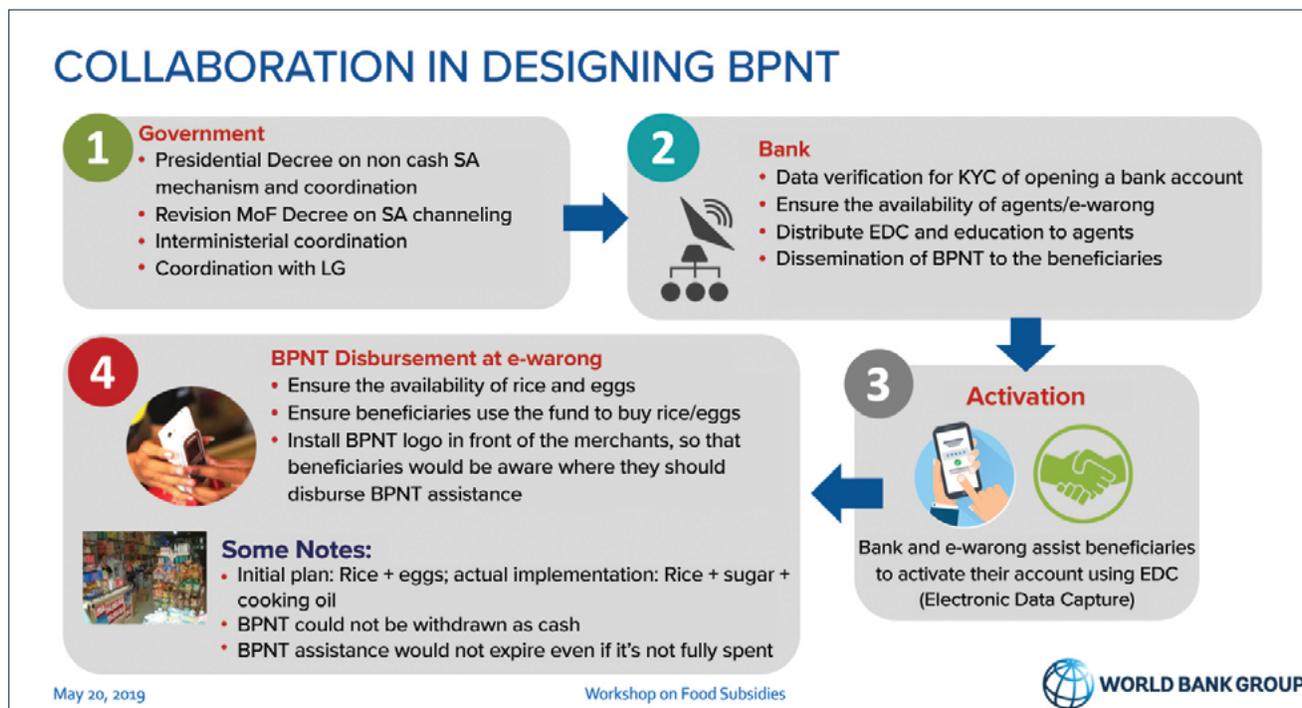
The Gol combined the vision of financial inclusion through electronic vouchers to devise a new program, named Non-Cash Food Assistance (*Bantuan Pangan Non-Tunai* or BPNT). Moving away from in-kind delivery to electronic transfers, beneficiaries received US\$8 (Rp.110.000) monthly in their bank account. The amount could be exchanged for rice and/or eggs at market prices, simulating transactions on the market, and could not be cashed out.

The Gol decided to use the established network of branchless banking agents to be the delivery points of BPNT. These later came to be known as e-Warongs (short for electronic warung). The *warungs*, or small retailers, were recruited by the banks and are given training and equipment such as an electronic data capture (EDC) terminal and banners to facilitate the purchase of food through vouchers. Local administrators (local government and bank staff) helped to recruit shops to participate. Only selected shops were eligible to become e-Warongs, primarily those whose core business is selling staple foods with fixed suppliers. These retailers were deemed to have the required aptitude and business acumen.

The Gol also established several new principles in distributing BPNT non-cash food assistance to address issues faced in Raskin and Rastra delivery. These principles were developed based on the previous evidence on Raskin and Rastra delivery by steering committee. Among the principles are these four: "giving beneficiaries choices and power over where to buy, what kinds of food items, how much quantity, and how much they pay for food items," "beneficiaries can use the vouchers from *Sembako* program at the closest e-Warong," "e-Warong does not bundle foodstuff, namely selling foodstuff the types and amounts of which are determined unilaterally by e-Warong or other parties, leaving beneficiaries with no option," and "e-Warong can buy supplies of foodstuff from various sources by considering the availability of foodstuff supplies for beneficiaries in sustainable manner and in a competitive quality and prices for beneficiaries."

These principles were laid down to ensure that problems in Rastra, and leakages in delivery, are not repeated, to avoid a monopoly of distribution, and to empower the beneficiaries to gain better quantity and quality of food transfer. These principles were disseminated to all stakeholders involved, often in a big forum inviting national and local officials. These principles and operational guide of the new program were also printed in a technical guideline book of the program.

FIGURE 6.2: Flow of BPNT institutional collaboration and disbursement in the field



Source: Bappenas, Workshop on Food Subsidies, May 20, 2019.

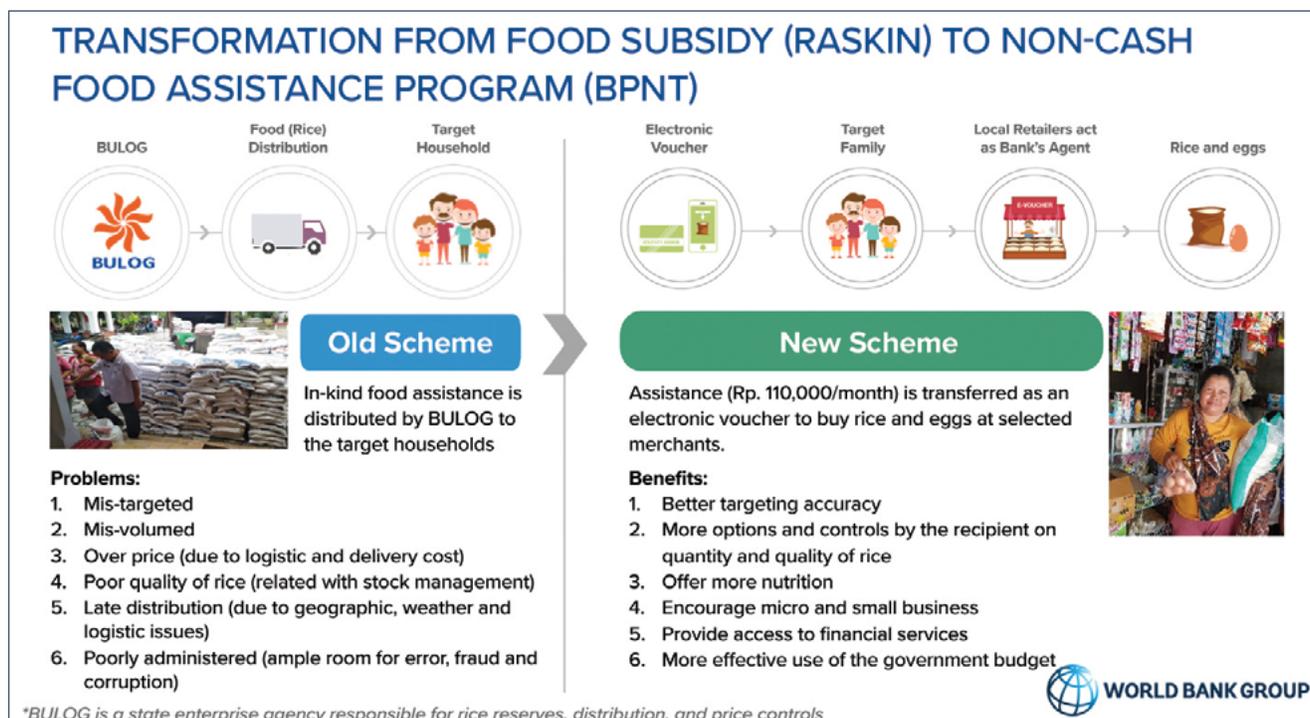
The change from Rastra to BPNT started in 2017 and began with a pilot in 44 major cities that were deemed to be infrastructure-ready. The idea of the reform was to gradually replace the old modalities that deliver rice in-kind with the new modalities using an electronic voucher. The implementation in 44 cities showed a positive result and indicated that transition to electronic vouchers transfer was actually feasible. Hence the Gol went ahead with the national rollout. The Gol continued the transition into new districts throughout 2018 to 2019, rolling it out district by district in four waves in 2018 and three waves in 2019.

6. INTERNAL STRUGGLE TO REFORM THE PROGRAM

One of the major issues to solve was decentralizing the distribution. Previously, BULOG has been the single-source rice supplier and distributor. BULOG opposes the concept of market competition because it perceived it as undermining poverty alleviation goals (*Bulog's 2.3 million tons of rice 2019*). Officials from BULOG said that because rice prices are volatile, beneficiaries may not be able to buy it. At the same time, BULOG was under scrutiny due to excessive rice stocks in their warehouses. BULOG officials said the reform from Rastra to BPNT was responsible for the situation, claiming that the reform had taken over BULOG's rice distribution channels.

Throughout the reform, the steering committee held numerous forums to discuss the future of BULOG's role in the distribution. The government was divided: some agencies were in favor of BULOG taking over the program; others preferred to go ahead with the reform. The Head of BULOG, a former relatively high-ranked police officer, criticized

FIGURE 6.3: Key differences between food subsidy (Raskin) and non-cash food assistance (then BPNT, now called Program Sembako)



Source: Bappenas, Workshop on Food Subsidies, May 20, 2019.

the program, accusing it of favoring private enterprises as opposed to serving the poor. The intense disagreement led to friction on the ground between e-Warongs that were affiliated with BULOG, and Himbara branchless banking.

Midway into the national rollout, in July 2019, MoSA released a statement that BULOG had been appointed as the supply manager for BPNT, expected to “coordinate the supply chain in the ground” (*Kemensos Tunjuk BULOG Jadi* 2019). The responsibilities sounded vague but it opened a door for BULOG to officially involve itself in the delivery once more. BULOG then promised to provide a higher quality of rice that was sold in the market. In light of the statement, some districts started to mandate e-Warongs to switch from market rice to BULOG in direct opposition to the program’s commitment to the principle of flexibility. That said, the discretion to cooperate with BULOG was ultimately up to local governments (*Polemik BPNT berakhir BULOG* 2019).

Moreover, due to the quick pace of the transition, there was limited time to prepare logistics and socialization for the local administrators. This resulted in different levels of understanding across districts in implementing the program, particularly in enforcing the principles of flexibility. To make the transaction easier, many e-Warongs decided to prepackage combinations of rice and eggs for beneficiaries valued around US\$8 (Rp.110.000) matching the amount of the transfer, instead of allowing beneficiaries to spend their voucher value as they wished.

The adequacy of e-Warongs required in each region was also often conflicted, because there was no consensus on how many e-Warongs were needed for smooth delivery.

The guidelines at some point used to prescribe the ratio of e-Warong needed in each village to the number of beneficiaries, but this practice was ended because of rising conflict between local administrators. For instance, they would recruit local retailers to participate in the program despite the lack of standards (for example, not selling staple food on a daily basis) or disregard the ratio in general.

In spite of the resistance from ministries and the difficulties to have a standardized implementation across districts, by the end of 2019 the Gol claimed to have transitioned the delivery mechanism to electronic vouchers nationwide. This meant approximately 15.5 million household beneficiaries had registered for the program and had a bank account to receive electronic vouchers monthly. Seeing the success of the transition to BPNT, the Gol decided to expand the program budget and coverage in 2020.

Beginning in 2020, BPNT was further transformed into Program Sembako, translated as staple food program. The modalities of Program Sembako remain the same as BPNT, that is, distributing the benefits via electronic vouchers. Yet there are some modifications in the program targeting and benefits. The number of beneficiaries now covers 20.4 million households, an addition of approximately 5 million households to the program. The program now targets more people below 40 percent. There is a top-up in the value of assistance transferred to beneficiaries from US\$8 (Rp.110.000) per month per household to US\$10 (Rp.150.000) per month per household.

Additionally, beneficiaries are now no longer limited to buying rice and/or eggs. They are now allowed to buy from categories of food items based on the source of nutrition: carbohydrates, animal and vegetable protein, and vitamins and minerals. This is essentially the primary upgrade from BPNT to Program Sembako, which aims to cover more nutritious food items, including complementary feeding needs in order to reduce and prevent stunting.

7. ADAPTABILITY DURING THE COVID-19 PANDEMIC

In response to COVID-19, the Gol has used Program Sembako as an instrument to cushion the social and economic impact of the pandemic (TNP2K 2020). The Gol allocated an additional Rp16.2 trillion toward the program, the largest top-up among all of its existing social programs. This has resulted in an increase in the number of beneficiaries, benefit values, and items eligible for the program. First, the number of beneficiaries targeted in Program Sembako has increased from approximately 15.5 million families to 20 million families. The additional 4.5 million families are those who are vulnerable to economic shocks, including those in the Program Sembako, the bottom 40 to 50 percent. In addition, the benefit value is added from US\$10 (Rp.150.000) per month into US\$13 (Rp.200.000) per month, a top-up of an additional US\$3 or Rp50.000 in benefits.

To enforce health protocols, the Gol made adjustments to the strategies of delivery in the field. Besides food items, soap and face masks were now eligible for purchase. Beneficiaries and administrators were required to wear face masks, maintain physical distance, and wash their hands, and e-Warongs were required to supply soap at their location. Several areas reported that they have/had already set up a food-buying schedule so that beneficiaries do not arrive at an e-Warongs at the same time. Foods are

packed to make sales easier and faster, based on the collective agreement of food items considered essential.

The adjustment sets aside a number of principles in delivering non-cash assistance, which gives more flexibility and authority to the beneficiaries. The Gol has shown an ability to quickly utilize existing programs and swiftly adjust the delivery to suit the circumstances. The established electronic transfer infrastructure, as well as the robust targeting database assembled for the earlier Rastra to BPNT reform, have allowed the Gol to strengthen its social safety net programs.

8. EVIDENCE FROM THE TRANSITION

Since the beginning of the transition to BPNT, the Government of Indonesia has iterated the use of evidence in reforming Rastra to BPNT. Taking advantage of the phased-in transition, the Gol, in collaboration with researchers from the Abdul Latif Jameel Poverty Action Lab (J-PAL), conducted a policy experiment to compare outcomes between the two modalities (Banerjee et al. 2021). In 105 districts considered ready for transition, the experiment randomly assigned districts that receive Rastra and those who transitioned to BPNT in 2018-19. The Gol randomly assigned 42 districts receiving BPNT in four waves in 2018, and the remaining 63 districts received the program in 2019.

The study revealed that switching from in-kind transfers to vouchers resulted in a significant shift in aid distribution. The voucher program reallocated food toward poorer, targeted households. Table 6.1 presents the regression results from estimating equation (1) for total subsidy, displaying for all households (column 1), households with PMT scores ≤ 30 (that is, targeted beneficiaries) and PMT scores >30 (that is, those not targeted). The benefits are greatest for those with PMT scores of 20 or lower, which corresponds to the bottom 18 percent of the population. On average, households in the middle of the distribution received roughly the same amount of subsidy. On the other hand, households at the top saw the amount of subsidy they receive fall significantly.

Furthermore, the reform allowed better targeting for the program. While the voucher program had a lower likelihood of being received by everyone than the in-kind program, the decreases were much more pronounced for those who were not targeted. A poor household was still less likely (by 16 percent) to receive benefits, whereas wealthier households were 49 percent less likely to receive BPNT.

On the other hand, those who did receive assistance received significantly more in the form of vouchers. Poorer households in BPNT areas received 45 percent more benefits than in Rastra areas, as shown in table 6.2, column 2. The transition to vouchers led to a substantial concentration of benefits among the poor, suggesting that the program was actually received by the poor. Administering via voucher allowed better targeting of the program. The finding suggests that in BPNT regions, households earned an 85 percent higher subsidy conditional on obtaining benefits than in Rastra areas. A possible explanation for this, the study argues, is that there is greater oversight and control of central government in distributing the program: in-kind food delivery was frequently divided and handed out equally to households in villages regardless of eligibility, but vouchers made subdivision impossible.

TABLE 6.1: Timeline of Indonesia’s food assistance reforms

Year	Key Events
1997	Founding of Indonesia’s food-based social protection program, OPK Beras, to address rising food prices and mitigate El Nino drought by controlling the market price of rice
2001	Inception of Raskin, rice subsidy program for poor households
2008	Introduction of 15kg per household per month rice subsidy in Raskin
2012	Update on Raskin beneficiaries database using PPLS 2011
2014	President Joko Widodo gets elected
2015	Update on Raskin beneficiaries database using PPLS 2015
2015	Raskin relabeled as Rastra, switching from food subsidy to food assistance
2016	Instruction from President Joko Widodo to transfer social assistance through electronic vouchers to improve governance
2016	Collaboration in designing and piloting the new food assistance program, later called BPNT, inviting Himbara in the process
2017	BPNT pilot implementation in 44 biggest cities in Indonesia
2018	National expansion of BPNT in four waves to 295 districts
2019	National expansion of BPNT in three waves to 514 districts
2019	Joko Widodo gets re-elected for a second presidential term
2020	Introduction of Program Sembako with additional beneficiaries, additional benefits, and a wider range of food items into the program
2020	Several adjustments made due to COVID-19 pandemic, such as additional top-up in benefits

Source: Generated by author.

Furthermore, the transition from local-led administrators to a noncash transfer administered by banks may be another reason for the increased adherence to distribution mandates. Private agents may be less susceptible to political pressure than government officials when it comes to distributing aid to those who are not eligible. Since e-Warongs are part of the country’s branchless banking program, they are governed by the same banking regulations that regulate other debit cards, which have extra layers of verification of the cardholders.

Additionally, the study shows that the program’s reform led to a decline in poverty among poor households. On average, there was a 45 percent increase in the value of subsidies received by eligible households in BPNT districts. It suggests that beneficiaries received a higher amount of assistance. Additionally, for poorer households in the bottom 15th and 5th percentiles, the study finds that poverty was 20 and 24 percent lower, respectively, as shown in the regression table 6.3. The transition also reveals a shift in households’ consumption pattern, as shown in table 6.4.

The additional choice of eggs included in the program led to an increase in egg consumption, but with no impact on overall consumption. This finding aligns with the

TABLE 6.2: Experimental difference between voucher and in-kind districts on subsidy outcomes

	Total Subsidy (rp)			Receive Subsidy			Recipients Only	
	All	PMT <= 30	PMT > 30	All	PMT <= 30	PMT > 30	Total Subsidy (rp)	Rice Quality
	(1)	(2)	(3)	(4)	(5)	(6)	All (7)	All (8)
Voucher	1304.749	13234.952	-2571.436	-0.134	-0.105	-0.144	31262.669	0.203
	(617.738)	(1915.934)	(563.267)	(0.019)	(0.021)	(0.020)	(3346.486)	(0.020)
	[0.087]	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	66494	16327	49566	66496	16329	49566	19355	19260
Stratum FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Double lasso	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DV mean (Control)	14456.314	29200.535	9161.727	0.393	0.669	0.293	36918.120	0.630

Source: Banerjee et al. (2021).

Note: This table experimentally estimates the difference in subsidy outcomes for voucher versus the in-kind districts. Total Subsidy (rp) is the sum of Rastra and BPNT subsidy values, while received subsidy is an indicator variable for receiving any amount of subsidy. In Columns 2 and 3 we present the results on total subsidy disaggregated by whether the household is targeted (a PMT score below or equal to 30) or not targeted (score above 30); we do the same in Columns 3 and 4 for received subsidy. The quality of rice measure is standardized between 0 and 1, where 1 is the highest quality. For continuous outcome variables, we drop any value greater than 12 standard deviations from the mean. The outcome data come from the March 2019 SUSENAS; the PMT data come from the Unified Targeting Data Base. We used a double LASSO to choose the control variables (all potential variables used as inputs for the LASSO are listed in Appendix B). Standard errors are clustered at the district (kabupaten) level and displayed in parentheses. Randomization inference p-values are from 1,000 permutations of the treatment assignments.

TABLE 6.3: Experimental difference between voucher and in-kind districts below the poverty line

	All	PMT <= 30	PMT <= 25	PMT <= 20	PMT <= 15	PMT <= 10	PMT <= 5
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Voucher	-0.009	-0.023	-0.025	-0.034	-0.043	-0.052	-0.065
	(0.008)	(0.015)	(0.016)	(0.017)	(0.018)	(0.020)	(0.024)
	[0.205]	[0.134]	[0.166]	[0.078]	[0.028]	[0.020]	[0.012]
Observations	66496	16329	13707	11072	8307	5529	2788
Stratum FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Double lasso	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DV mean (Control)	0.098	0.180	0.189	0.198	0.210	0.237	0.267

Source: Banerjee et al. (2021).

Note: This table explores the impact of being below the consumption poverty line, by PMT groupings. The outcome variable, below poverty line, is an indicator for whether a household is below the poverty line in its province by urban/rural area, as measured by per capita consumption. The outcome data come from the March 2019 SUSENAS; the PMT data come from the Unified Targeting Data Base. We used a double LASSO to choose the control variables (all potential variables used as inputs for the LASSO are listed in Appendix B). Standard errors are clustered at the district (kabupaten) level and displayed in parentheses. Randomization inference p-values are from 1,000 permutations of the treatment assignments.

government's attempts to diversify the types of foods available through this program: having a larger variety of food available can encourage beneficiaries to eat a more varied diet.

Furthermore, the study does not find a major impact of the transition on the price of rice. Despite a slight increase in price in remote villages, the study concludes that it was not enough to outweigh the benefits of the program.

TABLE 6.4: Experimental difference in food consumption between voucher districts and in-kind districts

Panel A: Subsidized Food Consumption

	Subsidized Rice (kg)			Subsidized Egg Protein (g)		
	All (1)	PMT ≤ 30 (2)	PMT > 30 (3)	All (4)	PMT ≤ 30 (5)	PMT > 30 (6)
Voucher	-0.300	0.062	-0.424	10.932	32.719	3.362
	(0.066)	(0.205)	(0.058)	(1.534)	(4.648)	(0.463)
	[0.002]	[0.773]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	66495	16328	49566	66423	16270	49552
Stratum FE	Yes	Yes	Yes	Yes	Yes	Yes
Double lasso	Yes	Yes	Yes	Yes	Yes	Yes
DV mean (Control)	1.494	2.987	0.957	0.140	0.484	0.015

Panel B: Total Food Consumption

	Total Rice (kg)			Total Egg Protein (g)		
	All (1)	PMT ≤ 30 (2)	PMT > 30 (3)	All (4)	PMT ≤ 30 (5)	PMT > 30 (6)
Voucher	-0.012	-0.411	0.143	3.454	9.279	0.566
	(0.314)	(0.478)	(0.304)	(3.110)	(4.750)	(3.781)
	[0.971]	[0.492]	[0.704]	[0.354]	[0.100]	[0.891]
Observations	66496	16329	49566	66483	16327	49555
Stratum FE	Yes	Yes	Yes	Yes	Yes	Yes
Double lasso	Yes	Yes	Yes	Yes	Yes	Yes
DV mean (Control)	27.627	31.586	26.170	226.384	213.652	230.738

Source: Banerjee et al. (2021).

Note: This table examines consumption of rice (Columns 1–3) and egg protein from all types of eggs (Columns 4–6). Panel A is any consumption from Rastra or BPNT, while Panel B is total consumption. For continuous outcome variables, we drop any value greater than 12 standard deviations from the mean. The outcome data come from the March 2019 SUSENAS; the PMT data come from the Unified Targeting Data Base. We used a double LASSO to choose the control variables (all potential variables used as inputs for the LASSO are listed in Appendix B). Standard errors are clustered at the district (kabupaten) level and displayed in parentheses. Randomization inference p-values are from 1,000 permutations of the treatment assignments.

TABLE 6.5: Experimental Difference between voucher and in-kind districts on leakage

	Subsidy Received/ Intended Subsidy (1)	Subsidy Received (Market Prices)/ Intended Subsidy (2)	Subsidy Received (Quality-Adjusted)/ Intended Subsidy (3)
Voucher	-0.020	-0.059	-0.013
	(0.031)	(0.029)	(0.031)
	[0.533]	[0.055]	[0.708]
Observations	105	105	105
Stratum FE	Yes	Yes	Yes
Double lasso	Yes	Yes	Yes
DV mean (Control)	0.587	0.586	0.588

Source: Banerjee et al. (2021).

Note: In this table, we examine the subsidy received relative to the intended subsidy to disburse, by treatment status. The data come from the March 2019 SUSENAS and from administrative data. To compute the intended subsidy in an in-kind district, we multiply the number of beneficiaries in the district by the 10kg rice disbursement and the official procurement price of Rastra rice; in the voucher districts, we multiply the BPNT beneficiaries in the district by the disbursement amount (Rp. 110,000). We calculate subsidy received in three ways: in Column 1, it is the sum of the value of any program received; in Column 2, we adjust the voucher disbursement by the market price of rice in the area; in Column 3, we adjust the voucher disbursement by the market price of higher quality rice. We used a double LASSO to choose the control variables (all potential variables used as inputs for the LASSO are listed in Appendix B). Standard errors are clustered at the district (kabupaten) level and displayed in parentheses. Randomization inference p-values are from 1,000 permutations of the treatment assignments.

Lastly, with respect to the leakage, the study finds that BPNT, despite not having significant impact in reducing leakages, was far less expensive to manage as well as more effective at delivering help to targeted beneficiaries. In table 6.5, column 1, the conversion to the voucher program had no impact on the share of the intended subsidy received by households. If anything, as shown in column 2, allowing prices to adjust by area, the voucher program led to a decrease in total subsidy received, significant at the 5 percent level. Finally, adjusting for the quality of rice received, negative, but insignificant impacts of the conversion on leakages can be observed.

The study also calculated the cost of administering in-kind vs voucher programs. It was revealed that the BPNT program costs were much lower than Rastra's already modest costs: 0.75 to 2 percent of payments disbursed. In BPNT, there are two primary costs: printing debit cards for every beneficiary, and the cost of installing electronic data capture (EDC) machines for the e-Warongs. The administrative costs are 0.74 percent of the benefits disbursed, or around 18 percent of the administrative costs for in-kind payments, assuming that all existing agents would have had the machines in any scenario, but that all new agents use the equipment just for the voucher program.

On the other hand, the program expenses for in-kind benefits delivery include BULOG delivery to the district or subdistrict capital, as well as the costs of local government's own pick-up and distribution, as estimated by a survey of the distributors. The administrative program costs for in-kind distribution amount to roughly 4.1 percent of the total benefits.

9. LESSONS LEARNED

Indonesia's experience in transforming its Raskin food assistance transfer scheme into the voucher-based BPNT program provides several opportunities to learn how to weave food security goals into social safety net programs. Evidence-based policymaking has been shown to provide insights into what works and what does not. In Indonesia's case, the government's decision to conduct a pilot prior to the national rollout, and to test out modalities during the transition to inform the new program, has informed options to improve the delivery despite the persistent challenges of delivering assistance in the past.

Furthermore, the Gol's clever decision to interlink the Raskin financial inclusion program with the broader social safety net system enabled the general cash-transfer program infrastructure and ecosystem. The diligent work of updating beneficiaries' data, the use of debit cards, and the appointment of branchless banking agents as delivery points were critical to the success of the transition.

Despite the strong opposition to the process, and the need to make modifications, the government was committed to proceeding with the transition and was able to carry out the reform to its final stage. Basing on the existing evidence on the program, combined with the government interest to mainstream financial inclusion, Indonesia settled with providing information and transferring more authority through electronic vouchers to the beneficiaries to redeem their eligible benefits. With the existing evidence showing that the reform has brought positive impacts to the program, the government can look at the long-term impact of the reform and recommend some of its learnings to other countries.

APPENDIX

TABLE A.6.1: Experimental Difference between Voucher and In-kind Districts on Price

	Main effect only (1)	Above med. supply shock (2)	Above 75th Pct. supply shock (3)	Measures of isolation			Above 75th Pct. time to district capital (7)
				Non-asphalt road (4)	Road not always passable (5)	Above med. time to district capital (6)	
Voucher	140.536 (135.230) [0.296]	77.643 (180.112) [0.673]	69.657 (138.748) [0.623]	127.417 (145.451) [0.363]	135.296 (136.243) [0.322]	58.970 (150.040) [0.689]	56.963 (142.097) [0.655]
Voucher x [Variable]		180.141 (267.890) [0.541]	554.537 (487.630) [0.145]	71.061 (128.233) [0.579]	181.389 (179.736) [0.355]	155.648 (119.427) [0.226]	338.125 (140.447) [0.029]
Observations	32343	32343	32343	32334	32334	32334	32334
Stratum FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Main effect included	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Double lasso	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DV mean (Control)	9478.508	9478.508	9478.508	9478.508	9478.508	9478.508	9478.508
[Variable] mean		0.540	0.238	0.137	0.035	0.489	0.236

Source: Banerjee et al. (2021).

Note: This table examines the impact of the vouchers on market rice prices. Data are from the March 2019 SUSENAS, taken from households that are not in the Unified Targeting Data Base. Measures of isolation data come from the 2018 PODES. Above median and above 75th pct. supply shock indicate whether the district has above median or 75th percentile subsidized rice as a fraction of total rice consumption in the district, respectively. Non-asphalt road indicates whether the roads connecting the village to others are unpaved. Road not always passable indicates whether these roads are impassable at some point during the year. Above median and above 75th pct. time to district capital indicate whether the village's travel time to the nearest district capital is above the median or 75th percentile, respectively. Standard errors are clustered at the district (kabupaten) level and displayed in parentheses. Randomization inference p-values are from 1,000 permutations of the treatment assignments.

REFERENCES

- Banerjee, Abhijit, Rema Hanna, Benjamin A. Olken, Elan Satriawan, and Sudarno Sumarto. 2021. "Food vs Food Stamps: Evidence from an At-Scale Experiment in Indonesia." NBER Working Paper #28641. https://www.nber.org/system/files/working_papers/w28641/w28641.pdf.
- Banerjee, Abhijit, Rema Hanna, Jordan Kyle, Benjamin A. Olken, and Sudarno Sumarto. 2019. "Private Outsourcing and Competition: Subsidized Food Distribution in Indonesia." *Journal of Political Economy* 127(1): 101-137. doi: <https://doi.org/10.1086/700734>.
- Beaubien, Jason. 2018. "How Postcards Solved the Problem of Disappearing Rice." NPR, July 10, 2018. <https://www.npr.org/sections/goatsandsoda/2018/07/10/627355954/how-postcards-solved-the-problem-of-disappearing-rice>.
- "Bulog's 2.3 Million Tons of Rice at Risk of Spoilage." *The Jakarta Post*, July 4, 2019. <https://www.thejakartapost.com/news/2019/07/04/bulogs-2-3-million-tons-of-rice-at-risk-of-spoilage.html>.
- "Kemensos Tunjuk BULOG Jadi Manajer Suplai untuk BPNT." *Tempo*, July 4, 2019. <https://bisnis.tempo.co/read/1221177/kemensos-tunjuk-bulog-jadi-manajer-suplai-untuk-bpnt>.
- "Polemik BPNT berakhir BULOG Janji Pasok Beras Berkualitas." CNBC Indonesia, July 4, 2019. <https://www.cnbcindonesia.com/news/20190705092814-4-82873/polemik-bpnt-berakhir-bulog-janji-pasok-beras-berkualitas>.
- SMERU. 2008. *The Effectiveness of the Raskin Program*. Jakarta, Indonesia: The SMERU Research Institute. <https://smeru.or.id/id/content/efektivitas-pelaksanaan-raskin>.
- SMERU. 2012. "Tinjauan Efektivitas Pelaksanaan Raskin dalam Mencapai Enam Tepat." Jakarta, Indonesia: The SMERU Research Institute. <https://smeru.or.id/id/content/tinjauan-efektivitas-pelaksanaan-raskin-dalam-mencapai-enam-tepat>.
- SMERU. 2020. "The Use of the Social Protection Card (KPS) and the Implementation of the 2013 Unconditional Cash Transfer (BLSM)." Jakarta, Indonesia: The SMERU Research Institute. <https://smeru.or.id/en/content/use-social-protection-card-kps-and-implementation-2013-unconditional-cash-transfer-program>.
- The National Team for the Acceleration of Poverty Reduction (TNP2K). 2020. "Brief of Sembako Program." TNP2K website. <http://tnp2k.go.id/downloads/brief-of-sembako-program>.
- The National Team for the Acceleration of Poverty Reduction (TNP2K). 2020. "Maximising the Benefits of Program Sembako during the COVID-19 Pandemic." TNP2K website. <http://tnp2k.go.id/download/49016Maximising%20the%20Benefits%20of%20Program%20Sembako%20During%20the%20COVID-19%20Pandemic.pdf>.
- Timmer, Peter C., Hastuti, Hastuti and Sumarto, Sudarno. 2017. "Evolution and Implementation of the Rastra Program in Indonesia." Chapter 7 in *The 1.5 Billion People Question? Food, Vouchers, or Cash Transfers?* Washington, DC: World Bank. https://elibrary.worldbank.org/doi/10.1596/978-1-4648-1087-9_ch7.
- World Bank. 2012. "Raskin Subsidized Rice Delivery." Jakarta, Indonesia: World Bank. <https://openknowledge.worldbank.org/handle/10986/26694>.

ENDNOTES

- 1 By 2015, the program covered 15.5 million household beneficiaries, and by 2020 it had expanded to more than 20 million households.
- 2 However, at the time of publication, Gol initiated changes to the delivery mechanism for the Sembako program with an aim to accelerate the distribution and provide flexibility to beneficiaries in terms of modality. N.B., this reform, which has not been confirmed as a permanent model, includes switching distribution mechanism from an e-voucher to mixed modality.



Food Security, Early Warning Systems, and Social Protection: Global Overview and Lessons for South Asia

Pedro Lara de Arruda

1. INTRODUCTION

This chapter discusses flagship social protection programs that have Early Warning Systems (EWSs) embedded in them and are therefore capable of deploying responses to shocks at their early onset, as opposed to after-the-fact responses when a shock has already materialized into a crisis.¹ The chapter refers to these initiatives as Early Warning-Triggered Social Protection (EWTSP) and it looks at global experiences that could inspire the adoption of similar measures by South Asian governments. Despite promising conceptual advantages, there is still little, and rather heterogeneous comparative evidence on whether EWTSP indeed results in more efficient responses to shocks than ex-post responses, humanitarian efforts, and emergency initiatives. Yet this chapter suggests that when performance falls below expectations, it is likely mirroring poor implementation of the EWTSP model rather than inherent conceptual limitations.

As highlighted in chapter 1, South Asian countries have experienced a fivefold increase in natural disasters between 1970 and 2020, which claimed close to a million lives. Furthermore, South Asian countries such as Bangladesh and Pakistan—respectively, the top-third and top-fourth importers of Ukrainian wheat—and Afghanistan—heavily reliant on humanitarian food distribution imported from Europe—feature among the countries most severely affected by the commodity price peaks triggered by the ongoing Russia-Ukrainian war (FAO 2022). But despite the evident need for strong EWSs and EWTSP in South Asia, our analysis aligns with that of Leite and Desinova (forthcoming) suggesting that EWSs in South Asia are not yet well integrated with the region’s social protection systems. This chapter finds that, despite important subnational-level work that is being done by non-government organizations, there is, in all South Asian countries, a striking lack of large-scale, flagship EWTSP programs that are led by central governments and are operational on a continuous basis.

The chapter notices that EWTSP often operate as additional components of regular programs. In that sense, the decade-long experience of EWTSP components in Sahel and the Horn of Africa should inspire South Asian countries to pursue similar initiatives. After all, the regular programs of South Asia are more mature than many regular programs that adapted to incorporate EWTSP components in the Sahel and the Horn of Africa. Furthermore, our analysis suggests that *ad hoc* adaptations recently undertaken by South Asian social protection programs in response to the COVID-19 crisis reveal the region's existing capacity to develop EWTSP programs either by adapting existing initiatives or by rolling out new ones. Quick wins to boost ex-ante social protection responses in South Asia can be sought by balancing already popular geographical targeting of regions with higher poverty prevalence, to also prioritize regions most exposed to onsetting shocks. Towards that end, adhering to global EWSs, such as the Integrated Food Security Phase Classification (IPC), the Famine Early Warning Systems Network (FEWSNET), or the Safety Nets Alert Platform (SNAP), could be major enablers.

2. CONCEPTS, EXPECTATIONS AND (LIMITED) EVIDENCE

Most regular social protection programs are set to mitigate the drivers and impacts of chronic poverty and vulnerability. Yet there is growing demand that social protection systems also present responses to covariate shocks. The literature on Shock-Responsive Social Protection (SRSP) contemplates all measures that can maximize social protection's capacity to provide responses to covariate shocks. An important dimension of this literature discusses features that regular programs can adopt to maximize beneficiaries' own resiliency during covariate shocks – which includes increasing their savings capacity, credit-worthiness, and the sustainability of their means of livelihoods (Bowen et al. 2020; Smith and Bowen 2020; OPM 2017c; UNICEF 2019; Branders, Coudouel, and Rougeaux 2018; Barca and Beazley 2019; Bastagli and Holmes 2014; Beazley et al. 2019; O'Brien et al. 2018).

Another prominent dimension of the SRSP literature is dedicated to enhancing the promptness of social protection systems—referring to their capacity to undergo modifications to remain operational even in challenging contexts—reaching out to those not normally covered by regular programs, and adapting benefit levels and delivery systems to the peculiarity of covariate shocks. The possibilities for doing so are numerous and span across a multitude of options, from adapting pre-existing programs to deploying measures kept on “stand-by” for times of distress, passing through arrangements to repurpose pre-existing social protection instruments (such as payment tools and registries), aligning humanitarian and regular social protection efforts, and much more (Bowen et al. 2020; Smith and Bowen 2020; OPM 2017c; UNICEF 2019; Branders, Coudouel, and Rougeaux 2018; Barca and Beazley 2019; Bastagli and Holmes 2014; Beazley et al. 2019; O'Brien et al. 2018).

This chapter, however, focuses on a third, less prominent dimension of SRSP that aims at complementing the above-mentioned measures by embedding social protection responses into EWSs capable of triggering these responses before shocks complete their full onset and turn into crises. We designate these as ex-ante SRSP, or Early Warning-Triggered Social Protection (EWTSP).

There is strong empirical consensus that the sooner a response reaches those affected by shocks, the less likely that they will have to endure consumption shortages, which therefore reduces their likelihood of resorting to undesired coping mechanisms such as asset depletion, dietary compromises, and removing their children from school at sensitive ages (Pople et al. 2021; Calcutt, Maher, and Fitzgibbon 2021; OPM 2018b; Clarke and Hill 2013).

Clarke and Hill (2013) assessment of catastrophic insurance mechanisms for sub-Saharan Africa, for instance, estimate that in Ethiopia the cost of a drought to a household can increase up to a total of US\$50 if support is delayed by four months, but up to US\$1,300 if delayed six to nine months. Looking at households affected by tropical cyclones in Fiji, Mansur (2018) noticed that, within 3 months of the event, only households who received timely support had recovered to their pre-crisis levels. Pople et al. (2021) found that, in the Bangladeshi context of floods, the average cash treatment effects harvested by WFP's ex-ante intervention could disappear entirely if the intervention to reach out to the population takes longer than 12 days past the event.

Although there are conceptual reasons to expect EWTSP can be more advantageous than other forms of response, empirical evidence is still very limited, and overall there seems to exist much heterogeneity. Conceptually, EWTSP are expected to be called into action before other responses and to subsequently reach out to beneficiaries earlier. Furthermore, EWTSP are expected to contribute to the betterment of national EWSs. The association between EWTSP and EWSs is expected to make the triggering of these responses less subjective and, therefore, to increase the financial landscape to fund such initiatives. Additional financial opportunities include the development of multi-layered pre-established funding options such as specific funds, pre-approved credit lines, and sovereign insurance plans with payouts associated to triggers of EWSs and their associated EWTSP (Calcutt, Maher, and Fitzgibbon 2021; Bailey 2013). There remains, however, an important empirical knowledge gap in the extent to which these expectations actually get realized. As summarized in a recent meta-analysis by Vargas Hill et al. (2021):

1. **There are insufficient data even on the timeliness of responses.** Although there is significant evidence that pre-arranged Disaster Risk Funding (DRF) tend to issue timely payouts to governments, Schäfer and Waters (2016) emphasize that there is no systematic review of the evidence on the speed of disbursements from governments to beneficiaries. Yet there are interesting cases that suggest that EWTSP can generate timeliness gains. Despite the lack of controlled comparisons of response times across different types of response modalities, the 2011 drought that affected Ethiopia, Kenya and Somalia is often taken as a baseline for capturing EWTSP's potential leverage. At that time, the only country of the region that had an EWTSP was Ethiopia, which, despite its many challenges and shortcomings, was capable of deploying responses within 2 months. Other countries of the region such as Kenya and Somalia took 6 and 11 months, respectively, to respond, which led them to experience severe famine crises (Slim 2012; Bailey 2013). Comparing the response time of different initiatives within Ethiopia, Drechsler and Soer (2016), for instance, observed that humanitarian responses took up to 8 months to secure funds and start being implemented in Ethiopia, whereas the country's

EWTSP program, the Productive Safety Net Programme (PSNP), had its emergency component operating in only 2 months.

Comparisons of response times before and after countries established their EWTSP are also revealing. Comparing Kenyan response times in 2011 (when it did not have an EWTSP) to a drought of similar magnitude in 2017 (when its EWTSP was already established), Hailey and Balfour (2018) found that there had been significant improvements in reaction times. This is corroborated by Barca and Beazley's (2019) more recent analysis indicating that the Kenyan EWTSP, the Hunger Safety Net Programme (HSNP), can deliver payments in as little as 2 weeks after the onset of a shock is identified by its EWS. Shifting the focus away from the African context and the 2011 drought, Pople et al. (2021) analysis of WFP's response to the 2020 floods in Bangladesh indicates that its shift from ex-post to ex-ante response may have hastened the delivery of the response by as much as 100 days.

2. **Impact evaluations of EWTSP are rather rare, often limited because of weak counterfactuals, and overall limited to comparisons between the EWTSP and a scenario of no intervention at all.** Pople et al. (2021) impact evaluation of the 2020 WFP-led EWTSP program in Bangladesh was the first ever to count on a robust counterfactual, and it indicated desirable impacts on food consumption, asset preservation, and credit-worthiness. Previous to that, in 2017, EWTSP interventions led by WFP in Bangladesh and the Red Cross in Mongolia had been evaluated, respectively, by Gros et al. (2019) and Gros et al. (2020). Despite desirable impacts on food security, consumption and other outcomes, these two studies had important caveats owing to their small samples and unbalanced comparison groups. The only government-led, flagship EWTSP ever subjected to impact evaluation was Kenya's HSNP. OPM (2017a, 2018c, 2018b, 2018a) found desirable impacts on consumption and livelihood protection, but these results too are marked by an unbalanced counterfactual.
3. **Horse-racing comparisons of the cost-benefit of different initiatives are limited to two ex-ante simulations by Cabot Venton (2018) and Cabot Venton et al. (2012) comparing EWTSP to ex-post humanitarian responses.** Cabot Venton's 2018 study simulates cost-benefit comparisons between responses channeled through proposed EWTSP set-ups in Ethiopia, Kenya and Somalia, and points out that these could potentially save 33 and 63 percent of costs for similar impacts if compared to, respectively, early and (counterfactual) late humanitarian responses in the same countries. These results converge with what was previously found by the author from a study in Kenya and Ethiopia (Cabot Venton et al. 2012).
4. **Linkages between pre-positioned, EWT-funding options and improvements in national EWSs and EWTSP are also not clear, limited to a few qualitative studies of one same regional sovereign pool risk mechanism (the African Risk Capacity, ARC), but covering its application for different countries and resulting in different conclusions.** OPM (2017b) undertook a theory-based assessment of experiences in Mauritania, Kenya and Malawi and found that payouts to governments took place within its 120-day window target in all the countries. Yet the study suggests that none of these countries demonstrated clear improvements in their national EWS capacity as a result. Vyas et al. (2019), in a qualitative analysis of this mechanism for Mauritania, Niger, Senegal and Malawi, found that only Mauritania converted the early payout to government into a faster response to those in need. Additionally,

a specific process auditing to ARC in Mauritania reports that around half of the beneficiaries covered by initiatives funded by ARC in the country managed to avoid undertaking distress sales (OPM 2017b).

Pre-positioned yet ex-post sovereign insurance and risk pooling mechanisms, such as the Caribbean Catastrophe Risk Insurance Facility (CCRIF) (World Bank 2013; Vyas et al. 2016; Marinez-Diaz 2019; Dana and von Dahlen 2014) and the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) (Carter 2015), also have a record of issuing payouts quickly. Pre-established and ex-ante catastrophic credit lines too have a record of timely payouts, but the pace at which governments then channel these resources to the population is often not registered. A World Bank (2017) assessment suggests that this instrument's effectiveness is rather uneven.

5. **Even the macroeconomic desirability of ex-ante financing mechanisms to fund responses to shock is contested.** Mechler (2004) assessed the cost-effectiveness of insurance schemes in Honduras and Argentina and concluded that this was positive in the former but not for the latter. More recently, Adam and Bevan (2020) have suggested that disaster insurance is expensive and that it only plays a limited role in financing reconstruction in contexts where budget relocation is potentially damaging. Yet they conclude that tax financing is the best choice in the absence of donor support or contingent credits. Cebotari and Youssef (2020) in turn, stress that expensive insurance (which is often the case for highly exposed and/or low-income countries) tend to lead to insufficient insurance. Meanwhile, Cantelmo et al. (2019) compare financial insurance against investments in adaptability, concluding that the latter tends to be more cost-efficient but the former is preferable when liquidity constraints limit the ability of the government to rebuild public capital promptly.

To nuance and make sense of the scarce evidence on EWSs and EWTSP, this chapter proceeds with a description and qualitative analysis of core EWS and EWTSP programs.

3. TYPES OF EWS AND CORE GLOBAL AND REGIONAL INITIATIVES

At the root of every EWTSP program is an EWS that informs it and triggers decisions on the extent to which emergency measures should be deployed. EWTSP programs and other pre-established emergency responses may draw from cross-cutting EWSs that serve multiple initiatives, or else draw from their own EWS, which is often embedded and hard to dissociate from the EWTSP and disaster response initiatives themselves (Smith and Bowen 2020; WMO 2020; UNICEF 2019; UNDP 2018; Ibrahim and Kruczkiewicz 2016; IFRC 2014; Bailey 2013). But despite the many cases where division lines between EWSs and EWTSP are rather blurred, it is important to note that there are conceptual and operational difference between these two things, with the former designating a process that converts information on shocks into actionable policy calls, and the latter encompassing a more specific kind of response triggered by it.

Naturally, EWSs must draw from monitoring and forecasting systems like, for instance, satellite images on vegetation conditions and precipitation levels, epidemiological, health and nutritional indicators, and market price trends. But the monitoring and forecasting efforts are only a part of the larger and more complex process that defines

EWSs. Deciding which indicators to use as sources of information is itself one part of the larger EWS process. But other key functions of EWSs include defining methodologies to estimate a shock's impacts on human welfare and, therefore, establishing thresholds or benchmarks of vulnerability to trigger the EWTSP and other shock-responsive measures. Other key functions of EWS processes include connecting forecasting and operational response teams, and overall supporting the definition of appropriate responses to be deployed once an EWS is triggered. Hence an EWS can also be defined as a governance structure to define monitoring and forecasting information, and to continuously process this into decisions informing the deployment of emergency responses (Smith and Bowen 2020; WMO 2020; UNICEF 2019; UNDP 2018; Ibrahim and Kruczkiewicz 2016; IFRC 2014; Bailey 2013).

In this process, it is very important that proxies of shocks informing EWSs maintain continuity over the years, and that their interpretation process fosters converging messages. Otherwise, the assessment of risk and decisions to act can be very dependent on discretionary perceptions that tend to be unfit to mobilize funds and subject to political biases, and that often contribute to delayed response times because of a lack of parameters for building consensus or convergence (Smith and Bowen 2020; WMO 2020; UNICEF 2019; UNDP 2018; Ibrahim and Kruczkiewicz 2016; IFRC 2014; Bailey 2013).

The extent to which EWSs are grounded on parametric indicators and evidence can vary greatly due to local contexts, preferences and capacities. In a sense, some degree of discretion over those decisions may even be positive for reducing the basis risk (that is, the chance that significant shocks are not captured by the metrics and processes informing a given EWS and the responses it feeds). But leaving EWSs too much at the mercy of subjective evaluations of risk may be critically inefficient because political economic factors tend to work as disincentives to governments to act before a shock turns into crisis (Kramer et al. 2021; Vargas Hill 2019; Smith and Bowen 2020; WMO 2020; UNICEF 2019; UNDP 2018; Ibrahim and Kruczkiewicz 2016; IFRCRCS 2014; Bailey 2013).

Vargas Hill (2019), for instance, suggests that limited fiscal space tends to bias political decisions toward avoiding expenditures on anticipatory and ex-ante measures. The author further suggests that the electoral returns of acting in the aftermath of a crisis are much higher than acting at the early days of an onsetting shock, when the risks involved are not self-evident to the population. Looking at Sahelian and Horn of Africa countries during the 2010s drought crisis, Bailey (2013), proposes that in many contexts governments tend to downplay shocks and crises in the belief that acting could increase the visibility of the issue and lead to bad electoral results and/or social unrest.

As will be discussed in the following section (see table 7.2), many EWSs informing EWTSP are centered on the monitoring of a single indicator such as the Vegetation Condition Index (VCI) or its derivative, the Normalized Difference Vegetation Index (NDVI). These specific indicators are—in this case—satellite-based estimations of the vegetation density/health that serve as proxies of incoming harvests and pasture availability. Both historical series and lively updates of these indexes are publicly available as raw data from the USA's National Oceanic and Atmospheric Administration (NOAA).

But even considering programs triggered by the VCI and NDVI,² one cannot really say that the indexes are the EWSs informing these initiatives. The raw information from NOAA does not necessarily indicate, for instance, what cluster-level should be used as the unit of analysis for triggering emergency actions. Neither does NOAA define the most adequate thresholds for triggering emergency responses for each case, nor does it provide emergency protocols defining which specific actions are to be deployed upon reaching determined thresholds. Naturally, all such decisions must factor in context-specific preferences and varying coping capacities across different set-ups, and these take more than the capacity to monitor environmental indicators in real time.

On the one hand, single-hazard EWSs drawing from individual proxies of one same type of shock have the convenience of being somewhat simpler to interpret and translate into political decisions. However, this tends to increase program's basis risk. One good way of mitigating this, therefore, is to develop multi-hazard EWSs. Hence, instead of monitoring and informing policy responses against one single type of shock, the process captures trends across a multitude of other sources of shocks, or else it monitors intermediate variables that are sensitive to multiple kinds of shocks (WMO 2020; Beazley et al. 2019; Ibrahim and Kruczkiewicz 2016; IFRCRCS 2014; Bailey 2013).

Over the past two decades, food and nutritional security have been widely used as a way of monitoring the intermediate effects of a multitude of different shocks. Table 7.1, for instance, describes key features of some core global and regional multi-hazard EWSs often used as policy triggers, all of which center on the monitoring and forecasting of food and nutritional security trends that are, nevertheless, very sensitive to other slow-onsetting and protracted shocks such as conflicts, pandemics, and economic shocks.

It can be argued that one of the reasons EWSs that center on food and nutritional security work well in capturing the effects of other slow-onsetting and protracted shocks is that the process through which varied shocks tend to unfold, affecting agricultural markets and food security outcomes, is fairly well-understood. Bailey (2013) observes that food crises are not “black swan” events. Rather, they are the culmination of a well-understood process that often begins with a particular shock or stress, such as a drought, leading to a livelihood crisis due to poor harvests and pastures which, in the absence of adequate food reserves, traps communities in a hunger gap until the following harvest season. During these periods, people often resort to damaging coping mechanisms, such as compromising the quantity and quality of their meals, borrowing from loan sharks at exorbitant rates, or selling assets at low values to generate quick money. This can trigger precipitous declines in the terms of trade of affected households because food prices tend to bid up while livestock prices go down due to distressed sales. Similar dynamics also tend to deteriorate the terms of trade between food and labor as entire communities start looking for alternative sources of income. As this situation gets more acute, this can result in migration movements, social dislocations, and widespread humanitarian crises.

TABLE 7.1: Characteristics of selected, global and regional early-warning systems

EWS	Lead stakeholder	Starting year	Main inputs	Main outputs	Key dissemination format
Integrated Food Security Phase Classification (IPC)	FAO-led, multipartner initiative	2004	Actual and projected data on 15 health and nutritional indicators (or their best equivalent proxies)	Cluster-level classification according to degrees of Acute Food Insecurity, Chronic Food Insecurity and Acute Malnutrition	Publicly available, cross-country cluster map, with flexible disaggregation options down to subnational levels + at least 2 standardized yearly reports, and oversight of the process to maximize cross-country comparability of findings.
Famine Early Warning Systems Network (FEWSNET)	USAID	1985 (adhering to IPC methodology past 2004)	Same as IPC (except that it does not use consensus from all stakeholders to define the proxies or the projections)	Same as IPC	Similar to IPC, but through independent websites and reports.
Cadre Harmonisé (CH)	CILSS	1999 (adhering to IPC methodology past 2004)	Same as IPC	Same as IPC	Same as IPC, and actually integrated with IPC websites and reports.
Shock Impact Simulation Model (SISMod)	WFP and FAO	2009	Actual and projected data, disaggregated at the subnational level, on agricultural production and inputs cost, commodity retail and wholesale prices, wage rates, remittances and transfers	<ul style="list-style-type: none"> Proportion and depth of food-energy/deficient population (in kcal/person/day) Food gap measured in kg/person/month of the cereal equivalent of the depth of hunger Total food assistance needed to meet identified needs, measured (in metric tons/year) 	Specific spreadsheets and reports considering case-specific thresholds, produced upon demand. Not necessarily focused on promoting comparability across countries. Does not feature public, cross-country map.
Safety Nets Alert Platform (SNAP)	WFP	2016	Same as SISMod but without the need to disaggregate and detail so much, and more concerned with maximizing cross-country comparability.	Same as SISMod (but with less disaggregation) + Food Price Early Warnings comparing the intensity of price differences between the trend and the market price.	Cluster classification according to 4 stages: crisis, alert, stress, and normal. Includes a public, cross-country, color-coded map.
Africa Risk View	African Risk Capacity (ARC)	2013/14	<ul style="list-style-type: none"> Country-specific proxies for soil quality and conversion factors to estimate the cost of national responses to droughts Several rainfall estimates from NOAA (chiefly interpreted by the WRSI)* 	Estimated costs of the policy responses required to provide relief for the population in need	This serves as a trigger of ARC's sovereign insurance schemes, so each country's report mirrors specificities of their insurance contract. No publicly available reports nor color-coded maps, but data might be available on request.

*Columbia University's International Research Institute for Climate and Society (IRI) defines the Crop Water Requirement Satisfaction Index (WRSI) as "an indicator of crop performance based on the availability of water to the crop during a growing season" (Senay 2004).

Source: Generated by author.

As will be discussed in subsequent sections (see table 7.2), many national EWTSP and Disaster Risk Funding (DRF) set-ups draw on the global EWSs listed in table 7.1 to trigger their responses and payouts. Naturally, global and regional EWSs are often not as sensitive to context-bound specificities. And whereas global, regional and national EWSs are well positioned to monitor slow onsetting and protracted shocks (such as droughts, pandemics and economic crisis), it should be noticed that rapid-onsetting shocks (such as fires and landslides) tend to feed mostly from grassroots information channels featuring community-level EWSs. Therefore an ideal preparedness framework should aim at integrating regional, national and community-level EWSs (Leite and Desinova, forthcoming; WMO 2020; Shrestha 2018; Ibrahim and Kruczkiewicz 2016).

The mainstreaming of global EWSs such as the ones listed in table 7.1 is positive because it enables countries that do not have strong national EWSs to still implement EWTSP programs. Furthermore, these can serve as triggers of the sovereign funding mechanisms that will be detailed later in this section, and support traditional funders channeling their resources into the most critical situations (Calcutt, Maher, and Fitzgibbon 2021; Mahul and Maher 2020; World Bank and ADB 2017; World Bank 2016; Ibrahim and Kruczkiewicz 2016; World Bank 2014; Bailey 2013).

A final remark about the global EWSs listed in table 7.1 is that they differentiate themselves in terms of how they factor exogenous drivers' effects into its standard inputs of reference. To foster continuity, objectivity and comparability of their analysis, all those EWSs process the same or similar set of inputs across different countries and over the years. All these EWSs but the ARV, however, have flexibility to forecast the effects of other shocks on these inputs. In a nutshell, this requires building consensus around the relevance of onsetting shocks, and the use of similar methodologies to infer the effects they are expected to have on the standard inputs of these EWSs (IPC 2019). This option prioritizes the goal of reducing basis risks, arguably at the expense of a slight compromise in the comparativeness of such a process across different countries and years (even though they all have sound protocols and governance set-ups to minimize the extent of this compromise).

Africa Risk View (ARV), however, has the peculiarity of being the EWS that triggers payouts of African Risk Capacity's (ARC) sovereign risk insurance plans against droughts. Therefore, it opts for directly defining the drought-related environmental indicators most relevant to the region it covers (mostly soil quality and precipitation levels) as part of its standard analytical inputs. On the one hand, this is positive because such effects are factored into its assessments, regardless of converging or consensual perceptions of the relevance of those risks in any given year. On the other hand, however, this leaves no space to internalize the effects of other shocks outside the realm of those driven by drought-related environmental phenomena.

4. OVERVIEW OF EWSS IN SOUTH ASIA

Although South Asia has important initiatives to improve its hydrometeorological and agroclimatic monitoring capacity, including having satellites of its own, it is worrisome that no country other than Afghanistan features on EWSs such as the IPC, CH,

FEWSNET or SNAP. Adhering to at least one of these frameworks could be the key to furthering the ex-ante shock-responsive capacity of these countries.

EWSs of South Asian countries, in turn, are mostly dysfunctional, fragmented and inconsistent. As laid out by Leite and Denisova (forthcoming):

In most of the countries, early-warning systems exist but cover only a few shocks, or are not yet fully functional or integrated into the Social Protection system. All countries suffer from fragmentation, lack of interoperability as different actors use inconsistent or unharmonized tools and methods of data collection, lack of robust information-sharing mechanisms, limited coverage, insufficiently trained human resources, limited engagement of community people, incomplete ownership by local governments, low investment, and low effort in communicating complex forecasting through simplified bulletins. Hence, in all the countries there is room for improvement and for creating interoperability with the social protection sector as they are not linked to the scaling up of shock-responsive social protection.

In South Asia, social protection and early-warning systems remain two distinct agendas, with limited institutional convergence. India's drought-monitoring system for instance, dates back to 1967. Since 2014, India, in cooperation with neighboring countries, has started piloting an enhanced system that covers the entire region. Important regional initiatives, like the International Centre for Integrated Mountain Development (ICIMOD), the Regional Drought Monitoring and Outlook System for South Asia, University of Tokyo's Remote Sensing of Environment Disaster (RSED) system, and the International Water Management Institute's South Asia Drought Management System (SA-DMS) all provide monitoring and forecasting of important weather-related events with month-long lead times. Since 2021, the India Meteorological Department has even launched the South Asia Flash Flood Guidance System (SA-FFGS) (Saha et al. 2021; Global Water Partnership 2014). Despite the fact that some of these tools have been used for *ad hoc* responses on different occasions, they have not yet featured as recurrent triggers for any structural or pre-defined social protection response mechanisms.

Ironically, one reason why South Asian EWSs are still struggling to consolidate their role in the policy-making process probably has to do with the sheer amount of different and not always converging efforts that have historically taken place in the region, many of which are marked by discontinuity and lack of comparability. Furthermore, existing systems seem more focused on the environmental phenomena than on their socioeconomic implications, thus portraying the forecasted environmental outcomes rather than the expected impacts in terms of human capital. In other words, some of these systems seem more concerned to inform the population about upcoming shocks rather than informing actual policy responses. Often, the means for disseminating forecasts are crucially missing because some of these mechanisms do not have easy public access nor user-friendly interfaces. Typically, they also lack thematic reports or trainings that illustrate the use of their information for policy decisions (Leite and Denisova, forthcoming).

TABLE 7.2: Characteristics of selected EWTSP programs

Country	EWTSP	Program type	Triggering EWS	Start year	Covered population
Kenya	Hunger Safety Net Programme (HSNP)	UCT (scalable)	VCI or ONI	Regular component from 2007, and 35 scale-ups since scalable component became operational in 2015	100,000 households (HHs) benefiting from reg. component, 270,000 pre-registered for scale-up (averaging 217,000 emergency beneficiaries per year between 2015 and 2021)
	Index-Based Livestock Insurance (IBLI)	Semi-contributory livelihood and farming risk insurance	NDVI	Pilot from 2010, with scaleups in 2013 and 2015	Average of 1913 contracts per year between 2010 and 2016
	Kenya Livestock Insurance Programme (KLIP)	Non-contributory livestock insurance for up to 5 animals	NDVI	Launched in 2015 and expanded in 2016	Average of 18,200 HHs per year between 2015 and late 2020
Uganda	Third Northern Uganda Social Action Fund Project (NUSAF 3)	LIPW (scalable) and Livelihood Investment Support (LIS)	NDVI or IPC	NUSAF1 (2003) and NUSAF2 (2008) had no scalable component. This was introduced only in NUSAF3 (from 2016 onward)	Between 2015 and 2020, 460,394 households benefited from the regular LIPW component, 132,838 households benefited from the regular LIS component, and up to 90,405 benefited from the scalable LIPW component
Ethiopia	Productive Safety Net Programme (PSNP)	LIPW to the fit-to-work, and UCT to the unfit-to-work (both scalable)	Board decision informed by LEAP and other sources	Scale-up since the start (2005). LEAP introduced in 2012	Phase IV (2016–2020): 8.3 million regular beneficiaries, and 1.7 million emergency beneficiaries
Mauritania	Elmaouna	Stand-by Emergency UCT (only deployed during shocks)	Board decision informed by multiple sources	2016–17	Between 2017 and 2020 the program was set to cover a total of 7,000 HHs
Senegal	PUSA* (CT piloted in 2017 and 2018)	Not a program. It is a plan to coordinate different responses.	Board decision informed by multiple sources	PUSA's exist for decades, but cash pilots only in 2017 and 2018	8,000 HHs were covered by the cash-pilot run in 2017, and 30,608 in 2018
Afghanistan	Early Warning, Early Finance, Early Action Project (ENETAWF) (planned but not yet operational)**	Regular component with LIPW to the fit-to-work and UCT to the unfit-to-work (both scalable)	FEWSNET or board decision	Project approved in March 2021, meant to take place until 2024, but currently on hold due to regime change	Over 4 years, it plans to cover 180,000 HHs under the regular LIPW; 100,000 HHs under the regular UCT; Up to 190,000 under the emergency grant; and 40,000 HHs under the nutrition-sensitive cash support
Mexico	CADENA	Insurance for local govts. to distribute to smallholding farmers	NDVI	2003 (discontinued in 2021)	Over 6 million hectares of cropland (over 3 million farmers) by 2013

* In French, Plan d'Urgence pour la Sécurité Alimentaire.

** The initiative was meant to take place in 2021 but its implementation has been postponed given the deterioration of the political conditions in the country with the latest regime change.

Source: Generated by author.

5. NATIONAL EWTSP AND THEIR ASSOCIATED EWSS

Table 7.2 presents a list with core flagship EWTSP programs across the world, indicating a strong concentration of these initiatives in the Sahel and the Horn of Africa. It also indicates that most such initiatives include Cash Transfers (CTs) and Labor Intensive Public Works (LIPWs), whereas food distribution is more typical of contexts where the EWTSP still operates similarly to traditional humanitarian interventions. The table also includes selected cases of highly subsidized rural insurance plans, either directly targeted to individual beneficiaries or channeled to them through their local governments.

The EWTSP programs in table 7.2 can be roughly distributed into two groups: a) initiatives automatically triggered by parametric indicators—such as Kenya’s HSNP, IBLI and KLIP, Uganda’s NUSAF3, Mexico’s CADENA, and Afghanistan’s ENETAWF; and b) initiatives that leave the scaling-up decision to governance bodies informed but not automatically triggered by any parametric indicator, as in the case of Ethiopia’s PSNP, Mauritania’s Elmaouna, and Senegal’s Food Emergency Response Plans (PUSA).

As previously argued, because non-parametric triggered programs are conceptually less likely to make timely decisions, and are arguably more vulnerable to subjective perception biases, they are therefore mostly unfit to be funded by the DRF options discussed in the following section. Although it can be argued that parametric triggering mechanisms might aggravate EWTSP’s exposure to basis risk (Kramer et al. 2021; Vargas Hill 2019), HSNP, NUSAF3 and the planned ENETAWF illustrate how this might be mitigated by introducing additional hedge triggers to the programs’ EWSs.

Afghanistan’s plans to the ENETAWF, for instance, define FEWSNET as the main triggering mechanism, but allows for extraordinary scale-ups if the program’s governance body perceives other relevant shocks not captured by this first indicator (World Bank 2021b, 2021c). This option has the merit of limiting inaction due to “political denialism” but arguably could lead to “inefficient” scaling-ups following misperceived and subjective decisions by the board.

An alternative approach is that used by Kenya’s HSNP and Uganda’s NUSAF3. Both countries have primary parametric triggers related to proxies of vegetation density—respectively, the VCI and NDVI—and therefore are sensitive to onsetting droughts. Yet both initiatives also have the option of scaling up based on secondary, more flexible parametric triggers. Uganda’s NUSAF3, for instance, uses the IPC as its secondary trigger. As mentioned in the preceding section, despite IPC’s core inputs being limited to health and nutritional indicators, it allows for the use of projected input values, considering all sorts of shocks consensually perceived as relevant by its stakeholders. In 2020, for instance, this secondary trigger enabled a scale-up in response to a locust plague that was not captured by the NDVI (World Bank 2021a; Calcutt, Maher, and Fitzgibbon 2021; GoU and MoA 2020; Bowen et al. 2020; GoK and National Disaster Management Authority n.d.).

Kenya's HSNP, in turn, uses a proxy of the El Niño phenomena, the Oceanic Niño Index (ONI),³ as a secondary indicator. And during periods of El Niño, the program's board can decide to scale up in response to shocks not necessarily captured by vegetation density indicators. For instance, in 2015, HSNP's largest scale-up was triggered by the ONI and the board's perception about the seriousness of related floods, even in contexts where the VCI did not strike its threshold (World Bank 2021a; Calcutt, Maher, and Fitzgibbon 2021; GoU and MoA 2020; Bowen et al. 2020; GoK and NDMA n.d.).

Another merit of the HSNP and NUSAF3 is that their primary triggers have different thresholds for gradual scale-up commensurate with the severity of onsetting shocks. Both programs have registered the entire population in their covered areas, stratified them per income, and created bank accounts free of charge. The poorest persons identified in this process receive a regular grant, which in the case of HSNP is a bimonthly CT, and in the case of NUSAF3 is the right to undertake remunerated work positions for up to 60 days per year on the program's LIPW projects. In both cases, each time the triggering proxies hit a new threshold, a share of non-regular beneficiaries automatically receive a temporary, emergency benefit: which for the HSNP is a CT, and for the NUSAF3 is the right to work a certain amount of days on existing LIPW projects (Smith and Bowen 2020).

One limitation of EWTSP programs structured around LIPW, such as Uganda's NUSAF3, is that this can exclude the unfit to work, and can be operationally challenging to accommodate more working positions on existing LIPW projects, whereas starting new projects might be time-consuming and miss the window to act before shocks turn into disasters. Afghanistan's planned ENETWAF also has a core, regular component that consists of LIPW opportunities, but to include the unfit-to-work it exceptionally offers them a cash transfer, both as part of its regular and scalable components (World Bank 2021b, 2021c). Ethiopia's PSNP too works in this way, but over and above offering CT and LIPW according to one's fitness to work, it also prioritizes new LIPW projects taking place in regions expected to endure the worst shocks of the year (Filipski et al. 2017; GoE and MoA 2014, 2020; Vargas Hill 2012; IFPRI 2016).

PSNP's EWT-component also has the distinct characteristic of using a parametric indicator specifically designed for it—the Livelihoods, Early Assessment and Protection system (LEAP). Mostly driven by water availability and balanced by local coping capacity, like most context-specific EWSs, LEAP faces the trade-off of being more sensitive to local needs but potentially less helpful to support donors seeking to identify high-priority investment cases across countries. The main shortcoming of PSNP's EWT component, however, is the fact that LEAP is not an automatic parametric trigger but rather a parametric indicator that, along with many others, is meant to inform board decisions on whether or not to scale up (Filipski et al. 2017; GoE and MoA 2014, 2020; Vargas Hill 2012; IFPRI 2016).

Parvanello and Rowe's (2020) assessment of PSNP and other programs triggered by board decisions rather than automatic parametric indicators suggests that the major drivers of inefficiency in this process include data quality issues, and the lack of continuity and comparability among the indicators that inform these board decisions. The authors also noticed that those boards often suffer from excessively large composition and, in many times, little government ownership of the process. In the case of

Elmaouna's CT program, which took place in Mauritania between 2017 and 2020, these issues were further complicated by the complex architecture of the initiative because the scalable, emergency component piggybacked on another program, but each was run by different institutions (Parvanello and Rowe 2020; Leturque 2017; Müller 2015; World Bank n.d.).

In Senegal, governance-related challenges are aggravated by the fact that its EWT response operates through a yearly Food Emergency Response Plan (PUSA), and not through a social protection program as such. The kinds of relief actions to be adopted by the PUSA are not standardized and, overall, these involve a multitude of different measures rather than a cross-cutting initiative that equally serves all those forecast to be in need. Most of those actions include food transfers and livestock de-stocking. In 2017, however, a World Bank project supported the piloting of cash-based responses as part of the PUSA. Despite an overall positive assessment of these pilots, they have not been continued nor scaled up since then (World Bank 2018; Cissoko 2018; World Bank 2021a; Parvanello and Rowe 2020).

Individual-level insurance plans against catastrophic events are yet another option for deploying EWTSP, especially through highly subsidized and progressive programs. A GIZ survey (forthcoming) estimates that 256 million agricultural insurance plans were sold in 2020, mostly led by India and China. Accordingly, 80 percent of those insurance plans were index based – which is interesting because it avoids the ex-ante and ex-post moral hazards faced by insurance schemes with payouts linked to the actual realization of losses (that is, herders failing to protect their livestock and/or falsely reporting an animal's death and so on) (Agency for Rangeland Information and Development in Kenya 2018).

Despite having achieved a significant scale, agricultural insurance schemes are largely directed at better-off farmers, and they insure against more frequent agricultural risks and productivity oscillations rather than catastrophic and infrequent hazards (Kramer 2021; Vargas Hill 2019). According to the authors, flagship rural insurance schemes in Asia such as India's Pradhan Mantri Fasal Bima Yojana (PMFBY) and the Weather Based Crop Insurance Scheme (WBCIS), despite being triggered by parametric indicators, still operate in an ex-post format, and struggle to reach the poorest because they are available only for farmers who have documented ownership of their lands. On their assessment of agricultural insurance programs, Kramer et al. (2021) argues that the successful rural insurance schemes targeted at the poorest persons still tend to require heavy government subsidizing.

Some of the most interesting initiatives of subsidized insurance schemes for poor farmers also take place in Africa and include Kenya's Index-Based Livestock Insurance (IBLI) and the Kenya Livestock Insurance Programme (KLIP), both of which are still marked by small coverage. The former initiative started in 2010 and consists of a semi-contributory, highly subsidized livestock insurance plan purchased from private sector banks through the intermediation of civil society and program operators who actively search for eligible, vulnerable households. Payouts are automatically triggered upon achieving pre-established thresholds of the NDVI (Agency for Rangeland Information and Development in Kenya 2018).

Building on the lessons of the IBLI, since 2015 the Kenyan Government has rolled up a complementary initiative fully on its own—the Kenya Livestock Insurance Program (KLIP). Automatically triggered upon achieving certain thresholds of the NDVI, the program provides for fully subsidized insurance of a limited number of livestock, with the option to insure additional livestock through the IBLI. KLIP’s actual insurance is provided by private companies but paid for by the government, which is also responsible for actively searching for and identifying the target audience (Fava et al. 2021; Mahul and Maher 2020).

Alternatively, ex-ante shock-responsive insurance schemes can have local governments, rather than individuals, as their primary targets. This was the case, for instance, in Mexico’s CADENA, which operated between 2003 and 2021, insuring local governments based on parametric triggers, and channeling payouts that could fund infrastructure but, mostly, ought to be distributed by local governments to affected individuals with less than 20 hectares of land or 60 units of livestock (generally registered in advance) (FAO 2021; Kramer et al. 2021).

6. PATHWAYS FOR DEVELOPING EWTSP PROGRAMS IN SOUTH ASIA

South Asia has interesting EWTSP initiatives at the subnational level and/or run by civil society and development partners. Of those, it is worth remarking on a WFP mobile money transfer in July 2020, to 23,434 Bangladeshi households that were about to experience severe flooding from the Jamuna River based on data-driven forecasts (Pople et al. 2021). However, this review did not find any similar flagship initiative (that is, led by central governments, with large coverage and operating on a continuous basis). Yet one could argue that the region is well positioned to cover this gap since

- a. Around one-fifth of flagship programs already use geographical targeting, which could be balanced to also factor in exposure to onsetting shocks (Arruda et al. 2020; see chapter 4 of this book)
- b. Food security and shock-responsiveness features central in all countries’ social protection framework (Arruda et al. 2020)
- c. It has traditional and robust programs that could develop EWTSP components (Arruda et al. 2020)
- d. The performance of some countries, such as Sri Lanka, India and Pakistan, that undertook *ad hoc* adaptations to roll out COVID-responses (Gentilini, Almenfi, and Dale 2020; IPC-IG 2021, 2020; see chapter 4 of this book) suggests there is enough institutional capacity to assimilate and integrate such responses into an EWTSP framework.

With most of its programs having run now for about 20 years, South Asian countries have more, and more traditional, flagship social protection programs than those in countries of the Sahel and the Horn of Africa. Arruda et al. (2020) identified 51 flagship social assistance programs in Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. Many such programs, such as Pakistan’s Benazir Income Support

Programme (BISP) and India's Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), even have specific mandates set for enhancing communities' resiliency to shocks. Hence the development of ex-ante responsive capacity could actually be seen as a missing step to realize their goals.

Other opportunities include Bhutan's Rural Economy Advancement Programme (REAP) and some streams of India's Public Food Distribution System (PFDS). Both of these initiatives already have geographical-targeting criteria based on poverty prevalence, which could arguably be tweaked to also balance priority coverage of regions that are expected to experience shocks. India's Mid-Day Meal program (MDM), for instance, is already set to scale up vertically (i.e., offering additional benefits) in regions exposed to shocks, but the mechanism still lacks objective triggering criteria and rules, and its responses are therefore mostly ex-post and highly politicized (Arruda et al. 2020).

With around 20 percent of South Asian flagship programs having geographical targeting as part of their selection processes (Arruda et al. 2020), balancing other vulnerability proxies with forecast exposure to shocks could be a promising avenue to develop EWTSP in South Asia without the need to significantly alter existing programs or roll out new ones. Toward that end, long-planned actions such as the updating of Pakistan's social registry to factor in information about one's vulnerability to shocks (Watson et al. 2017) ought to be fast-tracked and should inspire similar efforts in neighboring countries.

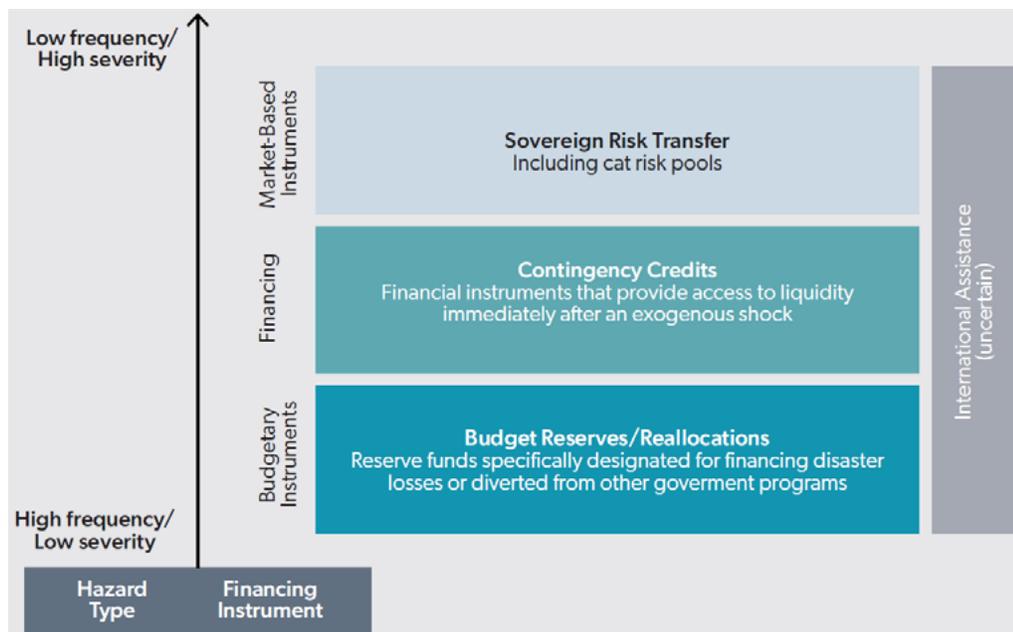
7. EWSS, EWTSP AND THE PROSPECTS FOR DIVERSIFYING DISASTER RISK FUNDING (DRF) ALTERNATIVES

By their very nature, catastrophic events are volatile, uncertain and unpredictable from year to year. On the one hand, it is not practical that every year's regular budget provide resources to tackle events that may take place only every 5, 10 or 20 years. On the other hand, relying solely on extraordinary budgeting might compromise the timely funding of responses, and in contexts of particularly acute shocks, the funding requirements for adequate responses may simply be too big to be met all at once.

Potential solutions to this dilemma include understanding the likelihood of having certain catastrophic events for different time-spans. For instance, it may involve understanding what levels of drought are expected to take place at some point, considering 5- or 10-year window periods, and then building a multi-layered financial architecture such that less expensive, more recurrent events are covered through easier-to-reach, budgetary instruments such as regular budgets and reserve funds. Accordingly, more acute and less-recurrent events should be covered by more elaborate instruments such as pre-approved credit lines, sovereign insurance funds, and the mainstreaming of catastrophic insurance schemes at the individual level (Calcutt, Maher, and Fitzgibbon 2021; Mahul and Maher 2020; World Bank and ADB 2017; World Bank 2014, 2016).

A robust risk-layering scheme should combine budgetary instruments, catastrophe contingency credits, and sovereign risk-transfer mechanisms. In most countries, budgetary instruments feature as a first financing layer, mostly for high-frequency, low-severity events. For costlier responses, contingency credits (ideally pre-approved) are a good

FIGURE 7.1: Overall structure of a risk-layering financial architecture



Source: Calcutt, Maher, and Fitzgibbon (2021).

intermediate alternative. For even larger requirements and for overall long-term sustainability purposes, it is best that countries draw from some sovereign risk-transfer mechanism (that is, be insured against hazardous events). International assistance, although undeniably important, is often uncertain and therefore should not be relied upon as the cornerstone of a disaster risk funding architecture (even though in many cases this is precisely what happens). Importantly, all these instruments should contribute not only to financing responses but also to the establishment or improvement of institutional capacity (Calcutt, Maher, and Fitzgibbon 2021; Mahul and Maher 2020; World Bank and ADB 2017; World Bank 2014, 2016).

Sound budgetary financial instruments often include earmarked, regular budgets for disaster risk management (DRM) and shock-response capacities, including contributions to contingency/reserve funds. Since social protection is becoming an increasingly important part of DRM frameworks, specific programs, or their shock-responsive components, also tend to have such budgets earmarked, either directly through regular social protection budgets, or through special mechanisms to channel DRM resources toward these. For countries that rely significantly on external funding (from donors or lenders), it is desirable that such resources nevertheless go through regular budgeting processes, and that different funding sources get pooled together into a joint and dedicated trust funds that can be deployed in a timely way. For countries that have or adhere to functioning EWSs, rules for extraordinary budgetary provisions and the use of trust funds can be tied to the issuance of specific early-warning triggers before catastrophes take place and evolve into a crisis. Overall, to minimize the likelihood of political misuse of resources, it is important that contingency funds have rules that are as clear and objective as possible (Calcutt, Maher, and Fitzgibbon 2021; Mahul and Maher 2020; World Bank and ADB 2017; World Bank 2014, 2016).

Countries that have sustainable fiscal frameworks, and whose shocks are appropriately monitored, can count on contingent credit to finance early action. To make it possible to contribute in a timely way, these mechanisms often include pre-approved lines of credit for responding to defined shocks and their impacts as per a pre-agreed rate. According to Bailey (2013), these arrangements often involve paying a certain fee for establishing pre-agreed terms, and they have the advantage of being faster and more predictable than *ad hoc* borrowing because it locks in a preferential interest rate. One such traditional mechanism is the Caribbean Catastrophe Risk Insurance Facility (CCRIF), launched in 2007 and currently with 22 primarily Caribbean member-countries. Funded by the World Bank and other agencies, the mechanism automatically concedes credit to countries hit by natural hazards—tropical cyclones, earthquakes, excess rainfall and fishery anomalies—that are captured by pre-agreed parameters or indicators. To date, it has made 50 payouts totaling US\$200 million, and it passed a challenging stress-test when it had to issue 10 payouts at one time following the particularly destructive 2017 Caribbean hurricane season (CCRIF n.d.; Ghesquiere and Mahul 2012). According to Bowen et al. (2020), the mechanism has led to a 45 to 50 percent reduction in premium costs when compared to other credit alternatives.

The CCRIF, however, is a pre-agreed yet ex-post funding mechanism that only disburses loans and payouts in the aftermath of catastrophes. With the evolution of EWSs, there has been important progress toward developing pre-agreed and ex-ante credit lines, with payouts being made before the full onset of shocks. The World Bank's Catastrophe Deferred Drawdown Option (CatDDO), for instance, is a pre-approved credit line for forecasted catastrophes launched in 2008. Bowen et al. (2020) note that, by 2020, the mechanism had approved 16 CatDDOs for a total value of US\$3.1 billion and that, in 2018, the instrument was expanded to countries with low per capita incomes that otherwise lack the financial ability to borrow from the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). Kenya was the first African country to adhere to this instrument, with a pre-approved line of US\$22 million. CatDDOs are also under preparation in Benin, Madagascar and Malawi. In South Asia, since 2019 the instrument has been available for Maldives and Bhutan in the value of, respectively, US\$10 million and US\$15 million (World Bank 2020).

Since 2008, the IDA has also had the Crisis Response Window (CRW), a mechanism to fast-track funding to rapid responses to onsetting shocks. Over the years, the CRW has evolved from a single focus on economic shocks (like the one that started in 2008) to include natural disasters and public health emergencies. Up until 2018, half of its resources were directed to responses to natural disasters (World Bank 2019). With the COVID crisis, in 2020 the CRW developed an Early Response Funding (ERF) framework that further facilitates disbursements upon evidence-based forecasts of onsetting shocks, which therefore facilitates the funding of EWTSP and other ex-ante, rather than ex-post responses. The ERF saw higher-than-expected demand for food security responses in its first few months of implementation (IDA 2020b), and its original resources of US\$500 million yearly (IDA 2020a) have already been doubled to US\$1 billion (IDA 2022).

Both to cover for extraordinarily large shocks, and to increase the sustainability of Disaster Risk Funding (DRF), it is advisable that countries add risk-transfer instruments to their portfolio. There are not yet many private sector providers of sovereign risk

insurance mechanisms. Existing arrangements are therefore mostly in the form of risk pool-sharing by a group of countries, often determined by shared agroclimatic challenges at the regional or sub-regional level. One of the most developed such initiatives is provided by the African Risk Capacity (ARC)—a specialized agency of the African Union. This organization has been, since 2014, operating a sovereign drought risk insurance for African countries with payout conditioned to pre-agreed parameters reaching certain specified thresholds (ARC n.d.).

Many African countries have adhered to and benefit from ARC, including some that have now streamlined their contribution under their regular annual budget process. To date, this mechanism has provided coverage for several drought-related shocks, releasing over US\$61 million in payouts that have benefited more than 2.1 million vulnerable persons. ARC has been developing parametric models for expanding its insurance toward other hazards. It is now ready to insure countries against tropical cyclones and is fine-tuning parametric models that will enable insurance for river floods, disease outbreaks and epidemics. Since 2019 the ARC has also operated the ARC Replica, a similar risk-pooling mechanism for consortia of non-governmental and international organizations acting in each country, rather than for national governments (ARC n.d.).

8. CONCLUDING REMARKS (POTENTIAL LESSONS FOR SOUTH ASIA)

Developing or strengthening EWTSP has the potential to generate several desirable effects—from faster response times and improved EWSs, to enlarged fiscal space and ultimately even more cost-efficient responses to shock altogether. Yet the available evidence, although scanty, suggests that design flaws often undermine the realization of this potential. A key enabler for cases standing on the bright side of the heterogeneous results found for EWTSP seems to be the timeliness with which such responses occur. Hence, responses that draw from pre-established financing mechanisms, that benefit from the promptness measures of regular programs and systems, and that operate based on efficient and objective triggers for early action, seem better positioned to act fast and efficiently.

Setting such enabling factors in place, however, is not a trivial task because it requires coordination across different areas and sectors. Yet some of the successful cases in developing countries have been built on quite fragile social protection landscapes. This suggests that EWTSP, although complex, is by no means something only the most developed social protection systems can pursue. The enormous advances of regional and global EWSs can be used as triggers even for programs in countries that lack strong EWSs of their own. Similarly, these regional and global EWSs can also serve as triggers of sovereign financial instruments that can be used for funding EWTSP.

The COVID-19 crisis has led to an expansion of global funding options for early and ex-ante responses, and rendered even low-income countries eligible to pre-positioned and fast-tracked credit options. As one of the regions most exposed to natural shocks, and with some of its countries expected to be among the most affected by the commodity price surges triggered by the Russian-Ukrainian war, it seems strategic for South Asia to prioritize the development of its anticipatory capacities.

An immediate goal for unleashing South Asia's potential in anticipatory funding and response probably should include adherence to global EWSs such as the IPC, FEWSNET or SNAP—all of which currently only cover Afghanistan. Mid- to long-term goals could include the strengthening and developing of South Asia's own national and regional EWSs. In doing so, the region should ensure that the processual nature of EWSs is not overshadowed by advancements in the more infrastructural aspects of EWSs that are related to traditional monitoring and forecasting. The region should focus at streamlining already existing information into processes more fit to inform policy decisions and funding mechanisms. Inadequate governance mechanisms seem to be hampering the development of EWSs in South Asia more than technological limitations.

Upon adhering to global EWSs, and in parallel to the development and improvement of its own EWSs, South Asian countries should also introduce EWTSP components into its existing, regular social protection programs. It seems realistic to believe that, once triggers for anticipatory action fall in place, the capacity to run scaling-up, registering, and payment operations are for the most part already there in most South Asian countries. Most regular social protection programs in the region have been in operation for two decades or more and enjoy larger coverage and more stable funding than the African programs that are breaking new paths in terms of EWTSP. Furthermore, South Asia's recently demonstrated capacity to accommodate *ad hoc* responses to the COVID crisis suggests that they could probably assimilate shock-responsive protocols in an institutionalized manner, and that they could do this ex-ante, provided they integrate with good EWSs.

At the bare minimum, even if shock-specific components cannot be adopted by flagship programs of South Asia, our analysis suggests that developing stronger EWSs and integrating social protection systems to these may achieve quick wins by using already popular geographical targeting (adopted by nearly 20 percent of programs in the region) to balance protection against traditional, chronic forms of vulnerability, and protection against ever more relevant transient forms of vulnerability related to covariate shocks.

REFERENCES

- Adam, Christopher, and David Bevan. 2020. "Tropical Cyclones and Post-Disaster Reconstruction of Public Infrastructure in Developing Countries." *Economic Modelling* 93. <https://www.sciencedirect.com/science/article/abs/pii/S0264999319311824>.
- African Risk Capacity (ARC). n.d. *African Risk View*, ARC website. <https://www.arc.int/africa-riskview>.
- Agency for Rangeland Information and Development in Kenya. 2018. *Index-based livestock insurance as an innovative tool against drought loss: Good practices and impact analysis from northern Kenya*. The Netherlands: Technical Centre for Agricultural and Rural Cooperation (CTA). <https://hdl.handle.net/10568/97904>.
- Arruda, Pedro, Yannick Markhof, Isabela Franciscon, Wesley Silva, and Charlotte Bilo. 2020. *Overview of Non-Contributory Social Protection Programmes in South Asia from a Child and Equity Perspective*. International Policy Centre for Inclusive Growth (IPC-IG). https://ipcig.org/pub/eng/RR46_Overview_of_non_contributory_social_protection_programmes.pdf.
- Bailey, Rob. 2013. *Managing Famine Risk Linking Early Warning to Early Action*. Chatham House. https://www.chathamhouse.org/sites/default/files/public/Research/Energy%2C%20Environment%20and%20Development/0413r_earlywarnings.pdf.
- Barca, Valentina, and Rodolfo Beazley. 2019. *Building on Government Systems for Shock Preparedness and Response: The Role of Social Assistance Data and Information Systems*. <https://www.dfat.gov.au/sites/default/files/building-government-systems-for-shock-preparedness-and-response.pdf>.
- Bastagli, Francesca, and Rebecca Holmes. 2014. "Delivering Social Protection in the Aftermath of a Shock: Lessons from Bangladesh, Kenya, Pakistan and Viet Nam." London: ODI. <https://socialprotection.org/discover/publications/delivering-social-protection-aftermath-shock-lessons-bangladesh-kenya-pakistan>.
- Beazley, Rodolfo, Mahman Farhat, Virginia Barberis, Felicity Le Quesne, Safa Khan, and Marta Marzi. 2019. *Strengthening the Capacity of ASEAN Member States to Design and Implement Risk-Informed and Shock-Responsive Social Protection Systems for Resilience*. Regional Synthesis Report. FAO, WFP, UNICEF, ILO, UNISDR, ASEAN, ECHO, and OPM. <https://www.wfp.org/publications/strengthening-capacity-asean-member-states-design-and-implement-risk-informed-and>.
- Bowen, Thomas, Carlo del Ninno, Colin Andrews, Sarah Coll-Black, Ugo Gentilini, Kelly Johnson, Yasuhiro Kawasoe, et al. 2020. *Adaptive Social Protection: Building Resilience to Shocks*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/33785>.
- Branders, N., Aline Coudouel, and S. Rougeaux. 2018. "Senegal—Using Appropriate Social Protection Measures in Effective Shock Response—the Case Study of Responses to Food Insecurity."
- Cabot Venton, Courtenay, Catherine Fitzgibbon, Tenna Shitarek, Lorraine Coulter, and Olivia Dooley. 2012. "The Economics of Early Response and Disaster Resilience: Lessons from Kenya and Ethiopia." UKaid. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/67330/Econ-Ear-Rec-Res-Full-Report_20.pdf.
- Cabot Venton, Courtenay. 2018. "Economics of Resilience to Drought in Ethiopia, Kenya and Somalia." USAID. https://www.usaid.gov/sites/default/files/documents/1867/Summary_Economics_of_Resilience_Final_Jan_4_2018_BRANDED.pdf.
- Calcutt, Evie, Barry Maher, and Catherine Fitzgibbon. 2021. "Emerging Lessons in Financing Adaptive Social Protection." Washington, DC: World Bank. <https://www.financialprotectionforum.org/publication/emerging-lessons-in-financing-adaptive-social-protection>.

- Cantelmo, Alessandro, Leo Bonato, Giovanni Melina, and Gonzalo Salinas. 2019. "Policy Trade-Offs in Building Resilience to Natural Disasters: The Case of Saint Lucia." IMF Working Paper. Washington, DC: International Monetary Fund. <https://www.imf.org/en/Publications/WP/Issues/2019/03/08/Policy-Trade-Offs-in-Building-Resilience-to-Natural-Disasters-The-Case-of-St-46656>.
- Caribbean Catastrophe Risk Insurance Facility (CCRIF). n.d. "About Us." <https://www.ccrif.org/>.
- Carter, Michael. 2015. "Climate Shocks Also Put Those Just above the Poverty Line at Risk." *World Bank Development and a Changing Climate* (blog), February 9, 2015. <https://blogs.worldbank.org/climatechange/climate-shocks-also-put-those-just-above-poverty-line-risk>.
- Cebotari, Aliona, and Karim Youssef. 2020. *Natural Disaster Insurance for Sovereigns: Issues, Challenges and Optimality*. IMF Working Paper. Washington, DC: International Monetary Fund. <https://www.imf.org/en/Publications/WP/Issues/2020/01/17/Natural-Disaster-Insurance-for-Sovereigns-Issues-Challenges-and-Optimality-48925>.
- Cissoko, Nathalie. 2018. *Meeting Food Needs in the Sahel through Government Cash Transfers: The Experience of Senegal*. Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP). <https://www.alnap.org/system/files/content/resource/files/main/socialprotectionsenegalen.pdf>.
- Clarke, Daniel, and Ruth Vargas Hill. 2013. "Cost-Benefit Analysis of the African Risk Capacity Facility." Washington, DC: International Food Policy Research Institute (IFPRI). <https://www.ifpri.org/publication/cost-benefit-analysis-african-risk-capacity-facility>.
- Copernicus Global Land Service. n.d. "Vegetation Condition Index." <https://land.copernicus.eu/global/products/vci>.
- Drechsler, Mareile, and Walter Soer. 2016. *Early Warning, Early Action: The Use of Predictive Tools in Drought Response Through Ethiopia's Productive Safety Net Programme*. <https://openknowledge.worldbank.org/handle/10986/24633>.
- Encyclopedia Britannica. n.d. "Oceanic Niño Index." <https://www.britannica.com/science/Oceanic-Nino-Index>.
- Fava, Francesco, Nathaniel Duane Jensen, James Sina, Andrew Mude, and Barry Patrick Maher. 2021. *Building Financial Resilience in Pastoral Communities in Africa*. <https://cgspace.cgiar.org/bitstream/handle/10568/111681/Building-Financial-Resilience-Kenya.pdf?sequence=3&isAllowed=y>.
- Filipski, Mateusz, J. Edward Taylor, Getachew Ahmed Abegaz, Tadele Ferede, Alemayehu Seyoum Taffesse, and Xinshen Diao. 2017. *General Equilibrium Impact Assessment of the Productive Safety Net Program in Ethiopia*. Impact evaluation report no. 66. New Delhi: International Initiative for Impact Evaluation (3ie). <https://www.3ieimpact.org/evidence-hub/publications/impact-evaluations/general-equilibrium-impact-assessment-productive>.
- Food and Agriculture Organization (FAO). 2021. *Protecting Livelihoods—Linking Disaster Risk Insurance and Social Protection*. <http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1382170>.
- Food and Agriculture Organization (FAO). 2022. Food Security Implications of the Ukraine Conflict. https://docs.wfp.org/api/documents/WFP-0000137463/download/?_ga=2.180446695.1949703615.1650294536-73621545.1649958589.
- Gentilini, Ugo, Mohamed Almenfi, and Pamela Dale. 2020. *Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures*. December 11 update. Washington, DC: World Bank. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/467521607723220511/social-protection-and-jobs-responses-to-covid-19-a-real-time-review-of-country-measures-december-11-2020>.

- Ghesquiere, Francis, and Olivier Mahul. 2012. “Caribbean Catastrophe Risk Insurance Facility (CCRIF): Pooling Risk to Protect against Natural Disasters.” <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/319251467999348409/caribbean-catastrophe-risk-insurance-facility-ccrif-pooling-risk-to-protect-against-natural-disasters>.
- GISGeography. 2021. “What Is NDVI (Normalized Difference Vegetation Index)?” GISGeography website. Last updated October 29, 2021. <https://gisgeography.com/ndvi-normalized-difference-vegetation-index>.
- GIZ. forthcoming. “Innovations and Emerging Trends in Agricultural Insurance, an Update.”
- Global Water Partnership (South Asia). 2014. “Drought Monitoring System for South Asia. Summary Report of the Need Assessment Survey on the Development of the South Asian Drought Monitoring System (SA DMS).” Sri Lanka: Global Water Partnership (GWP).
- Government of Ethiopia, Ministry of Agriculture. 2014. *Productive Safety Net Programme: Phase IV— Programme Implementation Manual*. Version 1.0.
- Government of Ethiopia, Ministry of Agriculture. 2020. *Strengthen Ethiopia’s Adaptive Safety Net (SEASN) / Productive Safety Net Program (PSNP) V: Report on Enhanced Social Assessment and Consultation, Phase Two*.
- Government of Uganda, Ministry of Agriculture. 2020. *Uganda Emergency Desert Locust Response Project: Stakeholder Engagement Plan*. <https://documents1.worldbank.org/curated/en/186421587520770716/pdf/Stakeholder-Engagement-Plan-Uganda-Emergency-Locust-Response-Program-P173702.pdf>.
- Gros, Clemens, Evan Easton-Calabria, Meghan Bailey, Kadirbyek Dagys, Erin Coughlan de Perez, Munguntuya Sharavnyambuu, and Andrew Kruczkiewicz. 2020. “The effectiveness of forecast-based humanitarian assistance in anticipation of extreme winters: Evidence from an intervention for vulnerable herders in Mongolia.” *Disasters* 46(1):95–118. doi: 10.1111/disa.12467.
- Gros, Clemens, Meghan Bailey, Saroja Schwager, Ahmadul Hassan, Raymond Zingg, Muhammad Mamtaz Uddin, Mohammad Shahjahan, et al. 2019. “Household-Level Effects of Providing Forecast-Based Cash in Anticipation of Extreme Weather Events: Quasi-Experimental Evidence from Humanitarian Interventions in the 2017 Floods in Bangladesh.” *International Journal of Disaster Risk Reduction* 41(December). <https://www.sciencedirect.com/science/article/pii/S2212420918313608>.
- Hailey, Peter, and Nancy Balfour. 2018. *Real time evaluation on the emergency drought situation response in Kenya, 2017*. Final report. United Nations Children’s Fund (UNICEF). file:///C:/Users/Trabalho/Downloads/UNICEF_Kenya_RTE_Final_Report_-_Final_2018-002.pdf.
- Ibrahim, Maggie, and Andre Kruczkiewicz. 2016. *Learning from Experience: A Review of Early Warning Systems*. World Vision. https://www.wvi.org/sites/default/files/WV_EWEA_Doc_FINAL_Web.pdf.
- International Development Association (IDA). 2020a. *Report from the Executive Directors of the International Development Association to the Board of Governors—Additions to IDA Resources: Nineteenth Replenishment*. <https://documents1.worldbank.org/curated/en/459531582153485508/pdf/Additions-to-IDA-Resources-Nineteenth-Replenishment-Ten-Years-to-2030-Growth-People-Resilience.pdf>.
- International Development Association (IDA). 2020b. *Responding to the Emerging Food Security Crisis*. <https://documents1.worldbank.org/curated/en/775981606955884100/pdf/Responding-to-the-Emerging-Food-Security-Crisis.pdf>.
- International Development Association (IDA). 2022. *Report from the Executive Directors of the International Development Association to the Board of Governors—Additions to IDA Resources: Twentieth Replenishment*. <https://documents1.worldbank.org/curated/en/163861645554924417/pdf/IDA20-Building-Back-Better-from-the-Crisis-Toward-a-Green-Resilient-and-Inclusive-Future.pdf>.

- International Federation of Red Cross and Red Crescent Societies (IFRC). 2014. *Early Warning Early Action. Mechanisms for Rapid Decision Making. Drought Preparedness and Response in the Arid and Semi-Arid Lands of Ethiopia, Kenya and Uganda, and in the East Africa Region*. IFRC, Save the Children, OXFAM, FAO, and WFP. [The abbreviation is just IFRC] <https://www.enonline.net/attachments/2160/Early-Warning-Early-Action-Report-Final-July-2014.pdf>.
- International Food Policy Research Institute (IFPRI). 2016. *Synopsis: Economy-Wide Impacts of the Productive Safety Net Programme (PSNP)*.
- International Policy Centre for Inclusive Growth (IPC-IG). 2020. *Socio-Economic Impacts of COVID-19, Policy Responses and the Missing Middle in South Asia*. https://ipcig.org/pub/eng/RR47_Socio_economic_impacts_of_COVID_19.pdf.
- International Policy Centre for Inclusive Growth (IPC-IG). 2021. *Social Protection Responses to COVID-19 in the Global South*. Online dashboard. Accessed May 21, 2022. <https://app.powerbi.com/view?r=eyJrJoiMmExZDFmYzUtMmlwYy00ZDMwLWI5ZDYtOTFhMGQ1NzcxY-TdiliwidCI6IjRkYWE1ZWQ3LWYzNDAtNDE2NS1iNzQwLTJhYjYtcxZTdiYmQzNilsImMiOjI9&pageName=ReportSection10b5b78ce6e3ed6d4481>.
- IPC. 2019. *IPC Technical Manual Version 3.0: Evidence and Standards for Better Food Security and Nutrition Decisions*. <https://www.ipcinfo.org/ipc-manual-interactive/en/>
- Kramer, Berber, Peter Hazell, Harold Alderman, Francisco Ceballos, Neha Kumar, and Anne G. Timu. 2021. "Is Agricultural Insurance Fulfilling Its Promise for the Developing World?" IFPRI Discussion Paper. doi: <https://doi.org/10.2499/p15738coll2.134751>.
- Leite, Phillippe, and Anastasiya Desinova. Data and Information, forthcoming.
- Leturque, Henri. 2017. *Strategic Collaboration between World Bank Group and World Food Programme. Bridging Humanitarian Assistance and Social Protection Systems*. <https://documents1.worldbank.org/curated/en/241671517827262697/pdf/123144-WP-StrategiccollaborationsWFPWBMauritania-PUBLIC.pdf>.
- Levine, Simon, and Kay Sharp. 2015. *TOPIC GUIDE: Anticipating and Responding to Shocks: Livelihoods and Humanitarian Responses*. https://assets.publishing.service.gov.uk/media/57a08978e5274a27b20000bf/EoD_Topic_Guide_Shock_Nov_2015.pdf.
- Mahul, Olivier, and Barry Patrick Maher. 2020. *Disaster Risk Financing & Insurance Program: Kenya Country Profile*. <https://documents1.worldbank.org/curated/en/309301512133479025/pdf/BRI-CountryProfileKenya-PUBLIC.pdf>.
- Mansur, Aisha, Jesse Doyle, and Oleksiy Ivaschenko. 2018. *Cash Transfers for Disaster Response: Lessons from Tropical Cyclone Winston*. Development Policy Centre Discussion Paper No. 67. Australian National University. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3143459.
- Mechler, Reinhard. 2004. *Natural Disaster Risk Management and Financing Disaster Losses in Developing Countries*. <https://d-nb.info/1005509913/34>.
- Müller, Franck. 2015. *Rapport Sur Les Systèmes d'Alerte Précoces (SAP) En Mauritanie : Etat Des Lieux et Questionnements Sur Un Dispositif Optimisé et Les Liens Avec La Protection Sociale*. <https://documents1.worldbank.org/curated/en/485641517593018446/pdf/Rapport-sur-les-Systemes-dAlerte-Precoces-SAP-en-Mauritanie-Etat-des-Lieux-et-Questionnements-sur-un-Dispositif-Optimise-et-les-Liens-avec-la-Protection-Sociale.pdf>.
- Oxford Policy Management (OPM). 2017a. *Evaluation of the Kenya Hunger Safety Net Programme Phase 2: Emergency payments deep dive study*. OPM. <https://www.opml.co.uk/files/Publications/a0013-evaluation-kenya-hunger-safety-net-programme/emergency-payments-report.pdf?noredirect=1>.
- Oxford Policy Management (OPM). 2017b. *Independent Evaluation of the African Risk Capacity, Formative Phase 1 Report*. OPM. <https://www.opml.co.uk/files/Publications/a0603-independent-evaluation-african-risk-capacity/arc-evaluation-report.pdf?noredirect=1>.

- Oxford Policy Management (OPM). 2017c. *Shock-Responsive Social Protection Systems (SRSP): Research Literature Review* (2nd edition). <https://www.opml.co.uk/projects/shock-responsive-social-protection-systems>.
- Oxford Policy Management (OPM). 2018a. *LEWI Emergency—Evaluation of the Kenya Hunger Safety Net Programme Phase 2 Emergency Payments Local Economy-Wide Impact Evaluation Study*. OPM. <https://www.opml.co.uk/files/Publications/a0013-evaluation-kenya-hunger-safety-net-programme/emergency-payments-lewie.pdf?noredirect=1>.
- Oxford Policy Management (OPM). 2018b. *FR—Evaluation of the Kenya Hunger Safety Net Programme Phase 2. Impact Evaluation Final Report*. OPM. <https://www.opml.co.uk/files/Publications/a0013-evaluation-kenya-hunger-safety-net-programme/impact-evaluation-final-report.pdf?noredirect=1>.
- Oxford Policy Management (OPM). 2018c. *SumEx—Evaluation of the Kenya Hunger Safety Net Programme Phase 2. Impact Evaluation Final Report: Executive Summary*. OPM. <https://www.opml.co.uk/files/Publications/a0013-evaluation-kenya-hunger-safety-net-programme/impact-evaluation-final-report-ex-summary.pdf?noredirect=1>.
- O'Brien, Clare, Rebecca Holmes, Zoe Scott, and Valentina Barca. 2018. *Shock-Responsive Social Protection Systems Toolkit Appraising the Use of Social Protection in Addressing Large-Scale Shocks*. <https://www.opml.co.uk/files/Publications/a0408-shock-responsive-social-protection-systems/srsp-toolkit.pdf?noredirect=1>.
- O'Brien, Clare. 2020. *10 Things You Wish You'd Always Known about Shock-Responsive Social Protection*. <https://docs.wfp.org/api/documents/WFP-0000116699/download/>.
- Parvanello, Sara, and Georgia Rowe. 2020. *Social Protection and Disaster Risk Management in Africa. Lessons from the Integration of Early Warning and Adaptive Social Protection in the Sahel*. Washington, DC: World Bank.
- Pople, Ashley, Ruth Hill, Stephan Dercon, and Ben Brunckhorst. 2021. "Anticipatory Cash Transfers in Climate Disaster Response." Working Paper no. 6. London, UK: Centre for Disaster Protection. <https://www.disasterprotection.org/publications-centre/anticipatory-cash-transfers-in-climate-disaster-response>.
- Saha, Toma Rani, Pallav K Shrestha, Oldrich Rakovec, Stephan Thober, and Luis Samaniego. 2021. *A Drought Monitoring Tool for South Asia*. <https://iopscience.iop.org/article/10.1088/1748-9326/abf525>.
- Schäfer, Laura, and Eleanor Waters. 2016. *Climate Risk Insurance for the Poor and Vulnerable: How to Effectively Implement the pro-Poor Focus on Insurability. An Analysis of Good Practice, Literature and Expert Interviews*. https://collections.unu.edu/eserv/UNU:5956/MCII_CRI_for_the_Poor_and_Vulnerable_meta.pdf.
- Senay, Gabriel. 2004. *Crop Water Requirement Satisfaction Index (WRSI) Model Description*. https://iridl.ldeo.columbia.edu/documentation/usgs/adds/wrsi/WRSI_readme.pdf.
- Shrestha, Mandira Singh. 2018. "Early Warning for Floods in South Asia." *Asian Early Warning Systems: A View* 170(June). <https://www.preventionweb.net/publications/view/59341>.
- Slim, Hugo. 2012. *IASC Real-Time Evaluation of the Humanitarian Response to the Horn of Africa Drought Crisis in Somalia, Ethiopia and Kenya*. https://reliefweb.int/sites/reliefweb.int/files/resources/RTE_HoA_SynthesisReport_FINAL.pdf.
- Smith, Gabrielle, and Thomas Bowen. 2020. *Adaptive Social Protection: The Delivery Chain and Shock Response*. Washington, DC: World Bank. <http://documents1.worldbank.org/curated/en/799281603376140118/pdf/Adaptive-Social-Protection-The-Delivery-Chain-and-Shock-Response.pdf>.
- United Nations Children's Fund (UNICEF). 2019. "Programme Guidance: Strengthening Shock Responsive Social Protection Systems." UNICEF. <https://www.unicef.org/media/68201/file/Practical-Guidance-to-Support-Work-on-Shock-Responsive-Social-Protection.pdf>.

- Vargas Hill, Ruth, Alejandra Campero Peredo, and Marcela Tarazona. 2021. *The Impact of Pre-Arranged Disaster Finance: Evidence Gap Assessment*. https://static1.squarespace.com/static/5c9d3c35ab1a62515124d7e9/t/6095163d46232e097c43614c/1620383294615/WP_7_6Mayv2.pdf.
- Vargas Hill, Ruth. 2012. *Cost-benefit Analysis of the African Risk Capacity Facility: Ethiopia Country Case Study*. <https://www.arc.int/wp-content/uploads/2017/09/Ethiopia-Country-Case-Study.pdf>.
- Vargas Hill, Ruth. 2019. "Managing Risks and Conflict." In *Accelerating Poverty Reduction in Africa*, edited by Kathleen Beegle and Luc Christiansen. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/32354>.
- Vyas, Shaily, Viktoria Seifert, Laura Schaefer, and Soenke Kreft. 2019. *Climate Risk Insurance Solutions: Understanding the Drivers of Costeffectiveness; A Multi-Criteria Assessment Framework and Key Performance Indicators*. Munich Climate Insurance Initiative Discussion Paper Series. https://www.insuresilience.org/wp-content/uploads/2019/03/MCII-Discussion-Paper-3_Understanding-cost-effectiveness.pdf.
- Watson, Carol, Tanya Lone, Usman Qazi, Gabrielle Smith, and Faisal Rashid. 2017. *Shock-Responsive Social Protection Systems Research. Case Study: Pakistan*. <https://www.opml.co.uk/files/Publications/a0408-shock-responsive-social-protection-systems/opm-case-study-2017-srsp-pakistan.pdf?noredirect=1>.
- World Bank. 2014. *Financial Protection Against Natural Disasters: An Operational Framework for Disaster Risk Financing and Insurance*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/21725>.
- World Bank. 2016. *Disaster Risk Finance—A Primer: Core Principles and Operational Framework*. Washington, DC: World Bank. <https://www.financialprotectionforum.org/publication/disaster-risk-finance-a-primercore-principles-and-operational-framework#:~:text=Share%3A,Disaster%20Risk%20Finance%3A%20A%20Primer%3ACore%20Principles%20and%20Operational%20Framework,from%20the%20impacts%20of%20disasters>.
- World Bank. 2017. *Crisis Response and Resilience to Systemic Shocks: Lessons from IEG Evaluations*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/26360>.
- World Bank. 2018. *Senegal—Additional Financing to the Social Safety Net Project (P162354)*. Washington, DC: World Bank. <https://projects.worldbank.org/en/projects-operations/project-detail/P162354?lang=en>.
- World Bank. 2019. *IDA's Crisis Response Window: Lessons from IEG Evaluations*. Washington, DC: World Bank. https://ieg.worldbankgroup.org/sites/default/files/Data/reports/syn_idacrisisresponse.pdf.
- World Bank. 2020. South Asia website. "Strategy" section of Overview webpage. Last updated October 6, 2021. Washington, DC: World Bank. <https://www.worldbank.org/en/region/sar/overview#2>.
- World Bank. 2021a. *International Development Association Project Appraisal Document on a Proposed Grant in the Amount of SDR 68.2 Million (US\$97.5 Million Equivalent) of Which SDR 8.7 Million (US\$12.5 Million Equivalent) from the Crisis Response Window and a Grant from the Afghanistan Reconstruction Trust Fund in the Amount of US\$115 Million to the Islamic Republic of Afghanistan for an Early Warning, Early Finance and Early Action Project*. Washington, DC: World Bank. <https://www.gtai.de/resource/blob/617466/5a18e3616daa94919d80ef41d3bc26f3/PRO202002145001.pdf>.
- World Bank. 2021b. Project Detail: *Early Warning, Early Finance and Early Action Project—Afghanistan*. Washington, DC: World Bank. <https://projects.worldbank.org/en/projects-operations/project-detail/P173387>.

World Bank and Asian Development Bank. 2017. *Assessing Financial Protection against Disasters: A Guidance Note on Conducting a Disaster Risk Finance Diagnostic*. Asian Development Bank. <https://www.adb.org/publications/assessing-disaster-risk-finance-diagnostic>.

World Meteorological Organization (WMO). 2020. *2020 State of Climate Services: Risk Information and Early Warning Systems*. WMO. https://library.wmo.int/doc_num.php?explnum_id=10385.

ENDNOTES

- 1 As reminded by O'Brien (2020) and Levine and Sharp (2015), not every shock (meaning events such as droughts, earthquakes or pandemics, for instance) is bound to result in a crisis (that is, major disturbances in people's livelihoods, with compromise of human capital and welfare, loss of life and more). A crucial factor determining the extent to which shocks turn into crisis has to do with the underlying vulnerabilities among those affected by the shock.
- 2 Copernicus Global Land Service (n.d.) defines the Vegetation Condition Index (VCI) as the comparison between the current Normalized Difference Vegetation Index (NDVI) "to the range of values observed in the same period in previous years. The VCI is expressed in % and gives an idea where the observed value is situated between the extreme values (minimum and maximum) in the previous years. Lower and higher values indicate bad and good vegetation state conditions, respectively." The NDVI, in turn, is the most commonly used, remote-sensing indicator of vegetation's wealth, estimated by "measuring the difference between near-infrared (which vegetation strongly reflects) and red light (which vegetation absorbs)" (GISGeography 2021).
- 3 The Encyclopedia Britannica (n.d.) defines the Oceanic Niño Index (ONI) as "a measure of the departure from normal sea surface temperature in the east-central Pacific Ocean, is the standard means by which each El Niño episode is determined, gauged, and forecast. El Niño episodes are indicated by sea surface temperature increases of more than 0.5 °C (0.9 °F) for at least five successive overlapping three-month seasons. [...] La Niña episodes are indicated by sea surface temperature decreases of more than 0.5 °C (0.9 °F) for at least five successive overlapping three-month seasons."

