

Resilience as an Integrative, Measurable Concept for Humanitarian and Development Programming

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Resilience in the humanitarian and development context

As recurring emergencies in low- and middle-income countries increasingly challenge international development and humanitarian agencies to reconsider how they simultaneously support both short-run recovery to adverse shocks and longer-run socioeconomic progress, many donor and operational agencies have gravitated to the concept of *resilience*. The concept of resilience potentially provides a framework for integrating programming and thinking around these two spheres, which had too often been treated quite separately. The emergent popularity of resilience as an integrative concept in the development and humanitarian communities is, however, quite recent. The watershed moment arguably came in 2011, when a global food price spike, widespread civil unrest in parts of sub-Saharan Africa and western Asia, severe drought in the Horn of Africa and the Sahel, and ongoing demands for recovery from the 2010 Haiti earthquake all challenged aid agency budgets and strategies. How best could aid agencies and their government and non-governmental organization (NGO) partners help current victims of natural disasters and violence to get on a sustainable pathway out of poverty, resilient to the myriad shocks and ongoing stressors that too often impede progress? Put differently, how could aid and operational agencies shock-proof continuous improvement in human well-being, especially in communities already experiencing intolerably high rates of poverty, malnutrition and other forms of severe deprivation?

Resilience has thus recently become a central feature of development and humanitarian programming. Yet, the development and humanitarian communities struggle with defining and measuring the concept. The United States Agency for International Development (USAID) defines resilience as “the ability of people, households, communities, countries and systems to mitigate, adapt to and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth” (REAL, 2018). Barrett and Constanas (2014, hereafter BC) conceptualize ‘development resilience’ as “the capacity over time of a person, household or other aggregate unit to avoid poverty in the face of various stressors and in the wake of myriad shocks. If and only if that capacity is and remains high over time, then the unit is resilient.” Two crucial features of the concept of resilience *for development* emerge from these two definitions (and there exist many others), in juxtaposition to more general academic definitions of resilience, for example the National Academy

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of Sciences': "the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events" (NRC, 2012). First, in the development domain, the concept of resilience is explicitly normative. Because the central project of development is to improve human well-being among the under-resourced, merely stabilizing living standards around ex ante low levels, or accelerating recovery to an unacceptably low level does not advance these common goals. Within the international development community, resilience must reflect more than just recovery from (negative) disruption; it must expressly link recovery to acceptable living standards. Second, and relatedly, resilience as a concept must be applicable and decomposable from aggregate units to the micro level, or individual people and households. Resilience cannot be solely a community or system level property, because development and humanitarian objectives are rooted in individual human experience and human rights. In this view, the relation between micro-level measures and more aggregate ones is a matter of scale, although there may be separate processes operating at micro, meso or macro scales that reinforce one another across scales, much as is true for poverty (Barrett & Swallow, 2006).

Resilience is related to, but transcends, the concept of vulnerability. Both concepts emphasize risk exposure and the context-dependent shocks to which one might be exposed. But one might be vulnerable to an adverse shock – i.e., suffer significant losses – and yet highly resilient – i.e., the conditional likelihood of loss is acceptably low and/or the speed of recovery to an adequate standard of living, conditional on loss, is quick. Conversely, one might not be vulnerable and yet also not be resilient. For example, those who opt out of the labor market after extended, failed efforts to find work after losing a job may no longer be vulnerable to unwanted unemployment shocks due to business cycle downturns. One could hardly claim, however, that such a person is better off, in any meaningful sense of the concept, than an otherwise identical employed person who may now be vulnerable to lay off. Similarly, a homeless person may be less vulnerable to loss of property or life in an earthquake than a richer counterpart, but could hardly be deemed more resilient, so long as the resilience concept is rooted in normative standards of attaining an adequate level of well-being. Put differently, the absence of vulnerability to a shock from which one might or might not recover ought not to be sufficient for one to be classified 'resilient'. Both the ex ante normative state – one's standard of living, however measured – and the time path of standard of living following an adverse shock together define one's resilience.

Resilience must also be contextualized within the complex social-ecological systems (SES) in which poor populations commonly reside (Folke, Hahn, Olsson, & Norberg, 2005). System-level shocks can affect individual-level behaviors, which aggravate system-level disturbances (Barrett & Constanas, 2014). For example, drought shocks can lead herders to change the range over which they graze livestock, leading to initially-isolated resource conflict that quickly scales into ethnic violence, as has occurred repeatedly in east Africa (Little, McPeak, Barrett, & Kristjanson, 2008).

The concept of resilience can inform a meaningful resilience strategy, as opposed to just poverty reduction or risk management strategy, helping organizations structure their programming in keeping with this broader picture. Development is ultimately about how policies and programs improve well-being sustainably over time in the face of shocks and stressors.

Resilience measurement

As the resilience concept has become central to development and humanitarian programming, the need to measure resilience has grown more urgent. At a minimum, one needs a resilience measure in order to evaluate whether or not ‘resilience building’ interventions indeed achieve their aim. As unsettled as the definition of resilience remains within the development and humanitarian communities, even less consensus exists around measurement methods.

In order to remain true to the theoretical grounding of the concept in the stochastic dynamics of individual (and collective) well-being, measurement of development resilience must include indicators of well-being outcomes, as well as measures of shocks and/or stressors that motivate a concern for resilience. A good measurement method must also attend to the distinction between ex ante (pre-shock) resilience capacities, and the time path of the well-being outcome variable(s) of interest ex post (post-shock) (Hoddinott, 2014). This necessarily demands longitudinal data, ideally at reasonably high (e.g., seasonal) frequency, with which to measure pre-shock exposure and capacities as well as the time path of post-shock recovery (Headey & Barrett, 2016).

The initial generation of methods, developed and advanced largely by the Food and Agriculture Organization of the United Nations (FAO), focused on developing a resilience index reflecting a diverse set of assets and livelihood activities thought to enhance one’s ex ante capacity to be resilient to particular shocks (Alinovi, Mane, & Romano, 2008; Alinovi, D’Errico, Mane, & Romano, 2010). The FAO method has been subsequently refined into a resilience capacity index that is popular among many European aid agencies and international agencies such as the United Nations Children’s Fund and the World Food Programme (d’Errico, Romano, & Pietrelli, 2018; d’Errico & Pietrelli, 2017). An alternative method, developed by the consulting firm TANGO and recently adopted by USAID and many US-based organizations, uses factor analysis as a data reduction method to define distinct absorptive, adaptive, and transformative capacity indices from a myriad of variables that they argue capture features of those capacities, including assets, human and social capital, livelihood activities, access to services, and psychosocial beliefs and characteristics (Smith & Frankenberger, 2018). These index methods have proved useful to agencies struggling to implement measurement methods for resilience programming. But they focus heavily on ex ante capacities, rather than on ex post recovery, and do not lend themselves well to impact evaluation since the indices are intended solely as explanatory variables. As such, they more help explain resilience than define or measure it. Yet as development agencies increasingly program explicitly to ‘build resilience’, the concept has de facto become a targeted outcome, even if it is conceptualized as purely a set of explanatory capacities. Toward that end, TANGO and USAID now also use a separate outcome measure to try to capture resilience, a simple indicator variable reflecting whether a household’s post-shock food security is greater than or equal to its pre-shock food security (Smith & Frankenberger, 2018, Sagara, 2018). That measure lacks a normative anchor, however, as one could fully recover to an unacceptably low standard and yet still be assessed as resilient.

Cissé and Barrett (2018, hereafter CB) offer a method that directly implements the BC conceptualization of development resilience as reflecting the time path of conditional probabilities of being poor, however measured. In the CB approach, well-being (or absence of poverty) can be operationalized as an outcome using any of a wide range of indicators familiar to poverty analysis: assets, expenditures, health status, income, literacy, or some combination of those, potentially captured in an index measure (Alkire et al., 2015). The CB method relies on longitudinal, individual-

level observations to capture both the underlying (and potentially nonlinear) dynamics of the system and the possible mediating effects of specific interventions on the effects of shocks on well-being. Early applications of the CB method have demonstrated its usefulness in rigorous evaluation of the impacts of resilience interventions, such as index insurance (Cissé & Ikegami, 2017) or livestock transfers (Phadera, Michelson, Winter-Nelson, & Goldsmith, 2018). McPeak and Little (2017) find that threshold-based resilience measures like CB significantly outperform alternative measures that define resilience as recovery to ex ante state. Most resilience measurement has been shock/stressor specific because most have been designed around ex ante capacities that are shock/stressor/setting specific. One of the virtues of the CB method is that it can accommodate shock/stressor-specific capacities as mediating variables while also allowing for a fully general representation of resilience to the full range of perils.

Knippenberg, Jensen and Conostas (2018) introduce an approach, developed in collaboration with Catholic Relief Services on a pilot project in Malawi, to measuring resilience as the non-persistence of shocks, which they label Measuring Indicators for Resilience Analysis (MIRA). MIRA uses high-frequency data to study the persistence of households' subjective reports of a range of adverse shocks they suffer, such as drought, flood, or illness. The method also allows for regression estimation of the relationship between estimated shock persistence and household attributes. Like the TANGO/USAID outcome measure, the focus of MIRA is on shock recovery without reference to the level of well-being to which one recovers.

Resilience to foster structural transformation

With shocks seemingly increasing in intensity and frequency in low- and middle-income countries, the development and humanitarian communities are working energetically to embed the resilience concept into strategies to facilitate structural transformation. A central lesson of the related literature on the economics of poverty traps is that efforts to build resilience can conserve scarce resources, crowd in private investment, and help low-income populations accumulate productive assets and become secure in non-poor standards of living (Barrett, Carter & Chavas, 2018). So long as definitions of resilience remain normatively anchored in relation to living standards to which people routinely aspire, the risks of moral hazard, or the likelihood that resilience interventions inadvertently create adverse incentives for private investment, are relatively modest. Under very mild assumptions that people prefer better to worse living conditions and less to more downside risk exposure, they should routinely pursue strategies that reduce the conditional probability of adverse outcomes, i.e., that might reduce resilience. Indeed, in the face of poverty trap mechanisms associated with nonlinear well-being dynamics, resilience building activities may be more likely to crowd in than crowd out private responses that reinforce resilience (Barrett, Carter & Chavas, 2018). Such poverty trap mechanisms have been most clearly demonstrated in settings – like the Horn of Africa – where resilience strategy is increasingly central to development and humanitarian programming efforts.

The resilience lens adds value to conventional poverty analysis in multiple ways. First, resilience conceptualized in the BC way and operationalized using the CB method way can effectively distinguish between what Carter and May (2001) term stochastic versus structural poverty. Relatedly, by incorporating the underlying path dynamics of both standards of living and the key state variables describing the system in which people live, the BC approach and CB method allow for the potentially transitory nature of both favorable and unfavorable realizations of standards of

living. Development resilience analysis allowing accounting for (especially nonlinear) well-being dynamics and expanding analysis beyond the first moment of the conditional distributions of well-being outcomes, which matters for inference about program impacts (Phadera et al. 2018), for targeting of beneficiaries (Upton, Cissé, & Barrett, 2016; Watkins et al., 2017).

By facilitating integrative thinking and measurement around the myriad stressors and shocks confronting vulnerable populations, the resilience concept challenges the development and humanitarian communities to collaborate more, both in advancing better understanding of the complex dynamic systems in which poor people commonly reside and in building improved monitoring systems (Bené, Headey, Haddad, & von Grebmer, 2016). As BC explain, the closely coupled feedback between natural systems – e.g., fisheries, forests, rangelands – that may exhibit nonlinear dynamics and multiple stable states, and inter-temporal human decision-making that is limited by imperfect information, local financial market failures, sociocultural barriers, and other constraints, leads to complex dynamics beyond what analysts or practitioners in the development and humanitarian communities currently measure. Resilience, especially anchored in notions of capacities, emphasizes individual agency in ways that transcend the more passive condition too often implied in prior concepts of poverty and vulnerability. Programming aimed at building individuals', households', communities', and institutions' resilience against shocks as diverse as extreme weather events, market price shocks, and civil unrest, can help promote proactive collaboration not only among development and humanitarian agencies but between those agencies and target populations.

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