

ADDRESSING WEATHER SHOCKS

PROMOTING RESILIENT ASPIRATIONS FOR THE RURAL POOR

KATRINA KOSEC, HUMA KHAN, ALEMAYEHU SEYOUM TAFFESSE, AND FANAYE TADESSE

INTRODUCTION

There is wide recognition that building the resilience of the rural poor requires helping the affected recover from shocks such as negative weather shocks. Myriad investments and policies respond to such shocks by helping the poor rebuild their assets and prior livelihoods. However, new research from the International Food Policy Research Institute (IFPRI)¹ suggests that individual welfare is also intimately tied with what an individual aspires to achieve in the future—that is, a person's aspirations in realms such as income, assets, education, and social status. It is less clear how weather shocks affect the aspirations of the poor, and what role—if any—policy can play in promoting resilient aspirations following shocks.

To aspire means to seek to attain or accomplish a particular goal. Aspirations play an important role in everyday decisionmaking. They help determine whether individuals make investments to better themselves economically and socially, and whether they engage in potentially profitable economic risk taking. As a result, having high aspirations can improve the resilience of the poor in the face of increasingly common weather shocks.

A growing body of research also suggests that negative weather shocks may dampen long-term economic prospects for the poor. Individuals exposed to adverse weather shocks invest less in education and health than those not so exposed. Furthermore, adverse weather conditions have been linked with reduced survival probabilities of girls, more birth defects, a decrease in life expectancy, and even increased political violence.

These findings hint at a relationship between adverse weather shocks and aspirations. Weather shocks may lead to changes in individuals' everyday realities—such as their health or the levels of violence and instability in their communities—which can negatively affect aspirations. Further, lower aspirations may help explain reduced productive investments following shocks. Such a feedback loop would have major implications for resilience.

New IFPRI research on rural Pakistan² suggests that adverse weather shocks indeed lower the future-looking aspirations of the poor. This finding is consequential because it suggests a double burden of such shocks: they deplete the income and assets of the poor today while also contributing to lower aspirations for (and thus investments in) the future. This double burden demands a double role for resilience strategies: to restore the livelihoods of the poor today while also raising aspirations for the future. These findings are

consistent with IFPRI research in rural Ethiopia³ on the formation and impact of aspirations. The various IFPRI studies suggest that the poor suffer from especially low aspirations, and having higher aspirations may reduce poverty and improve resilience by leading to greater productive investments.

UNDERSTANDING ASPIRATIONS

Aspirations can be understood as forward-looking goals or targets (or boundary states) and a preference to attain or realize them. IFPRI research on aspirations in Ethiopia and Pakistan suggests that aspirations have two basic features relevant to well-being in general, and to poverty and resilience in particular. First, aspirations seem to influence the choices individuals make in relation to their future. More precisely, aspirations (and other preferences) combine with beliefs and constraints (and possibly other factors) to determine these choices. Second, aspirations are dependent on context and subject to change. They reflect individual and collective experiences, and socioeconomic and institutional circumstances. Moreover, they will likely change with the appearance of new alternatives or with the increased (or reduced) salience of some aspects of existing alternatives.

Preliminary evidence suggests that aspirations and poverty are strongly linked. Poverty can lead individuals to hold beliefs, aspirations, and other preferences that diminish the significance of some features of the environment and magnify others. If an individual believes that she has little, if any, ability to impact her own well-being, then she has inadequate incentives to become informed about or explore pathways to better well-being. Moreover, she has little motivation to allocate resources to do so. The set of beliefs about her inability to bring about positive change and her correspondingly limited aspirations therefore remain unrevised. Thus, while information, credit, insurance, and other resources and opportunities may be available (albeit with some cost), they remain unexploited because they are not motivationally salient. As a consequence, poverty is perpetuated.

The above characterization implies that aspirations can differ significantly across individuals; due to these differences, capturing the aspirations of different individuals with a comparable measure can be challenging. While there are potentially many dimensions in which an individual could aspire, income, wealth, educational attainment, and social status capture a large and important share of poverty-related aspirations. These four components have been used by

different studies, including the IFPRI studies of aspirations in Ethiopia and Pakistan, to construct an index that measures the aspiration levels (and thus captures the heterogeneous preferences) of individuals.⁴ The index uses respondents' reported *desired* levels of achievement in these four dimensions, normalized against district-average responses for each dimension.⁵

As noted above, aspirations so measured motivate action. This link has been most studied in relation to occupational choice and educational attainment. Recent studies in rural Ethiopia and Pakistan have provided further evidence on the role of aspirations. A few preliminary findings are worth highlighting:

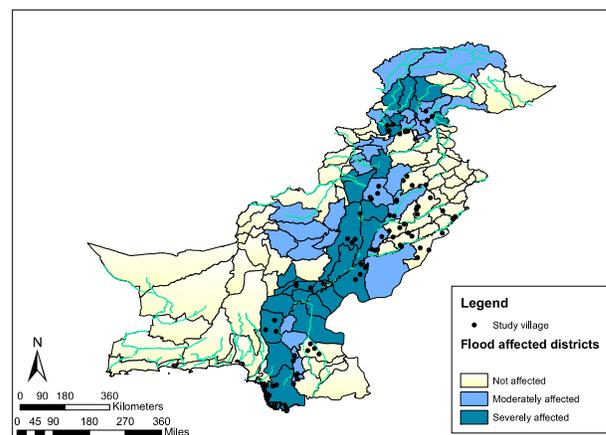
1. Using seven rounds of panel data, IFPRI research in Ethiopia explored the formation of aspirations. The studies found that slower household income growth, slower average income growth of neighbors, and higher poverty (measured by the number of rounds during which a household is below a given poverty line) are all associated with lower aspirations.
2. Another IFPRI research paper on aspirations in Ethiopia investigated the link between the degree to which individuals feel able to control their life outcomes, their aspirations, and their choices. It found that having a higher degree of such perceived control is correlated with higher reported aspirations, higher children's (both boys' and girls') school enrollment, superior nutritional outcomes (expressed as fewer underweight children in the household), and greater application of chemical fertilizers.
3. The findings of a randomized field experiment conducted in Ethiopia to rigorously measure aspirations, ascertain their determinants, and study their role in affecting future-oriented behavior suggested the importance of personal and vicarious experiences in increasing an individual's aspiration level. Individuals in a remote district in rural Ethiopia were randomly invited to watch documentaries about people from similar communities who had succeeded in agriculture or a small business without help from the government or nongovernmental organizations. A placebo group watched an Ethiopian entertainment program, while a control group received no intervention at all. Six months later, aspirations had improved among treated individuals but did not change in the placebo or control groups. Documentary viewers also increased their savings, their children's enrollment in school, and spending on their children's schooling, suggesting that aspirations *can* be influenced with effective interventions.
4. Similarly, a study of the rural poor in Pakistan suggested that having higher aspirations is correlated with a number of specific behaviors that reflect underlying efforts on the part of individuals and households to improve their future livelihoods. Preliminary results from this study suggested that a 1 standard deviation increase in aspirations was associated with a number of future-oriented decisions and behaviors: a 6 percent increase in seed expenditure per acre of cultivated land, a 25 percent increase in cash loans outstanding as a share of expenditures, and a 10 percent increase in the probability that the household operates a nonagricultural enterprise. Agricultural households with

greater access to credit and diversified income sources are better poised to cope with the negative impacts of a natural disaster, suggesting that raising aspirations is an integral part of ensuring resilience.

THE EFFECT OF WEATHER SHOCKS ON ASPIRATIONS: THE CASE OF PAKISTAN'S 2010 FLOODS

Recent evidence from rural Pakistan has suggested that adverse weather shocks have a strong and negative impact on the future-oriented aspirations of the poor. The study focused on Pakistan's 2010 monsoon-season (June–September) rainfall, which put a full fifth of the country under water and was described as the worst flooding experienced in more than 80 years.⁶ The floods affected 20 million people, destroying an estimated crop value of US\$1 billion.⁷ The map in Figure 1 shows which districts of Pakistan experienced moderate, severe, or no flooding as of August 2010.⁸ The map also plots the locations of 76 villages in which 2,090 households were surveyed as part of an IFPRI survey conducted during March–April 2012. Of these villages, 21 percent were in severely affected districts and 23 percent were in moderately affected districts.

Figure 1 District-level effects of floods in Pakistan, August 2010



Source: UNOCHA.⁹

The Pakistani case is emblematic of adverse weather shocks throughout the developing world. Climate change promises only to increase the likelihood of such extreme weather events—making understanding the impacts of Pakistan's 2010 floods on aspirations relevant for many other developing-country contexts.

Given prevailing long-term rainfall patterns across different regions of Pakistan, heavy 2010 monsoon-season rainfall was more expected in some areas than in others. The IFPRI study captured the exogenous aspirational impacts of extreme 2010 monsoon-season rainfall by examining how much more rainfall than is normal (over the last 30 years) for a given village fell during the 2010 monsoon season.¹⁰ The study effectively compared aspiration levels in villages in the same district and with similar long-term rainfall histories, but where one village had a relatively large 2010 monsoon rainfall shock relative to what was expected given the last 30 years of farmers' experience.

The study suggested that one and a half years later, Pakistan's 2010 floods had a significant negative impact on aspiration levels, as measured by the aspirations index. Individuals experiencing rainfall levels 1 standard deviation higher than the mean had aspiration levels 0.15 standard deviations lower than the mean. Further, these negative impacts on aspirations were not uniform. They fell almost entirely on the bottom three quintiles of per capita expenditures, while the aspirations of the top 40 percent were unaffected.

The aspirations of individuals who were part of land-cultivating households and those reliant on agricultural wage labor were especially hard hit by the floods; the aspirations of individuals dependent on rural nonfarm work were unaffected. Further, among land-cultivating households, those with rainfed agriculture were hardest hit; the aspirations of those with access to irrigated agriculture were unaffected. Individuals from households with nonagricultural enterprises were significantly less affected than those without. Finally, those with relatives outside their district (informal risk-sharing networks) were significantly less negatively affected. In short, those most exposed to weather-related risk saw their aspirations most negatively affected by the floods.

The study also presented suggestive evidence that the floods lowered aspirations through several cognitive channels—especially the sense of control individuals feel that they have over their lives. Members of flood-affected households felt more fatalistic, which IFPRI research in Pakistan and Ethiopia has shown to affect future-oriented behaviors and investments. When individuals feel they have less control over their lives, they aspire to achieve less. This pattern suggests an important role for public policy—not only in Pakistan, but in any developing country vulnerable to the effects of climate change and natural disasters—in reducing fatalism and thus raising aspirations in the wake of negative shocks.

CAN POLICY RAISE ASPIRATIONS?

Considering the apparent negative effects of weather shocks on individuals' aspirations for the future, it is important to find ways in which policy can mitigate negative effects and ensure that those experiencing such shocks do not fall into a poverty trap. How can we influence individuals' aspirations?

Katrina Kosec (k.kosec@cgiar.org) is research fellow, **Huma Khan** (h.khan@cgiar.org) is senior research assistant, and **Alemayehu Seyoum Taffesse** (a.seyoumtaffesse@cgiar.org) is senior research fellow in the Development Strategy and Governance Division, and **Fanaye Tadesse** (fanaye.t@gmail.com) is research officer in the Ethiopia Strategy Support Program II, respectively, of the International Food Policy Research Institute (IFPRI). The brief has been prepared for the 2020 conference "Building Resilience for Food and Nutrition Security," May 15–17, 2014, Addis Ababa, Ethiopia.

The IFPRI studies from Ethiopia suggested the importance of working with and through personal and observed experiences in increasing an individual's aspiration level.

Similarly, the study in rural Pakistan suggested that social protection programs can play an important role in mitigating the negative effects of shocks on aspirations and, thereby, on individual welfare. Following the 2010 floods, the government of Pakistan provided flood relief through the Citizen's Damage Compensation (Watan Card) Program. The program provided three staggered cash payments to households in flood-affected villages during 2010–2011. The study found that a 1 standard deviation increase in 2010 rainfall deviations from the mean led to a 0.25 standard deviation decrease in aspirations in villages *without* the Watan Card Program. However, in similarly flooded villages *with* the program, the same increase in rainfall led to a statistically insignificant and far smaller 0.03 standard deviation decrease in aspirations (one-eighth the size). The results suggest that the presence of a flood relief program may help mitigate the negative impacts of a flood shock. In short, social protection may raise the welfare of the poor today while also protecting their aspirations for the future.

To turn existing knowledge into policy, we need to look at the merits and demerits of different policy options. For instance, what is the most effective way to raise aspirations through exposure to success stories? How do targeted documentaries, street theater, puppet shows, and aspirations training sessions compare, and how does their effectiveness vary across contexts? How do they compare with mass media interventions? Further, what methods other than exposing individuals to success stories can raise aspirations? How does targeted social protection in response to specific negative economic shocks (like a natural disaster) compare with more run-of-the-mill social protection programs targeted at the poor? Additional research is needed on the relative impacts and cost-effectiveness of different policy options aimed at raising aspirations. Furthermore, more research is needed on how aspirations interact with development goals such as the take-up of productive investment opportunities that can improve the resilience of the poor. Such knowledge could open new channels for making development programs and social protection policies more effective.

NOTES

¹ These include IFPRI studies in rural Pakistan and Ethiopia, whose references can be found in notes 2 and 3.

² All references to IFPRI research in rural Pakistan refers to K. Kosec and C. Mo. 2014. "Productivity Shocks, Aspirations and the Role of Social Protection: Evidence from Rural Pakistan." Unpublished working paper, International Food Policy Research Institute (IFPRI), Washington, DC.

³ All references to IFPRI research in Ethiopia refer to the following sources: (1) T. Bernard, A. S. Taffesse, and S. Dercon. 2008. "Aspirations Failure and Well-Being Outcomes in Ethiopia: Towards an Empirical Exploration." Paper presented at Improving Institutions for Growth workshop, Oxford, UK, March 21. <http://www.iig.ox.ac.uk/output/presentations/pdfs/E13-Aspirations-and-WellBeing-Outcomes-in-Ethiopia.pdf>; (2) T. Bernard and A. S. Taffesse. 2012. *Measuring Aspirations: Discussion and Example from Ethiopia*. Discussion Paper 1190. Washington, DC: IFPRI; (3) T. Bernard, S. Dercon, and A. S. Taffesse. 2011. *Beyond Fatalism: An Empirical Exploration of Self-Efficacy and Aspirations Failure in Ethiopia*, revised version 2013. Discussion Paper 1101. Washington, DC: IFPRI; and (4) T.

Bernard, S. Dercon, K. Orkin, and A. S. Taffesse. 2014. "The Future in Mind: Aspirations and Forward-Looking Behaviour in Rural Ethiopia." Paper presented at Centre for the Study of African Economies conference on economic development in Africa, Oxford, UK, March 25.

⁴ Along with the studies in Pakistan and Ethiopia, the index has been used by L. Beaman, E. Duflo, R. Pande, and P. Topalova. 2012. "Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India." *Science* 335:582–586.

⁵ Specifically, respondents with an aspiration level above their district's average had a positive value on the normalized outcome, while those with a level below the average had a negative value. Furthermore, the researchers used individual-specific weights reported by each respondent (specifically, the share of importance the individual placed on each of the four dimensions) to calculate a weighted average of the four normalized outcomes. The result was a measure of individual aspiration levels that captured preferences of heterogeneous individuals.

⁶ BBC (British Broadcasting Corporation). 2010. "'2.5m People Affected' by Pakistan Floods Officials Say." *BBC News South Asia*, August 2.

⁷ International Federation of Red Cross and Red Crescent Societies. 2011. *World Disasters Report 2011: Focus on Hunger and Malnutrition*. Geneva.

⁸ The flood-affectedness designation was made by United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). 2010. "Pakistan: Monsoon Floods Situation Report #18." *Reliefweb*, August 27.

⁹ Ibid.

¹⁰ This was achieved by controlling for the mean and standard deviation of rainfall in the village during the period 1981–2010, including district fixed effects, and using a primary rainfall measure that expressed 2010 monsoon-season rainfall in terms of deviations from the 30-year season mean. See F. D. Hidalgo, S. Naidu, S. Nichter, and N. Richardson. 2010. "Economic Determinants of Land Invasion." *The Review of Economic and Statistics* 92 (3): 505–523; and S. M. Hsiang, M. Burke, and E. Miguel. 2013. "Quantifying the Influence of Climate on Human Conflict." *Science* 341 (6151): 1235367.

IFPRI and its 2020 Vision Initiative appreciate the generous support of and active engagement with the consortium of partners for the 2020 conference.



In partnership with the African Union Commission, IFPRI and its 2020 Vision Initiative are proud to contribute to the 2014 Year of Agriculture and Food Security in Africa.



WWW.2020RESILIENCE.IFPRI.INFO



2033 K Street, NW, Washington, DC 20006-1002 USA | T. +1.202.862.5600 | F. +1.202.467.4439 | ifpri@cgiar.org | www.ifpri.org

This brief has been peer reviewed. Any opinions stated herein are those of the authors and are not necessarily endorsed by or representative of the International Food Policy Research Institute or its partners. Copyright © 2014 International Food Policy Research Institute. All rights reserved. For permission to republish, contact ifpri-copyright@cgiar.org.