

Spotlight 3: Resilience to shocks

Structural and rural transformation – effects on resilience

The forces underlying structural and rural transformation – especially commercialization and specialization – can catalyse new kinds of assets and capabilities that yield new livelihood options and institutional arrangements. Together, these can confer greater resilience to shocks and boost capacity to recover from them. But those same forces can breed new hazards, vulnerabilities and risks that in certain circumstances can combine to blunt the capacity to withstand and recover from shocks.

Incidence and types of shocks

Risk and vulnerability are chronic realities of social and economic life in rural areas (Barrett and Carter 2012), where the combination of weather, geography, ecology, population shifts, sociocultural factors and infrastructure development renders most rural populations vulnerable to various shocks, including:

- *Climate change*, leading to greater frequency of droughts, storms and floods, often wreaking havoc on the agricultural production systems underpinning most rural livelihood systems.
- *Sharp seasonal volatility* in prices of key goods, in particular staples, as a consequence of the interaction of the agricultural calendar with thin infrastructure.
- *Terms-of-trade shocks*, which often generate effects transmitted sharply to rural communities producing exportables (Broda and Tille 2003).
- *Access to public services*, which is especially challenging given the wide dispersion in human settlements and reduces the access of rural people to coping mechanisms.
- *Physical displacement and commercial disruption*, stemming from civil strife, often cutting sharply through rural communities.

Structural and rural transformation and shocks

Structural and rural transformation is a disruptive process – enhancing or destroying the value of human, physical and institutional capacity while creating demand for new capacities (Johnston and Kilby 1975). This offers scope for enhanced resilience or greater vulnerability (figure S3.1).

On the positive side, the forces underlying transformation can catalyse and reward the acquisition and use of new kinds of capabilities that yield livelihood options, organizational forms and institutional arrangements, which together can confer greater resilience to shocks. Conversely, the same forces can breed new hazards, vulnerabilities and risks that can combine to overwhelm traditional coping mechanisms and blunt the capacity to withstand and recover from shocks, potentially driving households and communities into poverty traps.

Resilience-enhancing effects of rural and structural transformation

As structural transformation reduces the proportion of the population whose livelihoods are reliant on natural resources and agriculture, it is likely to reduce the impact of a weather event on overall well-being. More specifically, coupled with specialization, the commercial imperatives that propel structural and rural transformation generate demand for new assets and capabilities. Households, communities and countries able to acquire and exercise them are rewarded in the form of improved livelihood options (box S3.1).

New assets

Structural transformation entrains specialized commercial activity (Johnston and Kilby 1975). Assets required for application in commercial activity must be acquired and applied. These assets include storage and handling capacity,

FIGURE S3.1 Analytical framework



Source: Authors.

BOX S3.1 Coping with floods in Bangladesh

Historically, Bangladesh has been hit by a major cyclone or widespread flooding once every three years (World Bank 2013). In 1970, a cyclone killed nearly half a million Bangladeshis. A cyclone of similar strength in 2007 killed 4,000 (DFID 2011). In 1998, a major flood – dubbed the “flood of the century” – which affected about 45 million people, led to 2,300 deaths (del Ninno et al. 2001). Thus, in the years since 1970, Bangladesh has become more resilient. Also over the period, it has experienced an extraordinary structural transformation, from an agricultural economy to a highly diversified one with industry and services.

A detailed analysis of the 1998 floods sheds light on how key pillars of the structural transformation contributed to the greater resilience of rural communities (del Ninno et al. 2001). Communities now had assets and capabilities that allowed pursuit of livelihoods that proved to be more resilient.

Most flood-exposed households were able to avoid severe declines in welfare through a combination of private actions made possible by changes in the structure and functioning of the rural economy.

For households, these actions included major food purchases on the market, asset sales, wage employment and borrowing. Overall employment fell during the floods, but most workers found new jobs. The market for rice, the major food staple, functioned well, with the number of marketing agents having expanded greatly since the 1970s. The size of the market, investments in critical commercial infrastructure and the easing of restrictions on private trade led to an integrated and well-functioning market.

Related research on factors influencing wealth dynamics identifies substantial diversification of income sources in rural areas, along with ready access to well-functioning markets for labour and capital, both of which enhance households’ capacities to cope with shocks.

Sources: del Ninno et al. 2001; DFID 2011; World Bank 2013.

transportation equipment and related facilities, processing machinery and financial capital (Reardon et al. 2009). Recent studies of agrifood value chains and market infrastructure in several countries reveal significant investment in all of these areas within rapidly transforming food systems (Reardon 2015; Tschirley et al. 2015a, 2015b). With successful structural transformation, important changes in rural asset holdings also take place at the household level, as diversified, low-productivity, subsistence-oriented agriculture gives way to agrifood systems in which production is marked by greater specialization on-farm, but greater market-oriented diversification in aggregate (Haggblade et al. 2007; Johnston and Kilby 1975; Reardon and Timmer 2014).

New capabilities

Structural transformation transfers many functions from households to specialist individuals and firms (Tomich et al. 1995), such as those linked to creating and maintaining commercial capacity. Literacy and numeracy are essential (Haddad et al. 2015). Financial literacy is especially important, as even small enterprises in far-flung locales increasingly must be operated as businesses (ACDI/VOCA 2015).

Improved resilience

Where structural and rural transformation induces acquisition of new assets and capabilities – in turn, allowing for pursuit of new livelihoods, organizational forms and institutional arrangements – households and communities should be better able to mitigate and recover from shocks. The core drivers of enhanced resilience are diversified production systems, diversified income sources, improved education, increased borrowing and savings, greater remittances from urban areas, enhanced management of natural resources and more effective public institutions.

New vulnerabilities and risks under structural and rural transformation

The economic forces of structural and rural transformation may increase risk by rendering

some rural dwellers more exposed to new kinds of hazards and thus more susceptible to shocks:

- As commercialization and specialization rise, markets for core production factors (land, labour and finance) develop, serving those most able to access them. First-order economic hazards are threefold – landlessness and land-tenure insecurity, joblessness and underemployment, and financial exclusion (Barrett et al. 2001; Haggblade et al. 2007).
- Risks increased by commercialization and specialization include:
 - Production risks linked to the adoption of new inputs in new production lines (Pender and Alemu 2007) or to the loss of diversity in production systems (Pingali and Rosegrant 1995).
 - Price risks linked to market structure including non-competitive elements (Kirsten et al. 2009).
 - Policy risks tied to unpredictable public action in markets (Dorward and Chirwa 2009).
 - Health risks associated with industrial inputs, like pesticides and herbicides (Watts 2013).
- Added production can induce natural resource depletion and environmental degradation where appropriate policies, institutions and investments are not in place (see Spotlight 7), exposing households and communities to new hazards.

Policy and investment implications

Research indicates that the forces underlying structural and rural transformation generate impacts that do more to increase rural residents' capacity to cope with shocks than to decrease it. But to the extent that the overall aim is inclusive transformation, there is room for policy change based on improved risk management:

1. *Promoting disaster preparedness and response* reduces the effects of given shocks while promoting long-term resilience, which, in turn, reduces the need for future emergency operations (WMO 2009).

2. *Enhancing risk transfer* by supporting micro-level insurance instruments, expanding the use of public works and employment-guarantee schemes, and widening access to finance for high-risk groups.

3. *Encouraging prudent risk-taking for livelihood diversification* by promoting financial literacy and rural commercial organizations, incentives for financial institutions to operate in rural areas and conditional transfers linked to capacity strengthening.

References

- ACDI/VOCA. 2015. *Farming as a business*. Washington, D.C., ACDI/VOCA. (available at <http://acdivoca.org/our-approach/cross-cutting-approaches/farming-business>)
- Barrett, C.B. and Carter, M. 2012. The economics of poverty traps and persistent poverty: policy and empirical implications. Unpublished manuscript. Ithaca, School of Applied Economics and Management, Cornell University.
- Barrett, C.B., Bezuneh, M. and Aboud, A. 2001. Income diversification, poverty traps and policy shocks in Côte d'Ivoire and Kenya. *Food Policy*, 26: 367-384.
- Broda, C. and Tille, C. 2003. Coping with terms of trade shocks in developing countries. *Current Issues in Economics and Finance*, 9(11).
- del Ninno, C., Dorosh, P. Smith, L. and Roy, D. 2001. *The 1998 floods in Bangladesh disaster impacts, household coping strategies, and response*. IFPRI Research Report 122. Washington, D.C., IFPRI.
- Department for International Development (DFID). 2011. *Defining disaster resilience: what does it mean for DFID?* London.
- Dorward, A.R. and Chirwa, E. 2009. *The agricultural input subsidy programme 2005 to 2008: achievements and challenges*. London, School of Oriental and African Studies.
- Haddad, L., Kato, H. and Meisel, N. eds. 2015. *Growth is dead, long live growth: the quality of economic growth and why it matters*. Tokyo, JICA Research Institute.
- Haggblade, S., Hazell, P. and Reardon, T. eds. 2007. *Transforming the rural nonfarm economy*. Baltimore, Johns Hopkins University Press.
- International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD). 2009. *Agriculture at a crossroads*. Washington, D.C., Island Press.
- Inter-Academy Council (IAC). 2004. *Realizing the promise and potential of African agriculture*. Amsterdam, InterAcademy Council.
- Johnston, B.F. and Kilby, P. 1975. *Agriculture and structural transformation: economic strategies in late developing countries*. New York, Oxford University Press.
- Jones, L. and Murdock, S. 1978. The incremental nature of public service delivery: implications for rural areas. *Am J Agr Econ*, 60(5): 955-960.
- Kirsten, J., A. Dorward, A. Poulton, C. and Vink, N. eds. 2009. *Institutional economics perspectives on African agricultural development*. Washington, D.C., IFPRI.
- Pender, J. and Alemu, D. 2007. *Determinants of smallholder commercialization of food crops: theory and evidence from Ethiopia*. IFPRI Discussion paper 00745. Washington, D.C., IFPRI.
- Pingali, P. and Rosegrant, M. 1995. Agricultural commercialization and diversification: processes and policies. *Food Policy*, 20(3): 171-185.
- Reardon, T. 2015. The hidden middle: the quiet revolution in the midstream of agrifood value chains in developing countries. *Oxford Rev Econ Pol*, 31(1), Spring.
- Reardon, T. and Timmer, C.P. 2014. Five inter-linked transformations in the Asian agrifood economy: food security implications. *Global Food Security*, 3(2): 108-117.
- Reardon, T., Barrett, C.B., Berdegue, J.A. and Swinnen, J. 2009. Agrifood industry transformation and farmers in developing countries. *World Dev*, 37(11): 1717-1727.
- Tomich, T.P., Kilby, P. and Johnston, B.F. 1995. *Transforming agrarian economies: opportunities seized, opportunities missed*. Ithaca, Cornell University Press.

- Tschirley, D., Snyder, J., Dolislager, M., Reardon, T., Haggblade, S., Goeb, J., Traub, L., Ejobi, F. and Meyer, F. 2015a. Africa's unfolding diet transformation: implications for agrifood system employment. *Journal of Agribusiness in Developing and Emerging Economies*, 5(2), September (online).
- Tschirley, D., Reardon, T., Dolislager, M. and Snyder, J. 2015b. The rise of a middle class in urban and rural East and Southern Africa: implications for food system transformation. *Journal of International Development*, 27(5), June.
- Watts, M. 2013. *Poisoning our children's future: children and pesticides*. Pesticide Action Network Asia and the Pacific: Oakland (available at <http://www.panap.net/sites/default/files/Poisoning-Our-Future-Children-and-Pesticides.pdf>).
- World Food Programme (WFP). 2011. *WFP policy on disaster risk reduction and management*. Rome.
- World Meteorological Organization (WMO). 2009. *Fact sheet 1: climate information for reducing disaster risk* (available at http://www.wmo.int/wcc3/documents/WCC3_factsheet1_disaster_EN.pdf).
- World Bank. 2013. *Modern food storage facilities project*. Project appraisal document on a proposed credit. Report No: 74597-BD. Washington, D.C.