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Zimbabwe

Personal and Institutional Safety Nets: The Long-term Consequences of Failure

It is well-known that households in developing countries often experience weather-related shocks and other setbacks that drastically affect incomes. Fortunately, these shocks do not always translate to similar magnitude fluctuations in consumption. However, not all households can smooth consumption as much as desired. Moreover, many households maintain consumption only at the expense of their long-term income possibilities — for example, by selling off productive assets or by reducing investments in the health or education of their children.

Often, livestock are sold — or lost — during droughts in Africa. In many instances these stocks are built up in inter-drought periods. Evidence from the 1994–95 drought in Zimbabwe indicates that this recuperation can be quite rapid for households that have retained breeding stock. Conversely, those households that lost their breeding stock may have a difficult time restocking their herds. This implies that repeated shocks can pose a barrier to the economic development of the very poor but that these are less likely to be an insurmount-

able barrier for the wealthier members of the rural community.

Another long-term impact of a poor agricultural year might be in terms of the nutritional status of children. That young children are especially vulnerable to hardships imposed on families is not seriously questioned. In many settings child mortality increases in times of extreme drought. But what is the long-term impact on the survivors in these circumstances? Similarly, what are the consequences for children when drought is less severe and does not result in excess mortality? Evidence of reduced growth of young children following a poor crop year comes from many studies, covering settings as diverse as Bangladesh and Côte D'Ivoire. This is of concern, in part, because it shows that other methods of consumption-smoothing in these environments, including utilization of credit and insurance as well as relying on social assistance, have proven partially inadequate. The concern is greater to the degree that this reduced growth has repercussions for the children's futures.

While a child's growth is a good indicator of its underlying health

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status and, thus, is an important welfare outcome in its own right, children experiencing slow growth can also expect to earn less throughout their lives. School enrollment may be delayed or foregone entirely. If malnourished children do attend school, they may perform less well than other children. If school entry is delayed, entry in the labor market can also be postponed leading to reduced overall earnings.

Moreover, at any given level of education, shorter adults are generally found to have lower earnings. This likely reflects strength and endurance. Nevertheless, the correlation of earnings and wages has been observed for both males and females and in a number of environments including the urban areas of middle-income countries. Size is also an issue for reproductive health: smaller women experience more complications during child-birth, typically have children with lower birth-weights, and experience higher risks of child and maternal mortality. Thus, the costs of growth faltering during a single drought may well be incurred for more than one generation.

However, it is surprisingly difficult to verify that the impact of a drought on child growth persists. Plausibly, a child may grow faster in the post-drought period and catch-up to his or her peers. The scarcity of longitudinal data contributes to the relative dearth of evidence on this catch-up growth. Yet the main limitation to quantifying the long-term consequences is the inability to distinguish the effects of the drought or similar economic shock from other pervasive features of poverty. A child from a poor household may have growth faltering during a drought

but after the drought she remains in the poor household. If she is found to be malnourished many years after the drought, it may not be possible to distinguish the drought impacts from the consequences of chronic poverty. Yet, policy prescriptions may differ depending on these underlying factors.

Two recent studies have addressed the question of the long-term impact of rainfall shocks on child health using household panel data from rural Zimbabwe. One study looked at the impact of drought that affected production in the 1994–95 crop year. Children aged 12 to 24 months proved most vulnerable, losing 1.5–2 cm of expected growth. By contrast, older children did not experience a slowdown in growth. The children who suffered a loss in growth had limited catch up growth and remained shorter when visited four years after the drought. Thus, the initial growth faltering appears to have had a permanent effect on stature. These impacts were observed even though virtually all households studied received some government assistance during the drought period—either in the form of food supplementation or grain loans or both.

Moreover, livestock ownership appears to have played an important role as an asset that buffers the impact of drought in these households since children in households with more cattle had no long-term loss of stature. While this may be a direct impact of the ability of households with larger herds to sell their cattle in order to maintain consumption, it may also reflect the overall wealth of families with large herds.

Using panel data from these same villages, a second study found that

children who were in the same vulnerable 12–24 month age bracket during an earlier two-year drought in 1982–1984 were affected more than other children in the sample. Similarly, children who were in this age bracket during the civil war that preceded independence in 1980 were smaller than their siblings born in less stressful times. Individuals who were measured in the 1980s were interviewed as well as measured again in February and March 2000. The young men and women who had the misfortune of being vulnerable during the earlier drought had closed about half the height gap between them and other children in the villages that had existed when they were young children. However, they clearly had not caught up with their siblings or with other cohorts unaffected by the drought. Moreover, these young adults had started school later and had completed significantly less schooling than the rest of the sample.

This observation does not merely inform about the consequences of drought. It also allows one to infer about the impacts of improvements in nutrition distinct from other concurrent possible improvements in income or the home environment. In particular, had the median pre-school child in this sample had the stature of a median child in a developed country, by adolescence she would be 4.6 centimeters taller, would have completed an additional 0.7 grades of schooling, and would have started school seven months earlier.

Given that the 1982–84 drought reduced height-for-age by roughly half of the gap in the heights of the average Zimbabwean child and the international norms for growth of children, these findings imply that

this transitory drought shock resulted in a loss of stature of 2.3 centimeters, 0.4 grades of schooling, and a delay in starting school of 3.7 months. Thus, while not all of the nutritional gap — and the schooling attendance gap — is attributable to a short-term shock, these findings strengthen the motivation for a “forward looking” policy for mitigating the impacts of shocks.

This note is based on the following papers:

Hoddinott, John and Bill Kinsey, 2001. “Child growth in the time of drought,” *Oxford Bulletin of Economics and Statistics*, forthcoming.

Alderman, Harold. 2001. *The Implications of Private Safety Nets for Public Policy: Case Studies of Mozambique and Zimbabwe*. Africa Region Human Development Working Paper, World Bank.

Alderman, Harold and John Hoddinott. “Long Term Consequences Of Early Childhood Malnutrition,” processed, World Bank.

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