
ASSET THRESHOLDS AND SOCIAL PROTECTION

A 'Think Piece' Prepared for the IDS Bulletin Special Issue on Social Protection

Michael R. Carter
University of Wisconsin, Madison

Christopher B. Barrett
Cornell University

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Summary

This paper uses the economic theory of asset thresholds and poverty traps to reflect on the nature of risk, vulnerability and the circumstances that make them especially salient. We argue that it is the combination of asset poverty and exclusion (market and social) that generates the poverty traps that allow 'natural' shocks to create the irreversibilities that make social protection so important. Knowledge of the nature and location of asset thresholds is essential to effective design of productive safety nets and social protection. Over the longer term, policy needs to both reduce the impact of exogenous risk (through technological change or insurance devices) and to reduce exclusion from available social and market-mediated risk management devices.

Biographical Sketch of Authors

MICHAEL R. CARTER is professor of Agricultural and Applied Economics at the University of Wisconsin, Madison. He is also director of the BASIS Collaborative Research Support Program that studies rural poverty alleviation strategies across the developing world. Author of numerous articles and books, Carter's research focuses on the nature of growth and transformation in low income economies, giving particular attention to how inequality in the distribution of assets shape, and are shaped by, economic growth. His current projects include longitudinal analysis of income distribution in South Africa and a pilot study of index-based agricultural insurance in Peru.

CHRISTOPHER B. BARRETT is professor of Applied Economics and Management at Cornell University, and editor of the *American Journal of Agricultural Economics*. He has worked extensively in Africa and has ongoing, current field research on poverty traps and risk management in Madagascar, Kenya and Ethiopia. An expert on food aid, Barrett has published extensively on a wide range of agricultural development issues, broadly focused on poverty, hunger, food security, economic policy and the structural transformation of low-income societies, with emphasis on risk and sustainability issues.

Asset Thresholds and Social Protection

The dedication of this issue of the *Bulletin* to social protection testifies to the topic's increasing importance in development discourse and policy. Holzman *et al.* (2003) describe the rise of social protection within the World Bank. They trace its rise at least in part to the recognition that vulnerability defines reality for many of the world's poor. Vulnerability in turn distorts and misshapes people's inter-temporal resource allocation behavior—not only for those who are currently poor, but also for the non-poor vulnerable to collapsing into poverty. Because of these induced distortions, vulnerability is economically costly and contributes to the perpetuation of poverty over time.

While this description of vulnerability and its consequences is widely accepted, exactly what should be done about it remains a topic of some debate and discussion, as this issue of the *Bulletin* illustrates. The World Bank's own social risk management approach seems to conceptualize risk as something exogenous and immutable, and therefore focuses on social protection policies that help people more effectively manage the prospect of risk *ex ante* and deal with its aftermath *ex post* (see xxx in this volume [PLEASE NOTE—I AM ASSUMING THAT THE SPECIAL ISSUE WILL INCLUDE A CONTRIBUTION BY A REPRESENTATIVE OF THE WB'S SOCIAL RISK MANAGEMENT APPROACH THAT WE CAN CITE HERE. IF NOT, PLEASE SIMPLY CITE HOLZMAN ET AL. HERE]). In contrast, the transformative approach to social protection articulated by Wheeler-Sabates and Devereux (this volume) more explicitly targets vulnerability itself, seeing it as more of a social construction—a by-product of social exclusion—rather than a consequence of nature that needs to be managed as well as possible.

While both of these approaches have merit, this brief think piece takes a step back from this debate and uses the economic theory of asset thresholds and poverty traps to reflect on the nature of risk, vulnerability and the circumstances that make them especially salient. We make three basic points:

- A social protection agenda becomes especially urgent in the face of poverty traps and asset thresholds that can create irreversibilities when shocks hit;
- It is the combination of asset poverty and exclusion that generates the poverty traps that allow shocks to create the irreversibilities that give social protection its particular salience; and,
- Knowledge of the nature and location of asset thresholds is essential to effective design of productive safety nets and social protection more generally.

While self-consciously designed to illuminate an approach to social protection based on asset thresholds, this paper is not intended to delegitimize insights from other approaches to social protection. Indeed, as we argue at the end of this note, the most promising approach to social protection employs insights from the social risk management framework, as well as from the transformative and the asset threshold approaches.

*‘Something Bad Can Happen and Spell Ruin’:
Insights from the Economic Theory of Poverty Traps*

In a recent paper, Calvo and Dercon (2005, p. 3) observe that the common thread in definitions of economic vulnerability is a “sense of insecurity, of potential harm people must feel wary of—something bad can happen and *‘spell ruin’* (emphasis added). Note that this conceptualization transcends *realizations* of adverse events and thus is not solely about fluctuation in measures of material well-being (*e.g.*, income, expenditures), but more broadly encompasses *perceptions* that adverse events may occur. This notion that a

random event (*e.g.*, a flood, a drought, an illness or an unemployment spell) can have permanent effects, spelling ruin for a family, suggests that vulnerability, and perhaps social protection against vulnerability, can be understood through the lens of poverty traps.

Carter and Barrett (2006) summarize both macro- and micro-economic theories of poverty traps. A common element of poverty trap models is that they identify a critical asset threshold around which behavior bifurcates. Below the threshold lie those who are “ruined,” who can do no better in expectation than hang on and whose pathways out of persistent poverty are blocked, for reasons we explain below.¹ By contrast, those above the threshold can be expected to invest productively, accumulate and advance. The bifurcation of behavior at the asset threshold creates divergent longer-term prospects and thus of welfare status for those above and below the threshold. Following Zimmerman and Carter (2003), Carter and Barrett label this critical threshold the ‘Micawber Threshold.’²

From a social protection perspective, the Micawber threshold is important because it implies that temporary shocks (*e.g.*, livestock deaths) can have permanent adverse consequences for those knocked beneath the threshold.³ Other households, who do not fall below the threshold, can be expected to recover fully from an objectively

¹ Note that “ruin” need not be deterministic in these models. With good luck, some seemingly-trapped poor people can surmount the asset threshold. This possibility can further distort behavior, in particular inducing a sort of moral hazard as those who are, in expectation, trapped in poverty actively seek out risky activities, gambling that a lucky draw might deliver them from a ruinous fate (Lybbert and Barrett forthcoming).

² Zimmerman and Carter in turn pinched the term from Lipton (1993) who uses the term somewhat differently to evoke a level poverty below which virtuous Victorian savings strategies cannot be implemented. Lipton labeled this level Micawber in honor of Charles Dickens character Wilkens Micawber who told David Copperfield: “Annual income twenty pounds, annual expenditure nineteen nineteen and six, result happiness. Annual income twenty pounds, annual expenditure twenty pounds ought and six, result misery.”

³ The threshold also has asset building (“cargo net”) implications that we do not discuss here. See Carter and Barrett (2006) for more detail.

similar shock (Dercon 2004). The next section more fully considers the policy implications of these ideas for social protection, in particular for productive safety nets.

While there are multiple theoretical explanations of the forces that create poverty traps and the Micawber Threshold, they share the common element that trapped agents suffer exclusion from the social and market mechanisms that mediate access to capital and insurance. If people could freely borrow to build up their stock of productive assets or insurance themselves against their assets falling below the threshold, they would and there would be no discrete bifurcation of behavior around a particular threshold. The oft-overlooked centrality of exclusion in poverty traps models complements the Sabates-Wheeler and Devereux understanding of vulnerability and social protection.

In addition to its implication that asset dynamics will bifurcate, the existence of a poverty trap has a second important implication. In the face of income shocks, individuals just above a critical asset threshold will tend to preserve or smooth their assets, destabilizing consumption in order to avoid a costly collapse below the Micawber threshold.⁴ In their poverty trap model, Zimmerman and Carter (2003) explore this point in some detail, showing that not only do steady states bifurcate around the threshold, but also that individuals in the vicinity of a threshold will respond differently to shocks (a bifurcation in risk management behavior). This observation suggests a second way to test for and identify the existence of a Micawber threshold.

⁴ Beyond Zimmerman and Carter, theoretical analysis of asset smoothing is thin. Deaton (1992), for example, mentions that such an asset preservation strategy can occur when shocks are known to be autocorrelated. Numerous observers have commented on this phenomenon and its costliness (e.g., Drèze and Sen 1989). McPeak (2004) models how positive correlation between asset and income shocks will lead to a form of asset smoothing that limits the use of assets to stabilize current consumption and finds evidence of this behavior in data on northern Kenyan pastoralists.

From Theory to Empirical Evidence

As a prelude to an explicit analysis of the implications of asset thresholds for social protection, this section reviews some of the recent empirical evidence on the existence of such thresholds. One set of studies directly explores asset dynamics, searching for indications that asset accumulation bifurcates around a threshold value. A second set looks at behavioral response to shocks, again searching for an asset threshold around which behavior bifurcates.

The studies that have directly tested for poverty traps have modeled household welfare dynamics either fully parametrically or fully nonparametrically. Three parametric studies (Jalan and Ravallion 2004; Lokshin and Ravallion 2004; Barrett et al. 2006) have estimated the level of household welfare (either income or assets) in one period through a polynomial autoregression. The first two of these studies find only one dynamic equilibrium and no poverty trap. However, the parametric estimation methods used in these studies assume globally decreasing returns to scale, thus assuming away one of the key features for which one ostensibly wishes to test, *i.e.*, locally increasing returns that could give rise to poverty traps. In contrast, Barrett *et al.* (2006), using a more flexible specification, find evidence of multiple dynamic equilibria consistent with the presence of a poverty trap.

One problem with these parametric specifications is if the unstable threshold lies in an area with few observations, as theory suggests it will, it can be difficult, at best, to fit a polynomial function through the unstable equilibrium. Two alternative approaches have been utilized. A set of three studies have used nonparametric estimation (Lybbert *et al.* 2004; Adato *et al.* 2006; Barrett *et al.* 2006). All three find evidence of multiple

equilibria and a Micawber threshold. For example, the Adato *et al.* study of South Africa finds that households with assets less than those needed for a living standard of twice the official poverty line tend to collapse back to a low level standard of living equal to 90% of the poverty line.

Carter *et al.* (2007) take an alternative approach and employ Hansen's (1999) threshold estimator to directly test for the existence of a threshold around which accumulation behavior bifurcates. Drawing on longitudinal data collected around two environmental shocks (a 1998 hurricane (Mitch) in Honduras and a prolonged drought in Ethiopia over the late 1990's and early 2000's), they find evidence of a Micawber threshold around which asset accumulation bifurcates. While their analysis is subject to limitations,⁵ it does suggest that shocks that push households below critical threshold levels can have permanent consequences.

In addition to these initial efforts to directly test for the existence of poverty traps borne of multiple equilibria by estimating expected welfare dynamics, two other studies explore the asset smoothing implications of asset thresholds. The study by Carter *et al.* (2007) of drought in Ethiopia weakly reveals a pattern of asset smoothing among the lowest wealth households, meaning that the households at the bottom try to hold on to their few assets even as income and consumption possibilities dwindle during the period of severe losses in agricultural production. Similarly, among pastoralists in northern Kenya the variability of household expenditures exceeds that of income below an

⁵ Similar to the macroeconomic analysis of Hansen and others, the Carter *et al.* (2007) study fails to control for individual heterogeneity and imposes the assumption that the critical Micawber threshold is the same for all units. Future work needs to allow the threshold to vary by households, in a fashion consistent with the recent theoretical modeling of Barrett *et al.* (2006).

apparent dynamic asset poverty threshold, but not above it (Barrett *et al.*, 2006). The poor appear to manage their herds so as to smooth assets, not consumption.

Finally, in perhaps the most compelling demonstration of asset smoothing, Hoddinott (2006), using data from rural Zimbabwe, shows that households above a threshold (of two cattle) sell livestock so as to smooth consumption in the face of drought-induced income losses. Below that threshold, however, households are much less likely sell livestock, and instead cope with income loss via decreased consumption, i.e., they asset smooth.

Asset Thresholds and Social Protection Policy

While there are still much to learn about the relevance and location of asset thresholds, their implications for social protection are enormous. Barrett, Carter and Ikegami (2007) (BCI) use numerical analysis of a stochastic dynamic programming model to explore social protection in an economy characterized by skill-conditional poverty traps, wherein a household's innate ability determines its Micawber threshold. That model combines an exclusionary mechanism—households have no access to credit or insurance—with exogenous risk, thereby merging essential elements of the World Bank's social risk management and the IDS transformative social protection approach. In the first instance they explore the impact of a standard humanitarian assistance regime in which aid resources provide minimal transfers targeted to those most in need so as to ensure some minimum level of current consumption. They show how over time random events can steadily push ever greater numbers of people below the critical asset threshold, leading to ever increasing numbers of poor people and a corresponding “relief trap” for

development assistance in which a fixed budget becomes increasingly absorbed by the demands of humanitarian response.⁶ While their results of course depend on the specific parameter values chosen, their analysis arguably explains the dynamic of food aid and humanitarian assistance discussed by Barrett and Carter (2001-2), in which an ever larger fraction of the international aid budget is consumed by emergency relief.

Given these simulation results, BCI then ask whether a more effective social protection program can be built up using the notion of a “productive social safety net.” A productive social safety net is staked out at the Micawber threshold, as a first priority transferring resources to households that would otherwise fall below the threshold and be expected to collapse into the poverty trap. Such a safety net is productive in the sense that it maintains households’ stock of productive assets, enabling them to pull themselves up by their own bootstraps, viably rebuilding assets and moving ahead over time. In BCI’s numerical analysis, modest productive safety net transfers in the wake of shocks generate large social returns in terms of increased future production and a far smaller subpopulation of persistently poor households.

While productive social safety nets can generate large returns, would social protection built around this concept be good policy? To analyze this question, BCI perform a series of budget neutral simulations, comparing the results of a standard humanitarian model of social protection—providing modest transfers to the poorest first—with a triage model in which scarce budget resources are first dedicated to maintaining individuals above the Micawber threshold, with only residual budget used to

⁶ Santos and Barrett (2006) similarly show how in the presence of a critical herd size threshold among southern Ethiopian pastoralists, conventional post-drought herd restocking projects targeted to the poorest ultimately prove ineffective because small transfers of one or two cows become overwhelmed ultimately by the underlying asset dynamics of the pastoral system, in which small herds tend eventually to collapse.

address the poverty of those already deeply in poverty below the threshold. While their results are subject to all the usual caveats of simulation-based findings, the triage policy dominates the humanitarian policy after ten years in terms of headcount, poverty gap and second-degree Foster-Greer-Thorbecke measures of poverty. The productive safety net policy achieves this because its asset threshold targeting stems the growth of a chronically poor population that would otherwise overwhelm the available social assistance budget.

By contrast, the humanitarian model of social protection does better by poverty reduction standards in early simulation periods because it more effectively addresses near-term acute poverty. But these near-term gains can prove unsustainable if nothing is done to help those trapped in poverty surmount the critical asset threshold nor to keep the non-poor from collapsing into poverty due to adverse asset shocks. BCI's simulations further show that if political will exists to support front-loading of humanitarian and development assistance budgets on a constant net present value of budget basis—rather than a constant real annual budget basis—one can enjoy the best of both of these models, reducing acute poverty today while preventing collapse into that condition in the future.

In summary, while there is still much to learn about their policy relevance and how to identify them empirically, asset thresholds are a powerful concept and piece of information for the design of more effective social protection. The discussion in this section has focused solely on using asset threshold information to design more effective social protection, taking as given the economic structure that generates thresholds. However, as should be clear from the earlier discussion, poverty traps and asset thresholds result from the conspiracy of exogenous shocks and social exclusion. Policies

that address the former (*e.g.*, index insurance that fundamentally alters the economic impact of given environmental events) or the latter (*e.g.*, the innovation of new institutions and organizations that improve access to financial services) can also lead to improved social protection. While the latter may seem more consistent with the transformative approach of Wheeler-Sabates and Devereux, and the former more consistent with the World Bank's social risk management approach, the enormity of the problem of risk and social protection calls upon us all to draw creatively on these two approaches as well as on the asset threshold analysis that this paper has privileged.

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