



*A project among Cornell University, the Kenya Agricultural Research Institute and the World Agroforestry Centre, funded by the USAID BASIS Collaborative Research Support Program.*

## **P O L I C Y   B R I E F**

No. 1 January 2005

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### **POVERTY DYNAMICS IN RURAL KENYA**

**Christopher B. Barrett, Paswel Phiri Marenya, John McPeak, Festus Murithi,  
Oluoch-Kosura, Frank Place, and Justine Wangila**

**Willis**

All development policy is based implicitly on a hypothesis as to why people are poor and what interventions might ease their exit from poverty. But some people fall into poverty temporarily and soon climb back out, while others are poor from birth or suffer a serious setback and stay poor for a long time. The latter two types may be in a poverty trap, while the former maintains economic mobility. Appropriate interventions may differ according to the nature of the target subpopulation's poverty.

Under prevailing theories of economic growth and development, the poor enjoy higher marginal returns to productive assets than the rich do, so capital should flow disproportionately to the poor, enabling them to catch up economically. Moreover, shocks should cause merely temporary setbacks. Under this view, persistent poverty should reflect merely a slow climb from a low initial welfare level.

Under the poverty traps hypothesis, however, there exists a positive correlation between wealth and rates of return on assets. This positive correlation is generated by (locally) increasing marginal returns to assets, in direct contrast to the standard simplifying assumption of globally diminishing marginal returns that underpins the prevailing orthodoxy. Regions of locally increasing marginal returns to assets can only exist in the presence of some mechanism that excludes some people with low initial conditions from accessing more remunerative livelihoods. Typically, exclusion occurs through restricted access to credit or insurance necessary to build assets through investment and to protect them against loss or through socially exclusionary processes that limit certain groups' or individuals' access to preferred employment, credit or land. Latent opportunities are not identical for all. Furthermore, shocks can have permanent consequences when wealth is positively correlated with return on assets.

The policy implications of the poverty traps hypothesis therefore differ from those associated with mainstream models of welfare dynamics. In the presence of poverty traps, asset transfers, protection against shocks to productive asset holdings and removal of barriers that restrict the opportunities enjoyed by historically disadvantaged groups may matter as much as or more than exogenous improvements in productivity due to the endogenous productivity growth that may result from changes in asset holdings and accumulation and livelihood opportunities. Hence the importance of careful empirical research into the nature of persistent poverty.

This brief reports on micro-level research into these questions, examining risk management, marginal returns on productive assets, and asset dynamics in northern and western Kenya.

#### **INCOME MOBILITY AND POVERTY DYNAMICS**

Research sites were selected to cover areas of high, intermediate, and low potential. The site in Vihiga District was first surveyed in 1989, while the other sites in Baringo and Marsabit Districts were surveyed initially in 2000. In all sites, follow up survey rounds occurred in 2002. The repeated observations over time allow examination of how time affects economic mobility. We followed up the panel survey data with qualitative appraisals to better understand household livelihood strategies and the pathways by which households collapse into or escape from poverty.

**Table 1: Ultra-Poverty (\$0.50/personday) Transitions**

|                            | Poor in later period                             | Non-poor in later period                      |
|----------------------------|--|---|
| Poor in initial period     | Marsabit 100.0%<br>Baringo 85.5%<br>Vihiga 60.7% | Marsabit 0.0%<br>Baringo 9.0%<br>Vihiga 20.2% |
| Non-poor in initial period | Marsabit 0.0%<br>Baringo 0.0%<br>Vihiga 10.1%    | Marsabit 0.0%<br>Baringo 4.5%<br>Vihiga 9.0%  |

Dirib Gombo(Marsabit) and Ng'ambo(Baringo) data are 2000-2002, Madzuu (Vihiga) data are 1989-2002.

In our Marsabit site, every household earned less than US\$0.50/personday—the “ultra-poor” poverty line we constructed – in each period. Even in Vihiga, more than 60% of survey households fell below this ultra poverty line in each period. Mobility out of poverty in Baringo and Vihiga was noticeable, but less than ten percent in either site was consistently non-poor. Deep, persistent poverty is widespread in these areas, among Kenya’s poorest.

## INCOME IMMOBILITY AND POVERTY TRAPS

We explored the reasons for this persistence of poverty by examining the critical role assets play in patterns of income mobility. Income growth depends on changes in productive asset holdings and on induced changes in rates of return on assets. A household’s assets evolve according to its savings behavior and shocks. Expected returns on assets evolve according to changes in prices, productivity, and overall asset holdings. The empirical findings are consistent with the conditional convergence and poverty traps hypotheses.

In qualitative work to follow up the structured survey research, the non-poor and those who had exited poverty commonly describe individual attributes (e.g., work ethic, drunkness) as the most important factor in whether a person is poor, with very little hope to alter his or her situation. Meanwhile, the poor describe poverty dynamics in a fashion far more consistent with poverty traps. They emphasize the difficulty of asset accumulation and the central role of asset losses in explaining patterns of mobility. Every poor household could trace their poverty back to an asset shock. The poor also routinely point to certain higher-return activities as beyond their reach for want of capital or lack of education. The poor perceive that obstacles to these more remunerative activities dampen the productivity of their labor, land and livestock. Meanwhile, they face considerable exposure to asset loss, which leaves them wary about

undertaking activities that might further increase those risks. Our quantitative analysis confirms this view.

A large share of period-on-period income change appears to be stochastic. When we look at just the structural component of income change – that portion that can be explained due to changes in asset holdings or in returns on assets – the data suggest the existence of poverty traps, multiple dynamic equilibria towards which different people naturally gravitate based on their initial wealth level and any subsequent shocks they experience. We further explored why such multiple equilibria might exist, focusing on three key features of rural economies that can make it difficult for the poor to use assets effectively to climb out of poverty.

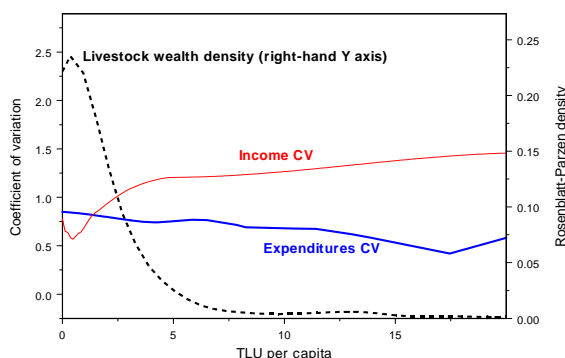
## Wealth-differentiated risk management

The considerable short-term income volatility in each of our sites raises questions about poor households’ capacity to smooth consumption. Understanding more about households’ management of income volatility also offers a window into prospective sources of differential expected returns on assets.

Risk preferences, subsistence constraints, or both, can induce poorer households to trade off expected income growth for reduced income volatility. If this means that poor households eschew risks inherent to investment, then their behavior can lead to precisely the sort of low-level equilibrium posited by the poverty trap hypothesis. Furthermore, poor households may be more likely to destabilize consumption as part of their strategy to cope with income risk, so as to avoid having to divest scarce productive assets.

If income variability increases with wealth but consumption variability decreases with wealth, that implies that consumption smoothing increases in expected income. If consumption smoothing increases welfare due to risk aversion, and if poorer households indeed smooth consumption less than wealthier households, then standard, static expenditure measures will tend to understate welfare differences because they omit the positive value of smoother consumption.

**Figure 1: Wealth-dependent risk management in northern Kenya**



Data from sites in northern Kenya reveal that poorer households indeed appear to systematically suppress income variability, which comes at a cost of lower expected return on assets. Whereas vulnerable households seem to destabilize consumption in order to protect crucial productive assets, consumption smoothing appears to increase relatively rapidly as one moves above the median of the wealth distribution among these northern Kenya pastoralists (Figure 1).

### Locally increasing returns on assets

If poorer households trade lower risk for lower returns, this should appear as well when we plot expected income against assets. Our analysis of the data shows that, over most of the wealth distribution, there indeed appear to exist locally increasing returns to asset holdings. This would suggest that if poorer households do not accumulate assets so as to increase expected income, then there must be a barrier to accumulation.

One explanation, which we are unable to test, would be that subsistence constraints limit households' ability to reduce current consumption in order to increase savings and thus asset accumulation. A complementary explanation arises from the lack of liquid savings and credit. Although there have been efforts to promote microfinance institutions in several of the survey communities, less than 15% of the survey households hold bank accounts, and access to credit is negligible. Given scant cash holdings or credit, very few households purchase land or livestock and asset accumulation is almost solely through natural herd reproduction.

These results demonstrate that there exist places where market failures can lead to sharp differences in productivity among reasonably similar households and thus to poverty traps. In our arid and semi-arid

research sites with the least agroecological potential and the poorest market access, such phenomena do seem to exist.

### Nonlinear asset dynamics

Because assets generate income, asset dynamics underpin income dynamics. If the return on assets increases with wealth over at least some portions of the wealth distribution, then one would expect this to lead to faster asset accumulation. Then, as the returns on assets diminish, accumulation slows. When returns on assets increase only locally, however, there may be multiple stable dynamic equilibria, consistent with the notion of a poverty trap. Above some intermediate, critical threshold, household assets grow toward the higher equilibrium; below it they collapse toward the lower equilibrium. These thresholds – the unstable dynamic equilibria – become natural focal points for policy.

When computing household-specific asset indices, we find that those who were poor in both survey rounds, on average, had smaller asset bases than either the transiently poor or those households who were consistently non-poor, although the differences are only statistically significant between the chronically poor and the consistently non-poor. This reinforces the impression that initial asset conditions affect poverty dynamics, consistent with the poverty traps hypothesis.

### TOWARD MORE APPROPRIATE POLICY

In order to make progress in combating persistent poverty, policymakers, donors and communities must have a clear and accurate conceptualization of the causal mechanism that keeps people poor indefinitely. In particular, the increasingly popular term “poverty traps” implies a quite different mechanism behind poverty than do prevailing economic theories of growth and development. Our research offers a novel attempt at establishing empirically whether there might really exist poverty traps in the form of multiple dynamic equilibria, with households attracted toward low-level equilibria when they start with limited initial wealth or when they suffer a serious shock to the stock or productivity of their assets.

So what are the policy implications of these findings? First, macroeconomic and sectoral reforms alone seem insufficient to put poorer populations on a sustainable growth trajectory. Less-favored areas and the poorest households need more direct intervention to build and protect assets, improve the productivity of existing assets, and remove barriers to accumulation. In some sites, this may involve increasing livestock herds to a critical threshold (or lowering that threshold

through improved veterinary care, security of herds and herders, and dry season water availability). In other sites, this may involve improving health care for adult workers, relieving seasonal liquidity constraints, and facilitating adoption and marketing of higher-value products.

Second, poorer households often are prevented from choosing more remunerative livelihood strategies by exclusionary processes in accumulation and risk management. Such exclusion may be geographic or it may result from obstacles such as limited access to credit or insurance, education, or other critical assets.

Finally, effective safety nets to protect assets that households accumulate must be located just above critical asset thresholds. This calls for a somewhat broader conceptualization of safety nets. Protecting human health through adequate nutrition and ensuring that children stay in school may suffice where one need only maintain access to labor markets in order to grow out of poverty. But in most rural areas health shocks commonly occur even without undernutrition, which underscores the importance of accessible preventative and curative health care. Moreover, labor is not the only critical productive asset for the poor, so safety nets need to cover more than just human health and nutrition. Losses of land or livestock can plunge a household into poverty, which highlights the importance of developing insurance and other means to help poor households manage risk.

Much remains to be learned. Our results are by no means definitive. But they offer some innovative ways to investigate the causal mechanism underpinning chronic poverty in Africa and how communities, governments and donors can most effectively combat persistent poverty.

## ABOUT THE AUTHORS

Christopher B. Barrett is Professor of Applied Economics and Management at Cornell University in Ithaca, NY, USA. Paswel Phiri Marenja is a Ph.D. candidate at Cornell University and a Lecturer in Agricultural Economics at the University of Nairobi. John McPeak is an Assistant Professor of Public Administration at Syracuse University in Syracuse, NY, USA. Festus Murithi is Assistant Director for Socio-Economics with the Kenya Agricultural Research Institute in Nairobi. Willis Oluoch-Kosura is Professor of Agricultural Economics at the University of Nairobi. Frank Place and Justine Wangila are Economists with the World Agroforestry Center (ICRAF) in Nairobi. This brief is based on their working paper "Welfare Dynamics in Rural Kenya and Madagascar", co-

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*Publication made possible by support in part from the US Agency for International Development (USAID) Grant No. LAG-A-00-96-90016-00 through BASIS CRSP. All views, interpretations, recommendations, and conclusions expressed in this paper are those of the authors and not necessarily those of the supporting or cooperating organizations.*



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