# POVERTY DYNAMICS IN RURAL KENYA AND MADAGASCAR

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## Competing theories of economic growth

DESPITE TWO DECADES OF MARKET-ORIENTED REFORMS throughout much of sub-Saharan Africa, poverty rates increased, and the sense has spread that the "Washington Consensus" approach of getting macroeconomic policy and prices "right" does not suffice to stimulate broadly-based growth and reduce poverty. If the theory that spawned the "getting prices right" strategy is inadequate in explaining persistent poverty and prescribing policies to reduce poverty, then perhaps other theories of economic growth can suggest more appropriate intervention strategies.

Prevalent macroeconomic growth theories are characterized by three different hypotheses, which have analogues at the household level. The "convergence" hypothesis, which led to the "getting prices right" strategy, posits that the poor enjoy higher marginal returns to productive assets than do the rich, so capital naturally flows disproportionately to the poor, enabling them to catch up economically. Shocks cause merely temporary setbacks. The "conditional convergence" hypothesis holds that individuals within identifiable groups converge to a group-specific standard of living. Geographic poverty traps represent a type of conditional convergence wherein some groups defined by physical location converge to a standard of living that falls below the poverty line. Members of these groups need targeted assistance to stimulate productivity growth. Even among the poorest, accumulation and recovery from shocks occur, albeit only to low levels.

The "poverty traps" hypothesis holds that individual wellbeing depends fundamentally on initial conditions. Two otherwise identical neighbors will have radically different experiences if one starts with sufficient land, livestock and human capital, while the other lacks the minimum initial stocks necessary to accumulate wealth over time, or else suffers a serious shock like illness or loss of livestock. Poorer households earn lower expected returns on their assets than do wealthier households. Regions of locally increasing returns to assets can only exist in the presence of some mechanism that excludes some people from choosing more remunerative livelihoods. Typically, exclusion occurs through restricted access to the credit or insurance necessary to build assets through investment or protect them against loss, respectively, or through socially-exclusionary processes that limit access by certain groups or individuals to preferred employment, credit or land.

This research represents a micro-level attempt to empirically test the hypotheses of economic growth by examining risk management, marginal returns on productive assets, and asset dynamics across settings distinguished by different agroecological and market access conditions.

## Income mobility and poverty dynamics

Getting the macro economy "right" in Kenya and Madagascar failed to stimulate broadly-based, sustainable economic growth. Instead, poverty increased in both countries. Research sites were selected in the two

countries to cover areas of high, intermediate, and low potential. One site in Kenya was first surveyed in 1989, the Madagascar baseline surveys were in 1997, and the other sites in Kenya were surveyed initially in 2000. In all sites, follow up survey rounds occurred in 2002. The varying intervals allow us to examine how time affects economic mobility, and the variety of sites allows us to test for geographic poverty traps. 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.

The sites of highest potential enjoy good enough access to markets to be able to engage in regular commercial transactions and sufficient water to sustain livestock and crops year-round. Sites with intermediate potential have either access to markets or sufficient rainfall but not both. Sites with the least potential exhibit both poor access to markets and inadequate rainfall. Not surprisingly, the sites of least potential had the greatest evidence of poverty, with every household earning less than 50¢ per day—the "ultra-poor" poverty line we used on our study—in each period. Even in sites of high potential, 58.5% of households were ultra-poor.

In aggregate across all sites, less than one quarter of households crossed the poverty line between surveys, and overall ultra-poverty was remarkably stable at 82%, with 70% of families being ultra-poor in both surveys, 11.3% families falling into poverty, and 11.2% climbing out. Mobility around the poverty line was essentially offsetting.

Annual poverty exit rates provide another gauge of persistent poverty. In four of the five sites, net exit rates were no greater than 1.0% of the population per year; gross exit rates were uniformly less than 2.5% per year. Unlike the transition data, the poverty exit rate estimates reveal no clear correspondence between agroecological potential and/or market access and household-level economic growth. Given that at least two-thirds of the sample in each site were below the ultra-poverty line in each period of surveys, the low estimated exit rates underscore the persistence of poverty in rural Africa.

To bolster the findings in the transition and exit rates, we analyzed stochastic and structural income dynamics and found a stark change in the dispersion of household-specific income as the resurveying interval lengthened (see figure). The shortest (two-year) panels reflect considerable income volatility. In such conditions, risk management matters a great deal to households, and if risk management behaviors differ significantly between poor and nonpoor households, this might create poverty traps.

## Income immobility and poverty traps

We explored the reasons for the persistence of poverty by examining the critical role assets play in patterns of income mobility. In rural Africa, unskilled labor power comprises the vast majority of a poor household's productive asset stock, while wealthier households commonly rely more heavily on earnings from land, livestock and skilled employment. 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.

**Annual average percent change in income, by site and resurvey interval**
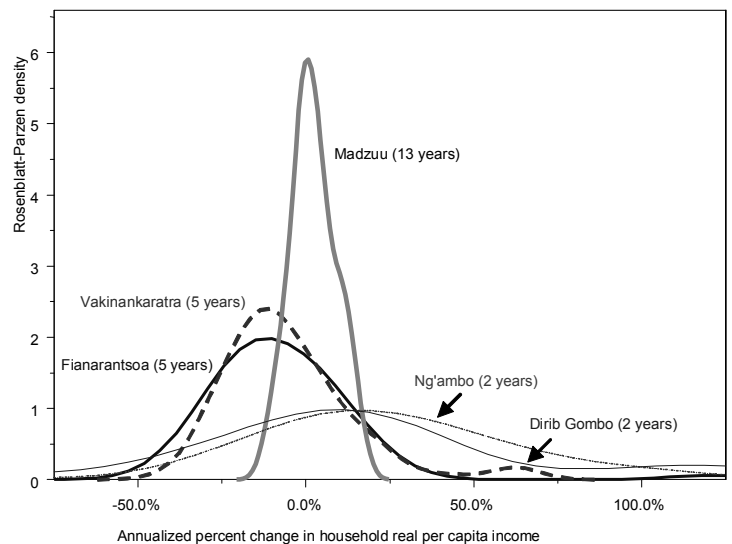


Interestingly, the nonpoor and those who had exited poverty commonly offer stories consistent with conditional convergence. They describe individual attributes as the most important factor in whether a person is poor, with very little hope to alter his or her situation. Meanwhile, the poor describe poverty 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 consider-

able exposure to asset loss, which leaves them wary about undertaking activities that might increase those risks.

Site variation in rates of ultra-poverty and exit from poverty suggest that poverty is lower and exit faster where market access and agroecology are more favorable. Nonetheless, there remains considerable intra-community variability in welfare status. The data offer no support for the convergence hypothesis, on which most economic liberalization programs in the developing world were implicitly based. Rather, there seems strong evidence in favor both of geographic poverty traps in less-favored areas, consistent with the conditional convergence hypothesis, and of poverty traps associated with low initial asset holdings, especially in lower-potential regions.

We further explored 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 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.

Data from the sites in northern Kenya reveal that poorer households indeed appear to systematically suppress income variability, which comes at a cost of lower expected marginal returns 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.

**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, over most of the wealth distribution, apparent 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 animals, and asset accumulation is almost solely through reproduction.

Without claiming that there exist globally increasing returns to a particular asset, or that locally increasing returns exist everywhere, we hypothesize that there exist places where market failures can lead to sharp differences in productivity among reasonably similar households and thus to poverty traps. In the research sites with the least potential, such phenomena do seem to exist.

**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 asset 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 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 transitorily poor or those households who were consistently nonpoor, although the differences are only statistically significant between the chronically poor and the consistently nonpoor. This reinforces the impression that initial asset conditions affect poverty dynamics, consistent with the poverty traps hypothesis.

## BASIS Briefs

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## Toward more appropriate policy

In order to achieve poverty reduction goals, communities, governments, and donors must have a clear, accurate conceptualization of the causal mechanism underpinning persistent poverty. Our research is a first attempt to establish which theories of economic growth appear more consistent with household-level income and asset dynamics. The results offer no support for the convergence hypothesis that long underpinned the Washington Consensus strategy of "getting prices right," but rather show evidence of poverty traps. What are the policy implications of such findings?

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.

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 result from obstacles such as limited access to credit or insurance, education, or other critical assets. 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. Loss of livestock can plunge a household into poverty, which highlights the importance of developing insurance and other means to help poor households manage risk.

The policy implications of the poverty trap hypothesis differ markedly from those of the other two—convergence and conditional convergence—hypotheses. Our results offer innovative ways to investigate the causes underpinning persistent poverty in Africa and can lead to more effective methods of combating it. 

## Further reading

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