

Indices and Manifestations of Poverty: Informing anti-poverty Policy Choices

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Introduction

Kenya has entered the 21st century with over 50% of its population classified as absolutely poor in that they live on less than a dollar a day. Per capita income is lower than at the end of the 1960's. Income, assets, and access to essential services are unequally distributed. The country has made important economic reforms, improving macroeconomic management, liberalizing markets and trade, and widening the scope for private sector activity in the hope of improving economic growth and welfare for Kenyans. Yet, despite these reforms the country has experienced little growth and poverty continues to afflict an ever-larger segment of its citizenry, especially in rural areas.

Recent debate on the reasons for limited impact of economic reforms on poverty reduction has been of a “top-down’ nature, where analysts consider a policy reform as an external shock and ask how its benefits and costs work their way through the economy to the poor. Increasingly, researchers are recognizing that macroeconomic and sectoral issues are only part of the basis for growth and poverty reduction. What is missing is a “bottom-up” perspective, which starts from the capabilities of individuals, households, and communities. What are their productivities, their environment and how do economic and social developments play out on the ground and how can these developments be influenced?

Poverty is a complex, multifaceted concept reflecting a low level of well-being (World Bank 2000). The human well being itself is a multidimensional continuum from extreme deprivation (poverty) to a high attainment or experience of standard of living.

In economics use is commonly made of income or expenditure flows as proxies for welfare. This approach is appropriately contested within the social sciences, since well being is experiential, value laden, context and situation dependent and reflects social and personal factors. Poverty is therefore more than lack of material needs, since material sufficiency alone does not guarantee well being. While measurement of poverty is a critical empirical and policy concern, an important phenomenon that has gained currency in recent work on poverty analysis is that of poverty dynamics and poverty traps: who climbs above it, descends below it or oscillates around it – because poverty dynamics is the more fundamental policy concern. Identifying the right policy mix to help a given poor subpopulation depend on an accurate understanding of rural poverty dynamics.

Transitory and Chronic Poverty

While even transitory poverty is plainly undesirable, the obvious capacity of the transitorily poor to pull themselves up by their own bootstraps means that policy interventions on their behalf are not needed. Indeed, costly government interventions that risk disturbing their self-sufficiency may be undesirable. One problem is that transitory income can be readily overstated, leading to a policy bias against intervention to assist the poor.

The problem of getting estimates of transitory poverty rates correct matters because policy can make a great difference for the chronically poor, those who cannot climb out of poverty on their own without external assistance. Such assistance can come directly, in the form of transfers, or indirectly, in the form of policy reforms that induce behavioural

change that leads endogenously to the chronically poor exiting poverty. There is possibility that where households fall into poverty due to transitory phenomena they can recover to non-poor status on their own. The role of safety nets is to keep them from crossing the critical threshold where their transition into poverty becomes chronic or permanent. Food aid programs, disaster assistance are common examples of formal safety net interventions by governments, international donors and other NGOs.

The second form of poverty reduction intervention is meant to lift people or to help them climb out of poverty. These are called cargo nets by Barrett (2003). Safety nets catch people, keeping them from falling too far; then people step off the net and climb back up on their own. On the other hand examples of cargo net policies include land reform, school-feeding programs, targeted subsidized micro-finance or agricultural input subsidization projects. Safety nets help those suffering temporary setbacks from getting mired in a chronic poverty quicksand for the non-poor and transitorily poor. Well-crafted and executed cargo nets are meant to catalyse the exit from poverty of those chronically poor.

Since there are no uniform policies that fit everyone who is poor, researchers and policymakers must be able to sort between the different types of the poor. Describing and hence distinguishing the chronically poor from the transitorily poor is a considerable challenge. An analyst can determine ex post whether people recovered after falling below a poverty line, provided there is sufficient panel data on the same individuals or households.

By using extant data at any one point in time, it is difficult to tell from the data who will recover and who will not. This has generated much interest in identifying reliable proxies of “chronic” or “persistent” poverty. Analysts use past panel data to identify good predictors of future well-being in order to be able to predict which of today’s poor are likely to become non-poor by some future date (see case study below). If done accurately, such estimation can provide a basis for targeting interventions among the poor, enabling policymakers to distinguish between the non-poor and the transitorily poor, for whom cargo nets – as distinct from safety nets – are unnecessary and possibly even unintentionally harmful, and the chronically poor who need assistance if they are to escape poverty.

The crux of the matter appears to be the ability to disentangle the differences between those who are expected to remain poor unless they receive assistance – and those who would be expected to exit poverty on their own accord before long. This provides a powerful tool for guiding policy design because governments and donors faced with large numbers of chronically poor individuals or households face a different challenge than do those serving large numbers those who are transitorily poor. Once it is possible to distinguish the transitorily or chronically poor using panel data and appropriate econometric methods, the next challenge is to identify the mechanisms that lead to chronic poverty so that interventions can effectively remove root causes of poverty rather than have mere palliative effects on poverty.

Those who find themselves in poverty by the reality of the family they were born into find it hard to escape poverty because they do not enjoy the education, health or nutrition

required to accumulate critical human capital (physical stature, cognitive capacity and skills) needed to surmount poverty in their lives. Alternatively they may start life without capital sufficient to add value to their human capital or because they cannot effectively employ the assets they own to generate income.

While it is true for some that their poverty is due to an unfavourable start in life, others fall into poverty because of external forces that come to bear on their lives. Natural disasters and civil strife can wipe out in an instant, what has taken a household many years even decades to accumulate. Even brief disturbances can have long-term consequences. There occurs mutually reinforcing effects since those who start off on a weak foundation are more likely to suffer serious adverse shocks that make them suffer major setbacks even as they struggle to climb out of poverty (Barrett and Carter 2001).

Asset based Views of Poverty

It is generally accepted that many of the rural poor are in that state because they lack access to productive resources, including land, human, physical and financial capital needed to undertake high-return production strategies such as improved dairy management and cash crop production. They also face limited access to markets for their outputs. The foregoing is the result of the existence of only rudimentary market systems, which are unable to provide the requisite stimuli for the evolution of commercially oriented smallholder production systems beyond the narrow, and subsistence based strategies currently characterizing many areas of rural Kenya. Such thin or missing input and output markets generally encourage the mining of natural resources and the resultant degradation reduces the productivity of these resources. This spiralling effect further

deepens poverty and makes it harder for individuals, households and communities to emerge out of the poverty trap.

The foregoing is predicated on the realization that the textbook assumptions of the absence of fixed costs, increasing returns to scale, or liquidity constraints usually do not hold in the real world where smallholder households operate. In a world where the foregoing assumptions hold true, no one is predisposed to remain poor. In such a world; smallholders would borrow against future earnings to invest in natural capital thereby improving agricultural labour productivity; per capita rural incomes and food security. However, poor communications and transport infrastructure, insecure claims to land and livestock and weak or nonexistent contract monitoring and enforcement institutions result in factor market failures in rural communities. These incomplete markets combined with scale dependent returns due to underlying agro ecosystem biology produce a positive **correlation between ex ante wealth and the expected returns to assets**, due in part to scale economies, in part due to wealthier households' superior ability to overcome financial entry barriers to remunerative livelihood strategies and in part to variation in the effective cost of factors of production and the price of marketed output.

Vulnerability as a Poverty Index

Vulnerability as defined by Moser (1998) is "insecurity and sensitivity in the well being of individuals, households and communities in the face of a changing environment, and implicit in this, their responsiveness and resilience to risks that they face during such negative changes". Exposure to risk is the probability of a shock or disaster occurring and its impacts in terms of severity on different areas and population groups. Vulnerability therefore can be viewed as a

function of exposure to risk and inability to cope. The extent of vulnerability of a household or community depends on the assets they own, manage and control. These assets include natural resources, social relations, human resources and skills, physical assets, and financial resources.

Vulnerable people are more likely to draw from their productive assets more frequently in order to cope with a given level or kind of shock such as selling land and livestock or withdrawing children from school in order for them to support family subsistence. Additionally such shocks as illness, droughts accompanied by food shortages largely weaken the human capital base of households. These lead to inevitable asset deaccumulation, a fact that effectively undermines the ability of such individuals, households or communities to consolidate adequate productive capacity to enable them secure higher levels of production to enable them extricate themselves from poverty.

This means that even as policies and strategies are being devised to help halt the slide of vast segments of the rural populations into poverty, it must be recognized that these efforts will be undermined so long as the majority of the target populations remain vulnerable to all manner of risks especially economic and market risks. How to address these vulnerabilities must be vitally integrated into rural development efforts. The interrelationships between ownership of assets and vulnerability is clarified in this study by constructing asset vulnerability matrices following the Moser framework outlined below table 1 below:

Table 1: Asset vulnerability Matrix: Potential Indicators of Increasing and Decreasing Vulnerability for an Individual, Household, and Community

Type of Vulnerability	Indicator of increasing vulnerability	Indicator of decreasing vulnerability
Individual		
LABOR	Loss of permanent job Decline in secure employment Increase in short-term, casual, minimum wage employment Acquisition of Physical disability	Increase in household members working especially women Increase in home based enterprises Increase in jobs held by individual workers
HUMAN CAPITAL	Decline in access to or quality of social and economic infrastructure Decline in school attendance or increase in dropout rate Decline in health clinic attendance	Substitution of private for public services such as private water pumps, private health care
Household		
HOUSING	Deterioration of housing stock Threat of eviction (insecure tenure)	Resolution of tenure insecurity
HOUSEHOLD RELATIONS	Erosion of household as a social unit due to change in structure, marital breakdown, or split households. Household changes that reduces the number of earners to non-earners	Household changes that increase the ratio of earners to non-earners
Community		
SOCIAL CAPITAL	Decline in interhousehold reciprocity Erosion of community level organization	Community-based solutions to crime Interhousehold reciprocity Active community based organizations

Alternatively vulnerability can be proxied by the degree of asset diversification and determining how the different asset categories contribute to incomes. Those who solely rely on limited agricultural resources in locations with poor market access are likely to be vulnerable.

Important Policy Questions in the Context of Land Scarce Smallholder Agriculture

In many parts of Kenya the most important productive asset, land is increasingly becoming scarce. This is so, despite the fact that land based agricultural production offers the most realistic (in the short run) way out of poverty. This raises important questions, under conditions of dwindling farm sizes, what other *productive assets* available to the poor can be exploited to enable them command decent livelihood options capable of fuelling their exit from poverty? It has long been observed that the poor rely on their labour more than any other asset for their incomes and therefore one of the most effective

policies for reducing poverty among the rural poor may lie in bringing about conditions that will create demand for their labour. This is easy to appreciate when one considers the high population growth rate with the consequent reduction in per capita land ownership or access. Therefore, it is easy to envisage a situation where land per se will cease to be the most important asset in securing incomes even in those areas that currently enjoy low to medium population densities and therefore relatively higher per capita land ownership or access.

If lack of land among the poor need not mean perpetual confinement to inextricable poverty traps, then what assets are important in ensuring increased productivity, incomes, and reduced risk and vulnerability? The answer to this question requires a careful examination of the entire portfolio of available and accessible assets (including those that are only potentially available and can be made accessible to the poor through deliberate policy interventions). Since the majority of the poor already lack land resources, it is important to begin placing policy emphasis on enabling them to access alternative productive assets.

Human and financial capital play a more prominent role than mere access to small parcels of land in high population density areas and in areas where per capita land availability is likely to fall. The adequate availability of human and financial capital will form the foundation upon which the productivity of the limited natural capital available to the poor can be raised ensuring overall rural and agrarian economic progress.

Rural financial markets hold the key to the transformation of subsistence to commercial production. The greatest impediment to the participation in high return (mostly capital intensive) productive activities among the rural poor is universally lack of affordable

access to financial capital. This is occasioned by missing markets for financial products to cater for diverse investment requirements such as financing improved crop and livestock production or other non-farm productive enterprises. In addition, financial capital is required for investment in human capital such as education of children. Consumption credit, long ignored in most credit programs, must be integrated in the financial market system if the risks and vulnerabilities associated with market oriented livelihood strategies are to be dealt with and effectively mitigated.

The Role of Education, Non Farm-Employment and Farm Investments in Shaping Poverty Traps - A case study of a Land Scarce Situation in Western Kenya

The purpose of this case example illustrate the importance of education and non-farm development in a land scarce rural economy and to stimulate interest in an important research and development policy area, that of taking a multipronged approach and linking agricultural and overall rural development to the non-farm sector as the basis to sustainable agricultural productivity. The case example presented below was derived from a study done at the University of Nairobi in Collaboration with Cornell University and the World Agro forestry Center (Phiri Marenya, *et al* 2003). The data was from a 13-year old panel data set available from 1989 (Oluoch-Kosura, 1989). The availability of this data afforded a unique opportunity for analysing dynamic (temporal) poverty phenomena

A noticeable phenomenon in the Madzuu site concerning indications of welfare is that those who seem to command above average physical assets are those who presently have formal wage employment or have retired from such and have had above average formal

education. Whether one is able to get into the lucrative formal non-agricultural wage sector depends on their educational endowments. A good education will enable individuals to access more lucrative labour markets in the formal wage sector. This enables them to secure considerable financial stocks, which they can use to undertake further investments in natural and human capital. In the current data set we notice that the rate of nitrogen application per hectare is nearly double in those households where the head has secondary education and beyond as opposed to those households where the head had mid primary school education (Table 2). Also an indication of wealth portfolio is ownership of a dairy enterprise (improved breeds). Forty percent of those households where the head had secondary level education owned livestock enterprise as opposed to 13%.

Table 2: nitrogen application and improved dairy stock ownership by Educational level of household head

Education level of household head	Nitrogen application (Kg/ha)	% Households having improved dairy stock
Mid-Primary	4	13
End of Primary	11	3
Secondary	19	40

With only a fifth of the population completing secondary (high) school the implication is that 80% of the population cannot be readily absorbed in well paying formal employment. In 1989 4% of all household members enumerated had formal skilled employment or self-employment (e.g. shop keeping). In 2002 the ratio has marginally increased to 5% (Table 3). Actually, of the 89 respondents now interviewed, 55 have had no record of formal employment, 29 had retired from formal employment and five are

still formally employed. Those self-employed were largely working on their farms (in 64% of the cases). Those employed in petty trades (with no fixed assets) constituted 8% of the total and another 4.5 percent engaged in skilled self-employment (masonry, carpentry).

Table3 Changes in Wealth /Welfare Indicators between 1989 and 2002

Welfare Indicator	1989	2002
Household members completed secondary (%)	18	16.5
Total landholding cultivated	0.5	0.3
Household members having skilled employment (%)	4	5
Primary school enrolment (%)	-	93
College graduates (% of all household members)	1	5
Secondary school enrolment (%)	21	25

The foregoing observations are buttressed by the fact that only 23% of all adult household members (beyond school going age) ranked farm income as their most important source of income. Paradoxically 64% of all household heads in the 2002 resurvey spend most their time on their farm. This suggests that while farming activities absorb the bulk of labour, these activities rank very low in their income contribution. This means household members spend the bulk of their labour in farm operations for food subsistence and engage in largely unskilled non-farm activities for cash income mainly to supplement subsistence requirements that cannot be met from own production. This observation is plausible considering the average landholding sizes available for cultivation in the area. The mean size of total landholdings in 1989 was 0.5ha compared to 0.3ha in 2002 representing a 40% reduction in total size of landholdings over the last 13 years (Table 3). This presents the possibility that the diminution in landholdings is one of the factors holding many households in poverty. This raises the question whether there

is a minimum size of plot that can be economically operated in growing maize, tea or operating a dairy enterprise for example. This means that at the current levels of land availability and with the inexorable population increase, farm production may offer, even under intensification, only a very modest opportunity as the basis for enabling households secure productive livelihood sources. This justifies the investigation of alternative economic activities, which can yield adequate productivity from the limited land available for cultivation. It also means that more and more people must necessarily be absorbed in the non-farm sector both at the local level and beyond.

Implications for Rural Development Policy

Smallholder farm development

Since the economy of Madzuu is still mainly based on smallholder agricultural production, it is obvious that the productivity of the natural resource base (mainly soils) must be raised beyond the current levels if the populations here and in other similar parts of the world are expected to generate for themselves adequate incomes to escape poverty. Adequate investments in mineral fertilizers, agro forestry enterprises, soil conservation structures, and other organic interventions are urgently needed. Such investments are still greatly lacking. For instance, fertilizer use in this region is currently estimated at less than 15 kg of nitrogen per ha against a recommended level of 50kg of nitrogen per ha. Without significant investments at household level in soil fertility interventions (both inorganic and organic materials) no alternatives for improving smallholder farm productivity readily comes to mind. Yet as we have posited, due to lack of cash incomes to purchase inputs or hire labour, nearly all households do not have the ability to invest in their soils. With such a weak natural capital base, it is easy to predict that those households currently poor will remain so if no changes occur. These changes ought to involve building innovative policy structures that will foster the development of rural financial systems that can serve the rural poor and enable them to finance diverse productive activities in the farm sector as well as to finance short term subsistence consumption. In the short term, such policies will entail substantial resource allocations. However, as their impact begin to be felt, the need for continued credit will be reduced and a self-sustaining agrarian and non-agrarian economy shall have been put in place.

Education and Non-farm sector employment

Development policies aimed at increasing smallholder farm productivity, as the basis for dismantling chronic poverty will inevitably be insufficient in achieving the foregoing aim. In view of dwindling farm sizes, it is important to create development initiatives, which will help relieve the pressure on land, which can no longer provide adequate economic opportunities for everyone. This is possible through enabling more and more people to be absorbed in other sectors. Improving educational attainments will be vital in this together with expanding the range of lucrative non-farm opportunities in the area. Observed trends show that secondary school completion rates are declining. This must be related to the fact that between 1989 and 2002 the average cost of school fees in one year in a local district secondary school has increased 10 times. Given that 80% of households' members do not have post-primary education, their employment now, and perhaps in future, remain limited to subsistence farming, and other unskilled activities unless radical investments in human capital are made. Such radical investments will be multifaceted including adult education and other avenues of training and informal education and finding ways of either lowering costs of educating children or providing credit support for child education from primary school to college.

A vital adjunct to improving human capital through education and training is the issue of how the other sectors of the local and national economy will be expected to grow to absorb greater numbers of well-educated manpower. As far as local non-farm wage employment opportunities are concerned, the best jobs available are limited mainly primary school teaching and clerical jobs in local county authorities and government

departments (which are currently laying off much of their staff). Private sector opportunities are even more limited the most common being employed as taxi van drivers. Better-educated people therefore get better jobs in the far-flung and bigger cities of the country. For instance there is an example of a retired primary head teacher who has 8 sons and all of them are all formally employed one being a doctor, another being a government marketing officer, one is a teacher, another is a court clerk, one is an employee of fisheries department and one is a secondary schools auditor. Another example of apparent escape from poverty trap can be seen from the experience of an administrative official, who in 1989 had a mud walled tin roofed house but now has a spacious 5 bed roomed house. This must be attributed to his high profile job of being a location (administrative area in Kenya) chief (a civil service job) since 1992 having previously worked as a mason/carpenter. In addition he operates a herd of 3 dairy cows. On his maize plot, he uses DAP and urea and has a Napier (fodder crop) plot fertilized with animal manure. It is not difficult to see why these individuals may be able to escape the cycle of poverty. The predominant factor here being their having had a reasonable formal education and later wage employment.

Conclusions from Case Example

The inferences drawn from this case example lend weight to the assertion that putting emphasis on smallholder agricultural sector in a land scarce situation as the major basis for improving incomes and poverty alleviation may be unsustainable in the long run as population increases and the major resource base-land- dwindles. Policies meant to drive rural transformation justifiably take due cognisance of agriculture but where land sizes

are decreasing, equal if not more emphasis (in relative terms) must be placed on the non-farm sector. Yet opportunities in the non-farm sectors will only be exploited by those who have acquired sufficient skills through formal education and other avenues of informal training to enter into more lucrative wage markets or self-employment poverty reduction strategies.

References

Barrett C. B. (2003), 'Rural Poverty Dynamics: Development Policy Implications' A Paper Presented at the 25th International Conference of Agricultural Economists, 17 August Durban South Africa

Barrett, C. B. and M. R. Carter (2001), "Can't Get Ahead For Falling Behind: New Directions for Development Policy To Escape Poverty and Relief Traps," *Choices* 16, 4: 35-38.

Moser, C. M. and C. B. Barrett (2003), "The Complex Dynamics of Smallholder Technology Adoption: The Case of SRI in Madagascar," Cornell University Working Paper.

World Bank (2000), *World Development Report 2000/1* (Oxford: Oxford University Press).

Phiri Marenya Paswel, W. Oluoch-Kosura, F. Place & C. Barret, "Education, Non-farm Income and Farm Investment in Land-scarce Western Kenya" BASIS Brief 14.

Oluoch Kosura, W. (1989), Rural Factor Markets, Agricultural Investments and Productivity in Kenya. University of Nairobi, Dept. of Agricultural Economics and World Bank Offices Nairobi.