Tropentag 2011
University of Bonn, October 5 - 7, 2011
Conference on International Research on Food Security, Natural Resource Management and Rural Development

Exiting Poverty in Rural Kenya – How much does Natural Resource Endowment matter? Results from Poverty Dynamics and Agricultural Life Histories

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Introduction

In Africa, more than two thirds of the poor live in rural areas. Agricultural activities can play a major role in driving rural households out of poverty. Hence, rural development initiatives experience a revival in development cooperation and development research during recent years. However, it is rarely analysed which agricultural strategies rural households undertake to successfully exit poverty.

In Kenya, the agricultural sector experienced a boost since 2003. Since then, Kenya has successfully integrated farmers into agricultural value chains, such as food crops, export horticulture or dairy. Yet, rural poverty incidence is high (49,7%) and seems to have reduced only by 3% between 1997 and 2005 (KIHBS 2005/06). So what was the impact of agricultural growth on rural livelihoods and poverty reduction? This research analyses why some rural households exited poverty and how much this poverty exit is explained by their natural resource endowment. It investigates in-depth how 51 families in rural Kenya have improved their living standards over the past 13 years and which role geographical factors had played with a focus on whether they specialised in one or few agricultural activities or rather diversified their sources of income on- and off-farm.

Data

The 10-years Tegemeo Agricultural Monitoring and Policy Analysis Project (TAMPA) panel data set (comprising 1,275 rural households country-wide) is used to identify rural poverty exiters. The households had been interviewed in 1997, 2000, 2004 and 2007 using an extensive standard agricultural household questionnaire. The poverty status has been calculated using an income-based approach; the poverty line assumed has been calculated using the inflation-adjusted official Kenyan rural poverty line. Households are classified by sources of income (crops, livestock or various off-farm incomes and transfers) into agricultural (964) and non-agricultural (311) households, the latter ones realising higher off-farm incomes than their crop and livestock income combined. The results shown here are all based on agricultural households only.

The two natural resource variables at hand are the agro-ecological zone (AEZ) of the location of each household (according to FAO definition) and the 11-year mean rainfall per location.

Table 1: Poverty Transition Matrix of Agricultural Households (1997 – 2007) by AEZ

Agro-Ecological Zone (AEZ)	all ag hh	%	Pers pov	Never pov	Oscill pov	Exit pov	Into pov
High Potential Maize	288	29,9	**28,6**	**35,6**	**28,4**	**28,6**	**18,5**
Central Highlands	207	21,5	**4,5**	**47,6**	**11,6**	**21,2**	**7,4**
Western Highlands	111	11,5	**22,1**	**1,8**	**11,9**	**13,2**	**11,1**
Western Transitional	135	14,0	**14,3**	**5,3**	**17,9**	**14,3**	**40,7**
Marginal Rain Shadow	24	2,5	**0,6**	**1,8**	**2,8**	**4,0**	**0,0**
Coastal lowlands	20	2,1	**1,9**	**0,9**	**3,5**	**1,5**	**3,7**
Eastern lowlands	80	8,3	**4,5**	**5,3**	**13,0**	**7,3**	**14,8**
Western Lowlands	99	10,3	**23,4**	**1,8**	**10,9**	**9,9**	**3,7**
Total	964	100	100	100	100	100	100
% of all ag hh	964	100	**16.0**	**23.3**	**37.7**	**20.2**	**2.8**

Source: own calculations

As indicated in table 1, poverty transitions according to agro-ecological potential measured in AEZ doesn't give a clear picture. As one might have expected, the two high potential zones (High potential maize and Central Highlands) have the highest proportion of never poor households and more than average shares of poverty exiters, but they also show unexpected high number of persistent poor and of poverty descenders. The areas of mid-level agro-ecological potential have low numbers of never poor and mean shares of poverty exiters yet the highest number of poverty descenders. The low potential areas show surprisingly low numbers for persistent poverty and for never poor households; but as expected have low shares of poverty exiters. However, the picture of poverty transitions of agricultural households depending on their agro-ecological potential is less obvious than expected.

Table 2: Poverty Transition Matrix of Agricultural Households (1997 – 2007) by Rainfall

11-year mean rainfall quartile (1997 – 2007)	Poverty mobility group				
	Pers pov	Never pov	Oscill pov	Exit pov	Into pov
220 to 405mm	35.2%	18.8%	23.4%	34.7%	30.4%
405 to 575mm	4.2%	57.5%	22.0%	57.5%	21.7%
575 to 735mm	36.4%	15.5%	27.0%	28.6%	30.4%
735 to 975mm	24.2%	8.2%	27.6%	20.4%	17.4%
Total	100%	100%	100%	100%	100%

Source: BURKE & JAYNE (2010)

When looking at the 11-year mean rainfall per location of the households, poverty transitions again do not follow entirely the expected trends. Persistent poverty is highest in the second rainiest areas, whereby the highest share of never poor and poverty exiting households is located in the third driest category. The low explanatory power of the rainfall variable is even more surprising, given the fact that almost all agricultural activities covered in the sample are rain-fed agricul-

tural activities. Both variables, AEZ and rainfall have been also tested in multinominal probit regression for poverty exit, yet with equally non-concluding results (BURKE & JAYNE 2010).

Q-Squared Methodology

With the establishment of ever better surveys and datasets, the quantitative analysis of poverty dynamics, chronic poverty, poverty traps, vulnerability and resilience against shocks has produced a rich body of development economics literature that estimates factors contributing to poverty over time. However, the in-depths analysis of poverty exits is a rather recent phenomenon (see e.g. DE WEERDT 2010; or DAVIS 2011). A q-squared approach following KANBUR 2003 seemed best suited for approaching the question why and how agricultural households have exited poverty in Kenya and why natural resource endowment seems to have played such a minor role.

Out of the 195 agricultural poverty exiters, 51 households were re-sampled for qualitative follow-up interviews in the four better-potential agro-ecological zones. The results of previous panel interviews were presented to the households and discussed, in order to establish agreement with the respondents over their household history and pathway. This was followed by open ended narratives about the households past 13 years following a life history approach. The interviews were concluded with a self-assessment of wellbeing using elements from Stages of Progress methodology. The narrated reasons for change in household welfare over time were then analysed for their attribution to natural resource endowment, family demography, social capital, agricultural strategies pursued and other sources of income, as well as for vulnerability to shocks using qualitative data analysis software.

Result Area 1: Poverty Transitions – A concept under reality check

The four wave panel survey to map out poverty mobility over time and to classify poverty dynamics was found to be accurate only for 50% of the households interviewed in-depth. Out of 51 apparently poverty-exiting households only 25 were found to follow a truly upward pathway out of poverty, 26 showed different patterns: 14 households had never been poor (at least not when the panel survey started) and 12 households experienced clear downward trends over the panel period. The 14 households oscillating or displaying constant wealth developments could be further divided into two groups: those that were non-poor even before the panel years and had remained at constant wealth level or even improved (5); and those that seemed to have stagnated or oscillated all those years slightly above poverty level (9). As for the downward movers, three life cycle factors were identified and occurred to all of the households, sometimes in multiple forms: health shocks, gender-based loss of assets, or loss of wealth due to old age.

When using a simple poverty measure, some variation was expected but the magnitude is astounding, given the still wide-spread use of the poverty measure at hand. In addition, the presentation of the panel data results to the households revealed a need to correct the previously collected data. There was often significant disagreement, mainly concerning land ownership and assets reported. This goes beyond known survey errors and needs to be considered when using these variables for further analysis. Panel data is important and necessary, but its strengths and weaknesses should be critically discussed when using the data for further analysis; data quality can be improved by triangulation using qualitative methods, e.g. by life history interviews of subsamples.

Result Area 2: Agricultural Poverty Exit Strategies

The 25 households classified as “true poverty exiters” (poverty exiters by panel data and by life history) do not show a common strategy, but common characteristics such as good intra-

household or inter-generational cooperation and the absence of intrinsic shocks. Half of the households attribute their poverty exit purely to agricultural activities (13); eleven have over the years engaged in significant off-farm activities that complemented their agricultural income in a way that they moved upward; and only one household had basically stopped farming and diversified into the rural-economy business world (see table 3).

Table 3: Agricultural Poverty Exit Strategies (25 households)

agriculture only			agriculture + off-farm income		off-farm diversification
13			11		1
large-scale DIV	medium-scale DIV	small-scale SPEC	agriculture + wage employment	agriculture + self-employment	self-employment
3	4	6	5	6	1

Source: own calculations

Concerning the 13 agricultural poverty exiters, no common pathway was identified. Contrary to expectations and evidence from other surveys, these households were not exclusively located in the highest potential zones and didn't possess many more productive assets than other households we interviewed, particularly not land. The narratives do not confirm findings from KIMENJU & TSCHIRLEY 2009 that agricultural transformation first leads to diversification, then to specialisation. I rather see different strategies emerging from different sets of productive assets and land sizes. In dependence of the given natural resource conditions, successful small-scale farming households have adapted their agricultural strategy according to their resource endowment. On the smallest land sizes, farmers have specialised in one cash crop value chain (coffee, tea, or sugar). Success stories here tell of good agricultural practices, intensive mixed farming, and successful vertical integration via collective marketing. The medium and large-scale farmers showed different strategies: All had diversified their portfolio and attributed their exit mainly to hard work and family cooperation. All of them were engaged in at least one food cash crop and in dairy production. Many had diversified into the growing markets for domestic vegetables or small livestock. Their success seems to be based on the possibility to expand their production over years and to dedicate their land to upcoming agricultural opportunities and products with growing elasticity of demand.

For the "ag plus" diversification households, the type of off-farm employment is important to categorise: five households attributed their poverty exit to one member securing a wage labour job, while the rest of the family continued farming as a mainstay. Their steady upward move was fuelled by small, yet reliable monthly off-farm income. Six households had successfully shifted resources from agriculture to invest into self-employed off-farm activities; all of them into rural-economy ventures, such as trading agricultural produce (mainly grains and vegetables) or providing rural services (carpentry, radio repairs, construction work). Their stories illustrate trickle down effects of general economic growth during the survey period, particularly the rise of some rural centres in the high potential agro-ecological zones of Kenya.

Conclusions

The current fashion for geography as a decisive determinant in development processes doesn't have much explanatory power for poverty analysis with the panel data at hand. Natural resource endowment variables do not comply with the general hypothesis that higher agricultural potential results in more successful agricultural strategies out of poverty. This is due to the multidimen-

sionality of rural poverty and the importance that individual and social household characteristics seemed to play for sustainable poverty exits. However, the future need to adapt to climate change might increase the relevance of natural resource endowment factors for rural development in a number of marginal areas around the world.

More research is needed on the relative importance of geographical factors compared to other household variables, and on compounding effects and interaction of geographic and non-geographic variables (leading to potential spatial poverty traps).

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