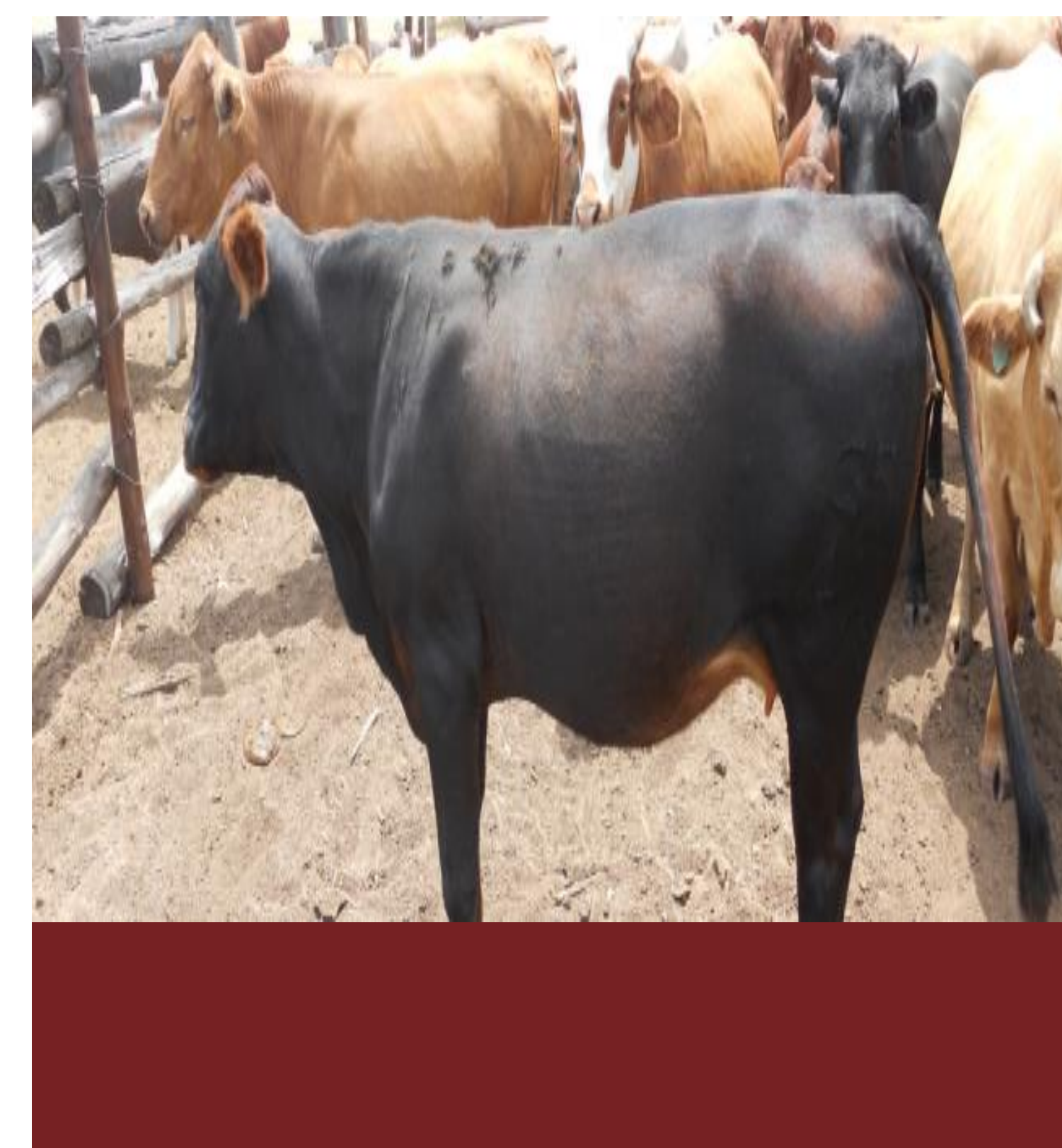


Household livelihood strategies and livestock dependence in Rural Tanzania: Implications for poverty reduction

S. Bahta¹, F. Wanyoike¹, N. Teufel¹ and M. Van Wijk¹

¹ International Livestock Research Institute, Gaborone, Botswana



Background

Despite Tanzania being one of the fastest-growing economies in Africa, poverty abounds with the number of poor people standing at about 13 million which representing 26.4% of the total population. Majority of the population reside in rural areas where sources of livelihood mainly include crop and livestock production. In recent years, the number of people engaged in nonfarm activities has been rising fast.

While literature on sources of livelihoods in rural Tanzania abounds, these studies have commonly relied on simple descriptive statistics to investigate the implications of livelihood strategies on welfare in households. To complement these studies, we use a more stringent quantitative method to evaluate the effect of livelihood strategies on welfare in households.

The analytical approach involves four major steps. First, grouping of households depending on major source of livelihood. Second, a first-order stochastic dominance test was conducted to rank the outcomes from different livelihood strategies. Third, a multinomial logistic regression model was estimated to identify factors that constrain households' entry into high-income earning livelihood strategies. Finally, we employed an econometric analysis to explore the relationship between the identified livelihood strategies and household characteristics with poverty (poverty probability index (PPI)).

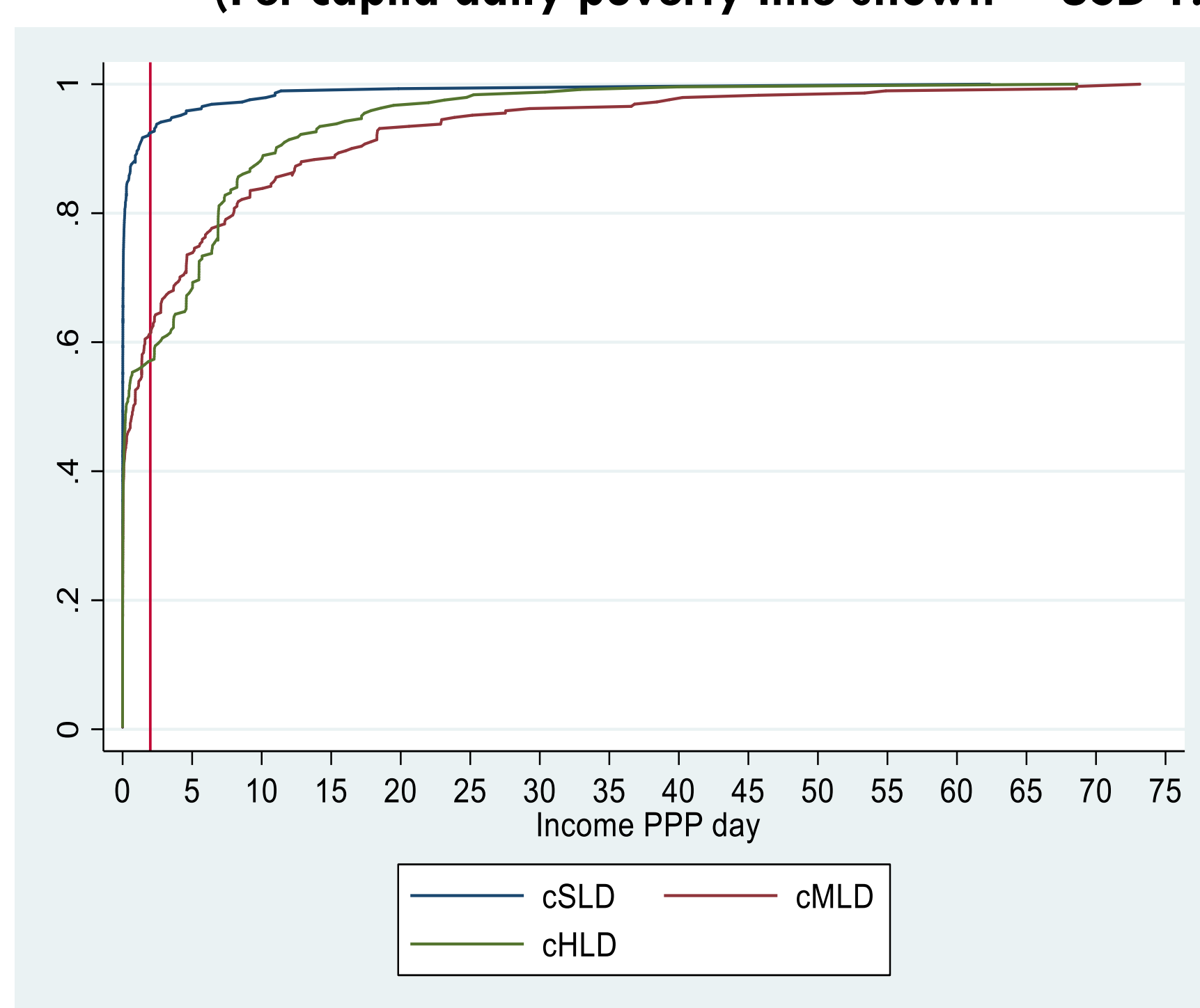
Results

Households by Source of livelihoods: Using relative income from primary income sources households were grouped into those generating less than or equal to 30%, 30-70%, and above 70% share of their total income from livestock were classified as group. These were labeled as "slightly Livestock dependent (SLD)" "moderately livestock dependent (MLD)" and "highly livestock dependent (HLD)", respectively.

Table 1: Mean proportions of total household income derived from different livelihood sources in quintiles of SLD, MLD and HLD by level of income

Slightly livestock dependent (SLD) (N=289)				
Livelihood strategies	Q1 (N=73)	Q2 (N=59)	Q3 (N=73)	Q4 (N=84)
Livestock	12%	11%	12%	10%
Crop	88%	89%	88%	89%
Off farm	0%	0%	1%	0%
	100%	100%	100%	100%
Moderately livestock dependent (MLD) (N=325)				
	Q1 (N=63)	Q2 (N=97)	Q3 (N=88)	Q4 (N=80)
Livestock	50%	48%	48%	40%
Crop	49%	49%	41%	34%
Off farm	0%	3%	11%	25%
	100%	100%	100%	100%
Highly livestock dependent (HLD) (N=258)				
	Q1 (N=71)	Q2 (N=61)	Q3 (N=72)	Q4 (N=54)
Livestock	92%	90%	85%	85%
Crop	8%	9%	13%	13%
Off farm	0%	1%	2%	2%
	100%	100%	100%	100%

Figure 1: Cumulative distribution of income PPP day among different livestock livelihood strategies (Per capita daily poverty line shown = USD 1.90)



- For incomes between 0.1-1\$ (accounting for 66% of sample households) the CDF of 'MLD' is dominant since it is below 'HLD' and 'SLD' distributions
- Between 1USD - 8USD (21% of households) the CDF of 'HLD' is dominant while for incomes beyond 8USD 'MLD' is dominant throughout
- Statistical test (Davidson & Duclos, 2000) confirmed first-order stochastic dominance (superiority) of 'MLD' and 'HLD' over the 'SLD'

Table 2. Multinomial logit model regression results for livelihood strategy choice determinants (Base group- HLD)

VARIABLES	SLD	MLD
Land Owned (hectare)	-0.00382* (0.00245)	-0.00270 (0.00210)
Livestock holdings	-0.00647*** (0.00161)	-0.00261** (0.00128)
Market orientation (index)	-6.539*** (0.700)	-0.949*** (0.297)
Education literate(dummy)	0.991* (0.518)	0.760 (0.526)
Education post sec(dummy)	0.0535 (0.493)	0.745* (0.472)
Education primary (dummy)	0.293 (0.343)	0.674* (0.359)
Education Secondary (dummy)	0.0337 (0.448)	0.747* (0.429)
Agric ecological zone (1=>800mm Rainfall, 0=Otherwise)	0.410* (0.231)	-0.185 (0.200)
Non-farm income (No=0, Yes=1)	0.475** (0.232)	0.479** (0.206)
Constant	0.600 (0.787)	0.375 (0.732)
Observations	824	824

Table 3: Generalized linear model results on effect of livelihood strategies and other factors on household Poverty index(PPI)

VARIABLES	GLM Model	Marginal effects
Livelihood strategy		
Slightly livestock dependent (base)		
Moderately livestock dependent	-0.166* (0.102)	-0.0288* (0.0176)
Highly livestock dependent	0.0728 (0.107)	0.0133 (0.0197)
Age of household head	-0.0196*** (0.00373)	-.0035 *** (0.0006)
Household size	0.0498*** (0.0113)	0.0088*** (0.0019)
Education (1=primary and more 0= basic education and illiterate)	-0.835*** (0.116)	-0.1480*** (0.0201)
Gender of the household head (1=male; 0=female)	0.343 (0.217)	0.0608 (0.0385)
Constant	-0.178 (0.295)	
Observations	824	

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Conclusions

- Results from this study confirm the widespread prevalence of poverty in Tanzania where households mainly depend on crop and livestock production.
- Livestock activities in rural households in Tanzania are associated with improved livelihoods authenticated by the dominance of MLD and HLD over SLD in terms of CDF of income PPP and significant effect of MLD households on level of poverty index.
- Being in SLD livelihood households is not only influenced by agro-ecological zone but also by factors such as level of formal education.



Correspondence: Sirak Bahta
s.bahta@cgiar.org



This document is licensed for use under a Creative Commons Attribution-NonCommercial-Share Alike 3.0 Unported License September 2014