

Targeted social protection in a pastoralist economy: Case study from Kenya

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Summary

Social protection programs are designed to help vulnerable populations—including pastoralists—maintain a basic level of wellbeing, manage risk, and cope with negative shocks. Theory suggests that differential targeting according to poverty status can increase the reach and effectiveness of budgeted social protection programs. Chronically poor households benefit most from social protection designed to help them meet their basic needs and make critical investments necessary to graduate from poverty. Vulnerable non-destitute households benefit from protection against costly temporary shocks, but do not necessarily need regular assistance. Welfare gains arise when a comprehensive social protection program considers the needs of both types of households.

We use evidence-based understanding of poverty dynamics in the pastoralist-based economy of northern Kenya's arid and semi arid lands as a case study to discuss and compare the observed impacts of two different social protection schemes on heterogeneous pastoralist households: 1) a targeted unconditional cash transfer program designed to support the poorest and 2) an index-based livestock insurance program serving as a productive safety-net to help stem a descent into poverty and increase resilience. Both types of social protection schemes have been shown to decrease poverty, improve food security and protect child health. However, the behavioral response for asset accumulation varies with the type of protection and the household's unique situation. Poor households receiving cash transfers retain and accumulate assets quickly. Insured households, who are typically vulnerable yet non-destitute, protect existing herds and invest more in the livestock they already own. We argue that differential targeting increases program efficiency, and discuss Kenya's current approach to implementing differentially targeted social protection.

Keywords: social protection, cash transfers, insurance, risk, poverty dynamics, poverty traps

1. Introduction

Recent climate-related natural disasters, including droughts, floods and wildfires, have revealed widespread vulnerability among poor populations. The estimated 50 million pastoralists and agro-pastoralists inhabiting the sprawling arid and semi-arid lands (ASALs) that constitute around two-thirds of Africa's landmass are particularly vulnerable [1]. These communities have evolved a livestock-based production system that best exploits the harsh and ecologically fragile and drought-prone environment upon which they eke out a livelihood [2, 3, 4]. While pastoralism has arguably evolved over time to be the optimal use of the arid rangelands where climate variability is a key driver of ecosystem dynamics, pastoralists are nonetheless particularly vulnerable to climate change [5, 6].

Social protection programs are increasingly being used to help vulnerable populations—including pastoralists—maintain a basic level of wellbeing, manage risk, and cope with negative shocks. Devereux and Sabates-Wheeler argue that social protection, properly designed, can affordably contribute to the Millennium Development Goals by supporting pro-poor growth and poverty reduction [7]. Traditionally, this protection has often involved the transfer of cash, food, medicine, or livestock, and/or the development of physical, human or social capital. In recent years, insurance programs have also been introduced as a market-based alternative to traditional social protection provision.

A growing literature on poverty traps advocates for social protection policies that consider poverty dynamics when targeting interventions. In this paper, we take advantage of empirical evidence of dynamic asset-based poverty traps in northern Kenya's ASALs. We use our evidence-based understanding of poverty dynamics in this pastoralist-based economy as a case study to discuss and compare the observed impacts of two different social protection schemes on heterogeneous pastoralist households: 1) a targeted unconditional cash transfer program designed to support the poorest and 2) an index-based livestock insurance program aimed at providing a productive safety-net to help stem a descent into poverty and protect the vulnerable as they work toward building resilience. We argue that differential targeting could increase program efficiency, and discuss Kenya's current approach to implementing targeted social protection.

2. Targeted Social Protection

Effective social protection must consider poverty dynamics, and comprehensively address the full range of factors that keep people in poverty [8]. With poverty dynamics in mind, Barrett [9] usefully defines two forms of social protection programs: "Cargo net" programs are designed to improve households' productive capacity. When successful, cargo net programs overcome structural forces that keep households poor, thereby shifting chronically poor households onto a pathway out of poverty. Cash transfer programs are an example of this kind of social protection program – by relieving liquidity constraints, the goal of such programs is to allow households the flexibility to invest in health and education, improving their long term economic viability. "Safety net" programs, like emergency food aid or livestock restocking programs, offer

protection when adverse shocks occur, ensuring that the consequences suffered are temporary. In recent years, governments and development practitioners have become widely interested in the use of insurance as an alternative, potentially complementary, (and potentially market-based) safety net program.

Traditional social protection policies target the most destitute households. However, these two distinct forms of social protection can be more effective if differential targeting is feasible: “Cargo nets” are designed to lift structurally poor households out of poverty, and thus should be directed toward the chronically poor. “Safety nets” are designed as temporary assistance for households who are temporarily poor as a result of negative shocks. This latter form of social protection should be targeted at the temporarily poor and vulnerable non-poor.

Targeted social protection becomes more important if poverty persists as a result of structural constraints in an economy. The literature on poverty traps suggests that shocks can have permanent negative consequences [10]. In the stylized multiple equilibrium poverty trap model characterized by Figure 1, two stable equilibria exist, a low (poor) equilibrium: E1, and a high (good) equilibrium: E3. These equilibria are separated by a third *unstable* equilibrium: E2. Note that, as an unstable equilibrium, E2 is a point of divergence. If a shock causes household assets to fall below E2, they move toward a permanent low equilibrium and find themselves trapped in poverty. For this reason, households holding assets near E2 can be considered highly vulnerable to shocks, with vulnerability declining as households increase assets, moving away from E2 (i.e. moving rightward along the asset spectrum in Figure 1). One implication of this model is that poor households are not the only households who may merit inclusion in contingent social protection schemes; vulnerable households also have much to gain from protection against shocks.

Barrett, Carter, and Ikegami [11] use numerical methods to analyze the tradeoffs induced by “vulnerability-targeted social protection” (VSP) – social protection that prioritizes vulnerable non-destitute households over chronically poor households – relative to traditional needs-based social protection. Their analysis shows that if an aid budget remains constant and a structural poverty trap exists, then individual needs-based transfers will shrink if more people fall into poverty, unable to graduate out of poverty without larger transfers. For this reason, while a purely needs-based distribution of aid initially favors the poorest, over time they compete with vulnerable non-poor households for transfers. In this scenario initially poor households are dynamically worse off than they would have been if a portion of the budget had been allocated as a safety net for vulnerable and stochastically poor households.

Despite the potential dynamic welfare gains, if publicly funded, VSP obviously implies a smaller allocation of social protection available for poor households today – creating a challenging dilemma for policymakers and development practitioners. In an effort to mediate this implied tradeoff, Carter and Janzen [12] explore the degree to which VSP can be implemented through an insurance mechanism. Their analysis shows that the long-term level and depth of poverty can be improved greatly by incorporating elements of insurance-based VSP into a conventional, cash transfer-based system of social protection. Insurance-augmented social protection not only allows smoothing of public expenditures across time, but the provision of VSP as a partially

subsidized insurance contract also encourages the vulnerable themselves to pay a fraction of the cost. This frees up a larger fraction of the public social protection budget to be used on those who arguably need it the most.

3. Case Study: Social Protection for Northern Kenya's Pastoralists

The previous section lays out the theoretical grounds for the provision of targeted social protection in which both cargo net and safety net social protection programs are differentially distributed to poor and vulnerable households. In this section we use northern Kenya's ASALs as a case study for implementing targeted social protection through a combination of cash transfers and subsidized insurance. There are two reasons for choosing this region: First, empirical evidence of bifurcating poverty dynamics exists in this setting, suggesting the existence of a poverty trap and the importance of targeted social protection. Second, the near-simultaneous roll out of a cash transfer and insurance program in this area presents a unique opportunity to conduct a joint assessment of the impact of these two programs and generate insights to help improve targeting, coordinated financing and delivery of these separate components of a broader social protection strategy.

a. Risk and Poverty Dynamics in Kenya's ASALs

Drought is the most significant hazard affecting the Kenyan population, particularly those who inhabit the arid and semi-arid lands (ASALs) that make up over 70% of the country. In the two decades spanning 1992 to 2012, seven droughts afflicted the nation, impacting over 10 million people. The most severe droughts occurred in 2009 and 2011 with an estimated USD 12.4 billion of drought-related damages and losses incurred during this time (estimation assumes an average exchange rate from 2008-2011 of USD 1= KSh 78.30 as provided by GoK [13]). Of this, approximately $\frac{3}{4}$ of the losses stem directly from livestock mortality - an estimated 9 percent of the national cattle herd was lost during this period [13]. It follows then, that the more than 3 million pastoralist households living in northern Kenya's ASALs, for whom livestock are typically the most productive assets they own and provide the bulk of their income and nutrition, are also the most drought vulnerable population in the country [14,15]. The human and economic costs of drought are largely borne by the poorest of this population and can potentially be avoided through programs seeking to reduce household's exposure or vulnerability to climate shocks.

Empirical evidence of a structural poverty trap in the region suggests that the consequences of climate risk for this population can often be permanent. Lybbert et al. [16] and Barrett et al. [17], for example, each use different household survey data and methods to demonstrate nonlinear asset dynamics in this setting, such that when livestock herds fall below an estimated critical threshold (E2 in Figure 1), recovery becomes difficult, and herds tend to move toward a low level equilibrium (E1 in Figure 1). Toth [18] suggests that these nonlinear asset dynamics are due to a critical herd size necessary to support mobility – small herds are unable to take advantage of the key resource of the region, vast open rangelands. Instead, small herds are restricted to degraded rangelands near the town centers, making growth a challenge.

Furthermore, Santos and Barrett [19] show that access to informal credit is concentrated above the observed critical threshold. Poor households can't take out a loan to reach the dynamic asset threshold. This biased access to credit further exacerbates the poverty trap mechanism. While evidence of poverty traps globally is mixed, a recent review finds the evidence in favor of poverty traps is strongest in rural remote regions where pastoralists tend to live [20].

b. Northern Kenya's Unconditional Cash Transfer

In 2009, the Government of Kenya launched the first phase of the Hunger Safety Net Program (HSNP) in the four poorest districts of Northern Kenya, all dominated by pastoralists; Marsabit, Mandera, Turkana and Wajir. In the first phase of the HSNP, 69,000 households across these districts were selected to receive unconditional cash transfers of approximately USD 27 every two months for a period of two years. The program objectives were to improve the capacity of targeted households to meet immediate, essential needs and to make productive investments thereby improving their future prospects. In this sense, HSNP is a "cargo-net" social protection operation, providing beneficiaries with resources aimed at alleviating their condition of deprivation and stimulating productive investment that might help them eventually graduate out of poverty.

Does HSNP actually help households move out of poverty? To better understand the effectiveness of the program, Hurrell and Sabates-Wheeler [21] leverage the randomized roll-out of the HSNP program across targeted communities to estimate the impacts of HSNP using a difference in difference approach. The study finds that HSNP participation decreases poverty and improves food security through increased consumption expenditures, asset retention and asset accumulation, greater use of health and education services, diversifying livelihoods, expanded financial savings, and decreased vulnerability to shocks. These positive impacts on both human capital and economic factors are generally consistent with evidence from other cash transfer programs [22, 22, 23, 24].

Hurrell and Sabates-Wheeler also examine the heterogeneity of impacts across poverty status, and find that impacts were often quite varied between the poor and non-poor. Although the results do not consistently favor one group over another, the findings highlight the importance of poverty dynamics in implementing social protection - heterogeneous households respond and benefit differently.

Jensen, Barrett and Mude [26] also examine the impacts associated with HSNP transfers in northern Kenya. They exploit exogenous variation in HSNP participation, introduced by eligibility criteria to instrument for HSNP participation. The study finds that HSNP improves household mobility, an important production strategy in the region, and improves child health as measured by mid-upper arm circumference (MUAC). Allowing for variation in impacts across households with large and small herds—a standard proxy for wealth/poverty status in this environment—HSNP participation also improves milk productivity of livestock among those with smaller herds (poorer) and reduces school absenteeism among those with larger herds (richer). Once again, there is evidence of heterogeneous responses to cash transfers,

highlighting the importance of accounting for the dynamics of poverty while targeting cash transfers.

c. Index-based Livestock Insurance in Northern Kenya

Since 2010, pastoralists in Marsabit district of northern Kenya have also had access to a novel index-based livestock drought insurance product (IBLI). Index insurance differs from traditional insurance in that the indemnity payments are based on an indicator (in this case, predicted livestock mortality) that is outside the influence of the insured. In the case of IBLI, the index is constructed from satellite imagery of forage conditions used to predict area-average drought-induced livestock mortality.

IBLI was designed as a productive “safety-net” aimed at compensating covered pastoralists from drought-induced livestock losses [27, 27]. The program is similar to the IBLI project in Mongolia [29], and other index-based agricultural insurance projects being implemented globally (see Miranda and Farrin [30] for a recent review). In addition to helping pastoralist households cope with risk *ex post*, growing empirical evidence suggests that insurance encourages investment in higher risk activities with higher expected profits [31, 31, 32, 33].

All pastoralists in Marsabit that had IBLI coverage during the 2011 drought received indemnity payments. In some areas, indemnity payments were made again in 2012 and 2013. Jensen, Barrett and Mude [35] use randomly distributed premium discount coupons to instrument for IBLI purchases, and show that insured households demonstrate improved child health (as measured by MUAC) and increased income per adult equivalent. An examination of production strategies also finds that households with IBLI coverage reduce herd sizes and invest more heavily in health and veterinary services for their remaining herd, which is associated with increased milk productivity within the herd.

Janzen and Carter [36] also use instrumental variables, combined with threshold-based econometrics, to show that households with insurance above and below a dynamic asset threshold respond differently to shocks, and therefore benefit from insurance in different ways. Those with herd sizes above an estimated threshold, richer households who are most likely to sell livestock, are 64 percentage points less likely to anticipate doing so when an insurance payout is available. Households holding livestock below the estimated critical threshold, poorer households who are prone to destabilizing consumption, are 43 percentage points less likely to anticipate doing so with insurance. Jensen, Barrett and Mude [37] also provide evidence of differential impacts: the gains to milk productivity due to IBLI coverage are more pronounced in households with small herds than those with larger herds.

If vulnerable households self-select into purchasing insurance, as might be expected, then insurance successfully eliminates the need for differentially targeting social protection: those who gain most from a safety net will insure. Unfortunately, self-selection is not as straightforward as it seems. Although insurance demand has been robust among a small

targeted and surveyed sample, it has been disappointingly low among the general pastoral population of the region. The low demand observed in this setting is similar to that observed elsewhere – demand for insurance in developing countries across a variety of settings has regularly proven to be weak [38, 38].

Jensen, Mude and Barrett [40] use a selection model to examine factors of IBLI uptake and level of coverage. Similar to other settings, the study found that poorer households (in this case, smaller herds) are less likely to purchase IBLI coverage, that liquidity plays an important role in the purchase decision, and that demand is price sensitive. Janzen, Carter and Ikegami [41] unpack the complexity of demand further, employing a poverty trap model to explore optimal insurance demand across heterogeneous households. Using dynamic stochastic programming techniques, they find that the most vulnerable households, despite having the most to gain from insurance, also have a high opportunity cost of insurance. This high opportunity cost is driven by the fact that liquefying an asset – even for the purchase of valuable asset-protection insurance coverage – might not be optimal for vulnerable households.

IBLI's strong positive welfare impacts coupled with generally low demand, which is intensified among the livestock poor and vulnerable, suggests that there may be social benefits to increasing insurance coverage especially among the livestock poor. This implies a potential role for public support to increase coverage levels among this vulnerable population. Furthermore, evidence that liquidity constraints and high premium rates mitigate coverage, suggests that one way to increase coverage is through reducing the premium rates that vulnerable populations face.

4. Kenya's New Comprehensive Social Protection Program.

The insights generated by rigorous assessments of these pilot programs help build the case for a more comprehensive, continuous and large-scale program with improved operational design and targeting principles. The Government of Kenya (GoK) currently seeks to scale up both the cash transfer and livestock insurance programs in the ASALs such that targeted social protection is differentially distributed to both poor and vulnerable households – cash transfers to the poor and subsidized insurance to the vulnerable. This comprehensive proposal is outlined in Figure 2 and discussed in the paragraphs that follow.

In 2013, the GoK launched the second phase of HSNP. This phase continues to focus on the four poorest target counties in northern Kenya, but increases its coverage to a total of 100,000 chronically poor households, providing them with larger bi-monthly payments of approximately USD 49. For targeting, HSNP conducted an initial census of all households living in the four target counties, means testing them to generate a ranking of eligibility and sequencing of households to be drawn into the program as it is scaled up. Unlike the first phase, HSNP II includes a disaster-induced scalability provision (i.e. a safety net), allowing for a supplemental injection of funds during times of crisis to the original recipient households or to temporarily poor households not covered under the regular program.

HSNP II is a cargo-net aimed at improving the capacity of beneficiary households to meet essential needs and invest in improving their future prospects. While HSNP II focuses on the poorest households in these communities, the GoK also recognizes the considerable risk faced by even the most productive of ASAL households, and sees value in augmenting HSNP with a productive safety net aimed at insuring households' livestock against catastrophic loss. Building from the IBLI pilot and drawing from lessons therein, the GoK proposed the creation of a national Kenya Livestock Insurance Program (KLIP) that directly targets vulnerable non-poor households [42].

KLIP is being piloted in two HSNP-targeted (but non-IBLI) counties of northern Kenya – Wajir and Turkana. A forage scarcity index-insurance contract, mirroring that of the IBLI program and designed to proactively intervene before mortality in order to protect deteriorating livestock assets, is being used. Five thousand targeted beneficiaries will receive fully subsidized insurance coverage for five cattle (or other livestock of equal value). Uniquely, selection of recipients for the fully subsidized insurance contract aims at capturing the vulnerable non-poor – eligibility requires that the participant not be an HSNP participant and owns a minimum of at least five cattle (or other livestock of equal value) [43]. This eligibility threshold corresponds closely with the chronic poverty threshold (i.e. E2 in Figure 1) identified in empirical studies of poverty dynamics in this area.

Over the next four years (2015-2019), KLIP will be scaled up to the remaining two HSNP counties – Marsabit and Mandera - where needs for livestock insurance for vulnerable pastoralists are the greatest and the infrastructure developed to support HSNP provision can be leveraged to more efficiently provide publicly supported insurance coverage. During this period the GoK plans to support up to 71,000 vulnerable non-poor households in these four counties with fully subsidized coverage.

To catalyze commercially-driven sustainable provision of livestock insurance, the insurance companies selected to offer coverage under KLIP are required to support voluntary top-up coverage to recipient households wanting supplemental insurance for more than the five cattle (or other livestock equivalent) provided by the government. Insurance companies must also demonstrate effort toward extending insurance coverage to non-KLIP beneficiaries interested in purchasing either commercially priced or partially subsidized insurance coverage [44].

5. Concluding Remarks

Pastoralist populations are particularly vulnerable to climate shocks, which often result in chronic poverty. This paper explores the role of social protection programs, including insurance, in building resilience among pastoral populations. Theory suggests that social protection can be more effective if policies differentially target “cargo net” programs to the very poor and “safety net” programs for the vulnerable. The existing empirical evidence is not yet sufficient for sweeping policy recommendations for pastoral development in general, but the new comprehensive social protection program being piloted in northern Kenya provides an

interesting case study of differentially targeted social protection, offering cash transfers to the poor and subsidized insurance for the vulnerable non-poor.

Operationalizing the targeting and subsidy schemes of both HSNP II and the KLIP program is indeed daunting, and even more so when both programs are being implemented in a challenging environment. Efforts to target effectively, minimize overlap, and optimize subsidy provision will come up against the realities of a dynamic and mobile population, information deficiencies, political interests and the like. But by leveraging research, technological innovation and infrastructure gains, the GoK is demonstrating how it is possible to optimize the provision of social protection to the vulnerable, yet productive, pastoralist population.

In time, careful implementation of the insights drawn from pilot programs and regular tweaking of the system should lead to a well-coordinated system of targeted social protection that harnesses the benefits of both “cargo net” and “safety net” interventions. If the Kenya program is successful in moving households beyond poverty, while simultaneously protecting households from collapse as they continue to climb, then Kenya will provide an example of successful vulnerability-targeted social protection for pastoral development that can be applied to other similar environments of Africa, Asia and Latin America.

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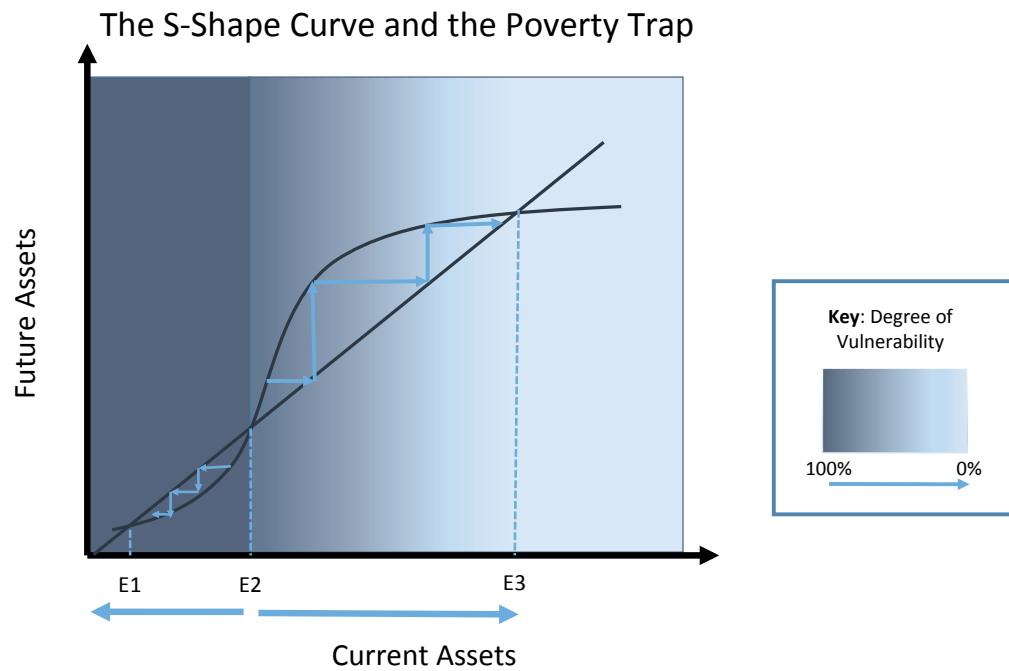


Figure 1: The S-Shaped poverty trap curve: Below E_2 , households move to the low equilibrium with 100% probability. In the absence of risk, households above E_2 move to E_3 , but in a risky environment negative shocks can have dynamic consequences. This figure shows how vulnerability decreases as asset levels increase.

Income Level	Livestock Safety Net and Insurance Program	Cost Share
Middle-income and above (>1 US\$/day)	Unsubsidized livestock insurance	100% of premium covered by farmers
Low-income (<1 US\$/day)	Partially subsidized top-up livestock insurance	Premium cost Sharing at 50%
Ultra-poor (<0.5 US\$/day)	Macro-level insurance program for approximately 71,000 ultra poor pastoralists above HSNP poverty levels	Premium 100% subsidized by GoK
Hardcore poor (<0.3 US\$/day)	Hunger Safety Net Program (HSNP), providing scalable cash transfers to 100,000 hardcore poor households	Premium 100% subsidized by GoK

Figure 2: Kenya’s comprehensive vulnerability-targeted social protection (VSP) proposal for different segments of the population (Source: Ministry of Agriculture, Livestock and Fisheries 2015 [44]).