



Josef G. Knoll-Wissenschaftspreisträger 2002

Josef G. Knoll-Science Award Winner 2002

Abdul B. Kamara: “Property Rights, Risk and Livestock Development in Southern Ethiopia”, University of Goettingen, 2001

Summary

Background and Problem Statement

Property rights systems over natural resources in Africa originated largely as communal systems with households' having exclusive rights to croplands and shared access to rangelands, forests and water resources. These systems served well especially during phases of low population growth and little environmental degradation. With the advent of high population pressure and increased economic activity, a need for adapting these regimes to the finite natural resource base has become a key policy concern (Bromley and Cemea, 1989; North, 1994; Pender et al., 1995). As the efficiency of indigenous property rights systems over natural resources more became contentious, a pervasive reform of property institutions in many parts of Africa was undertaken (Okoth-Ogendo, 1995). However, both socialist and market oriented reforms on the continent have not performed in terms of increasing land use efficiency, as they were largely designed to replace existing traditional systems with either state ownership or models of private property rights (Okoth-Ogendo, 1995; Place and Hazell, 1993; Ngaido, 1995; Kirk, 1996).

Broad claims by the state to pastoral resources led to a weakening of traditional authority; at the same time, the measures were largely unaccompanied by effective state management, often leading to open-access situations (Behnke et al., 1992; Niamir-Fuller, 2000). Conflicts between groups of resource users have depicted a declining access of weaker groups, such as pastoralists, to productive resources, with evidences of expanding cultivation into common property rangelands, compelling pastoralists to marginal and fragile land areas. While acknowledging the potential limitations of community-based management, which sometimes justify the need for institutional adaptation in response to imminent pressures from endogenous and exogenous forces, the study argues that agro-ecological diversity, site specific potential and other framework conditions should underscore the direction of recommended changes in property rights over natural resources. Revisiting the efficiency and interest group theories of institutional change (North, 1992, 1994, 1995), the study posits that the proportion of privatized land is a function of the productivity of the land when it remains in common, as well as other external pressures. Thus, where communities can manage their rangeland resources, then common property will be the most efficient (and perhaps equitable) property rights structure and thus less privatization should be observed, all else equal. Private property will only become optimal when management of the common rangeland is so poor that it becomes welfare-increasing to individually appropriate land.

Given that sub-Saharan Africa hosts about 25 million of the world's pastoral population deriving their livelihood directly from communal land use (Swallow, 1994), there is a need for assessing the major forces driving these changes so that their relevance to policy formulation

can be evaluated. This study is intended to enhance an understanding of these property rights changes in semi-arid Eastern Africa, using the Borana rangelands of Southern Ethiopia as a case study. These semi-arid southern rangelands support the livestock that are highly valuable to Ethiopia as sources of direct consumption and income of the Borana people, for the provision of draught power for smallholders in the highlands, and for export to generate foreign exchange. Despite the consensus on the region's high ecological potential for livestock production, the area is seen as one that is in poverty and food insecurity, mostly due to pressure on the common rangelands, high population growth rates, and increased privatisation for both cultivation and grazing. In some areas stocking rates are high, whereas the actual stocking rates in other areas fall below the potential carrying capacities (Coppock, 1994). This trend is hypothetically attributed to a series of factors, among which changes in property institutions is frequently cited (Hogg, 1997; Kerven and Cox, 1996; Coppock, 1994; Swallow and Kamara, 1999). The semiarid nature of the area - aggregate mean rainfall between 300 and 900mm per annum, with high seasonal and inter-annual variability - creates a concern about the potential capacity of the area to support a fully privatised system on a sustainable basis.

Against this background, the study is undertaken to answer, with empirical evidence, some of the questions arising from current theoretical discussions on stocking, rangeland privatisation and local commons. Specifically, the research is focused on the following central questions:

- Could the changes in land use, property rights and management institutions observed in the Borana Plateau be due to population growth and increasing market opportunities (increase in market access and improving prices) as hypothesised by previous studies? If so, what is the relative importance of each of these factors in determining the observed changes?
- Could the observed changes be driven by policies that affect the relative prices of crops and livestock as proposed by efficiency theory of institutional change? Could it be due to the activities of interest groups as proposed by interest group theory of institutional change (North, 1992, 1995; Denzau and North, 1994)?
- To what extent could incentives to acquire and secure private land be driven by, or related to national policies that favour or facilitate privatisation? Could these be more related to increasing desire of the people to invest in land improvement and changing property rights, which can in turn be a function of changes in the land's potential to generate economic returns?
- Could long-term climatic changes - especially rainfall conditions - be contributing to the process in any way, by way of influencing the relative risk associated with crop and livestock production?

Objectives

The primary objective of the study is to assess the effects of environmental risks (level and variability of rainfall), socio-economic variables, market and policy variables on the dynamics of land use, property rights and livestock development on the Borana Rangelands. Specifically, the study attempts to show how changes in these framework conditions lead to the formation of different pathways to livestock development, and explain their implications for sustainable management of rangeland resources. In detail, the objectives include:

- Characterise the important property rights systems that govern grazing resources in the area, so as to provide a better understanding of the reasons for the existence of common property, under semi-arid production conditions.
- Determine how environmental risk (level and variation of rainfall), market risks (access and prices), population growth and policy variables affect resource use and property rights, particularly stocking rates, land allocation to crop cultivation, and privatisation of property rights in the area.
- Empirically show how different framework conditions lead to the formation of different pathways to intensification, and determine the factors that cause a community to follow one pathway as opposed to another, despite the exposure of both communities to the same framework conditions.
- Highlight policy implications of the emergence of different pathways to intensification local level resource use.

Methodological Approach

The study adopts both quantitative and qualitative methods to assess the dynamics of land use, property rights and institutional change in Borana. A community level approach is adopted with a representative sample that facilitates the application of econometric methods to assess the relative importance of the various factors hypothesised to affect local level institutional change in the area. Based on the results of the econometric estimations, a sub-set of sample communities, representative of the observed typologies, are explored in-depth to validate the output from the quantitative analysis, and to further explore the effects of specific policy and intervention variables that could not be explored quantitatively. The econometric analysis entails factor analysis, analysis of variance and three-stage least square regression techniques. The qualitative analysis draws largely based on the use of timelines and development pathway analysis.

The study utilises cross-sectional community level data from forty pastoral communities, collected in 1997/1998. The choice of the community as a unit of study is based on the fact that spatial and temporal use of key resources in the area is communal; access is largely determined by community level decisions - taken by elders who define rules and ensure the implementation of sanctions and penalties. It is therefore expedient to look beyond the household for an analytical unit that is commensurate with the level at which resource use decisions are made. A community in the study corresponds to the Borana traditional grazing-based arda, which consists of two or more pastoral settlements or villages. The communities were selected to represent various rainfall patterns and different degrees of market access, based on a fourteen-year monthly rainfall data. Social mapping was used to assess the proportion of land under different land uses and property rights, using GIS-techniques. Land use is aggregated into crop and livestock production, and property rights as depicted by land areas held under private and common property regimes.

Participatory rural appraisal methods and intensive interviews were used to generate a comprehensive data at the community level, supplemented by in-depth retrospective data from a sub-set of the sample communities. The data consists of about 200 pastoral settlements hosting 21,637 people, living in 3,141 households. Cattle are the main species of livestock kept by the Borana pastoralists, along with traces of camels, horses and donkeys. Though the

Borana are traditionally transhumant pastoralists, the data shows that they have increased their reliance on crops and private grazing. Crops currently account for about 16 percent of the total land area of the sample communities, while the rest of the land is kept as different forms of pastures. The data were analysed using bivariate methods and three-stage least square regression techniques, complemented by longitudinal and pathway analysis.

Summarised Findings and Policy Implications

To a large extent, the results conform to the core hypotheses about the driving forces of institutional change in Borana. Community level co-operation in managing stock levels is largely determined by demographic factors, heterogeneity in wealth, off-farm income opportunities and social capital variables (rules, regulations, arrangements of reciprocity, etc.). The significance of rainfall in explaining stock densities is primarily limited to areas of high rainfall variability. Market variables do not crucially determine stock densities, nor do they significantly influence community level co-operation. However, market access plays a crucial role in determining land allocation to crops especially in areas of low rainfall variability, while relative prices remain trivial in explaining the dynamics of land use. As hypothesised, land use change is further induced by population pressure, along with exogenous non-co-operation variables such as off-farm income opportunities. On the contrary, changes in property rights are not sufficiently explained by any of the hypothesised factors relating to rainfall, demographic forces or market variables. From the econometric output, only crop cultivation proves to be strongly associated with rangeland privatisation, validating the hypothesised link between the adoption of crops and incentives for private grazing. The finding is confirmed by the in-depth analysis which relates the dynamics of land use and property rights to policy variables such as the ban on wildfire, the advent of peasant associations and sedentarisation programmes in the 1970s, and the special government support for cultivation in the 1990s.

Among environmental variables, bush-encroachment, among others, is worth reiterating. The considerable loss of pastures each year due to bush-encroachment results in grazing pressure and is thus a crucial determinant of stock densities on the remaining resource base, with restricted mobility and subsequent congestion. Although diversification into browsing animals (camels and goats) is evident as adaptations, the ultimate response in many communities is abandonment or migration. These responses are only short-term solutions that are unstable, often leading to territorial conflicts, insecurity and aggravate poverty. This creates a dire need to support the stability of the Borana pastoral systems through the provision of non-traditional pasture improvement methods as alternative to the traditional bushfire, on which they relied for so long, but which had to be abandoned so suddenly. The limited pilot programme of bush clearing and reclamation of communal pastures initiated by the German Agency for Technical Co-operation (GTZ) is desirable and should be emulated in the rest of Borana.

In conclusion, the system is currently in transition and is characterised by evidences of departure from traditional pastoralism to a semi-sedentary system that is increasing its reliance on crops and private grazing. The gradual integration into the national economy takes a heavy toll on cultural or traditional values that helped to regulate human and livestock populations to the carrying capacity of the natural resource base. Increasing heterogeneity among the Borana - both in terms of wealth and off-farm income opportunities - negatively affects co-operation in managing stock levels, and poses food security threats especially for the poor. This calls attention to the relevance of policy and development programmes that reduce heterogeneity, as well as a caution to current development interventions for possible impacts on heterogeneity. These efforts should be complemented by a reanimation of traditional authority

over resource management issues. The limited impact of markets on stock densities implies that the area has a good potential for market improvements as an intervention, without adversely affecting the stability of the system.

Finally, the study recommends a more dynamic analysis of rainfall variability in relation to property rights and land use change over very long periods of time (focusing on specific communities), so as to disentangle the inter-linkages between drought cycles and change in property institutions. The study recognises that the agro-ecological diversity of the Borana rangelands calls for selective policies that support crop-livestock integration in areas where the natural conditions are suitable, and extensive livestock production where necessary. The 'one policy fits all' approach in a heterogeneous system clearly has its shortcomings and limitations. This is evident from the conflicting outcomes of national 'blanket' policies such as the ban on wildfire and sedentarisation attempts in the diverse parts of the country (sub-humid, semiarid, arid). These examples are valuable lessons that should be recalled in planning and policy design, not only at the national level but also at the regional and zonal administrative and local levels.'

Abdul B. Kamara: Property Rights, Risk and Livestock Development in Southern Ethiopia, Sozialökonomische Schriften zur Ruralen Entwicklung, Band 123, Wissenschaftsverlag Vauk Kiel KG, Göttingen, 2001, ISBN: 3-8175-0337-7