

**Longitudinal Analysis of the Impact of Land Privatization on Samburu Pastoralist
Livelihood Strategies: 2000-2005**

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Introduction

Extensive pastoralism as practiced by East African pastoralists such as the Samburu of Northern Kenya, is premised on access to relatively large tracts of rangeland. Most pastoral land has been communally managed by groups of pastoralists who have, over time, developed rules and norms for regulating access to and use of the resources. In recent years, however, a number of pastoral groups have begun to privatize land, raising questions about the implications of this shift for pastoral livelihoods and the future of commonly held rangelands themselves (Ensminger and Rutten 1991, Rutten 1992, Kimani and Pickard 1998).

The “new thinking” about pastoralism, which emerged during the 1990s, suggests that maintaining pastoralists’ mobility is critical to enabling them to remain successful herders (Behnke et.al. 1993, Scoones 1994, McCabe 2004). Accordingly, privatization of pastoral lands and the trend toward increasing sedentarization of pastoralists, appears to be a threat to the continued viability of pastoral production and livelihoods (Fratkin and Roth 2005). However, there is little empirical data demonstrating the effect of a shift from communal to private rangeland on household well-being or economic survival strategies. More information is needed to determine the effects of privatization on livestock production and livelihood strategies of pastoral households. This paper presents findings from an ongoing research project inquiring into these questions¹.

Results of the first phase of research, conducted in 2000-2001, revealed that privatization of pastoral land is not necessarily the disaster feared by some scholars studying pastoral societies, nor is it the absolute boon predicted by mainstream economic theory (Lesorogol 2005). In this case, private land has facilitated crop production which serves as an

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additional prong in Samburu economic diversification strategies, enabling many households to preserve their livestock assets and survive crises better. In a comparison between two Samburu communities, one where land was privatized and one that remains communal, the privatized community had higher levels of per capita wealth and income in the year 2000 (Lesorogol 2005).

Current Research: Questions and Methods

The current phase of research, on which this paper is based, examines change over the last five years in the same communities initially studied. These longitudinal data enable a more dynamic analysis of the impact of privatization of land on household economic strategies. Additionally, the emergence of new social norms around land inheritance that result from the shift to private property in land are investigated.

Several questions guide the work reported here. The first question is whether gains from privatization that were apparent in the first phase of research have been maintained over the last five years. The primary method used to address this question is a series of structured household surveys that have been administered to a random sample of 100 households in each of two communities: Siambu, where privatization took place in the late 1980s and a similar community, Mbaringon, where land ownership remains communal. The same households that were surveyed in 2000-2001 were revisited in July and August of 2005 and information was collected on a range of demographic variables (age, education, gender, residence, and employment status), wealth (livestock holdings), income (sources and amounts), assets and debts, agriculture and land use, household expenditures, food consumption, and land inheritance practices. A total of 159 households, 70 from Siambu and 89 from Mbaringon, participated in both the 2000 and 2005 surveys. These data provide detailed information on

household well-being for analysis and comparison to the 2000-2001 data. The analyses presented below focus particularly on trends in wealth and income both on average and among wealth quintiles.

A second question addressed here is the changing nature of household survival strategies. Earlier research showed sharply contrasting strategies depending on wealth and these are re-examined with respect to the new data to detect shifts and trends in strategies among groups differing in wealth.

A third research question regards the emergence of new social norms of land inheritance in Siambu, where land has been privatized. The pattern of inheritance that is ultimately established will have important effects on access to key resources for the next generation and is of significance to policy formation on pastoral or mixed use land tenure regimes. Two research methods have been used to investigate this question. First, questions were included in the household survey, which elicit actual practice of land inheritance as well as attitudes toward three possible norms of inheritance that appear to be candidates for adoption in this community. From these questions it is possible to document the distribution of current practice as well as attitudes regarding the “ideal” pattern of inheritance. Second, in-depth interviews have been conducted with members of households who have been involved in cases of land inheritance to understand the strategies and perceptions of different social actors in inheritance. Some of the preliminary findings from these surveys and interviews are presented here.

Ethnographic Background: Samburu Pastoralism and Land Privatization

The Samburu are pastoralists, numbering about 200,000, who live in north-central Kenya, primarily in Samburu district. A semi-arid region, Samburu district receives between

about 150-750 mm. of rainfall annually (more at highest elevations), concentrated in two rainy seasons in April and October. Rainfall is spatially and temporally erratic, and the district experiences droughts about every five years. Samburu are semi-nomadic and herd cattle, sheep, goats and, in drier areas, camels. Historically, they were highly mobile, migrating several times a year in accordance with rainfall and pasture availability (Spencer 1965).

Their system of communal land management has functioned to provide a basic livelihood, even in the face of rapid population growth and significant interference from colonial and post-independence governments. Following independence, land adjudication proceeded in Kenya with the goal of establishing individual freehold title to land in most parts of the country (Okoth-Ogendo 2000). The semi-arid lands inhabited by pastoralists were deemed unsuitable for individual ownership due to their lower productive potential. Instead, the Kenya government decided to establish a system of “group ranches” wherein title to land was transferred to groups of households (Rutten 1992, Galaty 1994).

Most Samburu were uninterested in radical change to their livestock production system implied in the group ranch concept, and many opposed land ownership of any kind, as it was a foreign concept to them (Lanyasunya 1990). However, many Samburu joined group ranches in order to preserve their claim to the land, not from any motivation to alter their techniques of livestock production or land management (Lanyasunya 1990, Lesorogol 2003).

A small group of Samburu, mostly men, desired private land of their own. Most of them had experiences outside Samburu district, such as formal education, military service or employment, which exposed them to agricultural societies in other parts of the country where land ownership was highly valued. As a result, they associated land ownership with membership in “modern” Kenyan society in which owning land was one marker of success,

along with formal education, Western style clothes and housing, and white-collar employment. They appreciated that land, even in semi-arid Samburu district, was a valuable commodity and an investment opportunity. Some of them also saw privatization as a way to resist the advantages enjoyed by wealthier pastoralists under communal ownership (Lesorogol 2003).

In one community, Siambu, located on the northwestern edge of the Lorroki plateau, thirty-seven individuals sought land during the adjudication process begun there in 1978. They laid claim to the most productive swath of flat, fertile land on a high plateau in the location, which was suitable not only for grazing, but also had some agricultural potential. An intense conflict between those desiring private land and those upholding the status quo developed, continuing from 1978 until 1986. At that time, the government decided to equally sub-divide the land among all the resident households while designating a section of less desirable land as a group ranch (Lesorogol 2003). It is the area of private land that constitutes the community of Siambu considered here. The other community, Mbaringon, is located about 40 km southeast of Siambu, still on the Lorroki plateau and is comparable in terms of cultural and livelihood practices.

Wealth: Recovery from 2000 Drought and Continued Stratification

The survey findings regarding wealth, measured in livestock holdings, indicate that there was growth in livestock holdings over the period from 2000 to 2005 in the whole sample. The privatized community, Siambu, experienced a slight gain in per capita wealth while the communal community, Mbaringon experienced a more substantial gain. Stratification is also evident in both communities but is mitigated to some degree by mobility across quintiles over the five years.

The initial survey was conducted in 2000-2001 during the final phases of a serious drought that had led to large losses of livestock for many households in both communities. At that time, the mean per capita wealth for Siambu households was 3.92 tropical livestock units (TLU—see Table 1 for definition of TLU) compared to 2.57 for Mbaringon, a difference that was significant at the .05 level (Lesorogol 2005: 1965). In order to compare the 2000 and 2005 samples, the 2000 sample was adjusted for attrition by removing households that did not participate in 2005². Table 1 gives the adjusted figures for the 2000 sample as well as those from 2005. Adjusting for attrition, the differences in mean per capita wealth between the two communities in 2000 are no longer significant at the .05 level, although Siambu still has higher levels of mean and median wealth. As shown in Table 1, both communities experienced increases in per capita livestock holdings over the five years, an indication of recovery from the serious drought of 2000. Compared to the adjusted 2000 sample, the mean TLU per capita for Siambu in 2005 rose slightly to 3.69 while it rose to 4.27 in Mbaringon, but this difference between the two communities is not significant at the .05 level. However, for the combined sample, there was a significant increase in mean per capita wealth over the five years³.

² In 2005, 89 out of 100 households in Mbaringon participated in the survey, while 70 out of 100 in Siambu participated. In order to account for attrition, these households were removed from the 2000 survey results for the purposes of numerical comparisons such as for TLU and income. The reasons for attrition were primarily due to the absence of the household from the area during the survey period. There were also a few cases of households declining to participate in the survey. The total number of households in Mbaringon is estimated at 350 and for Siambu about 275. Thus, the samples represent about 25% of total households in each community.

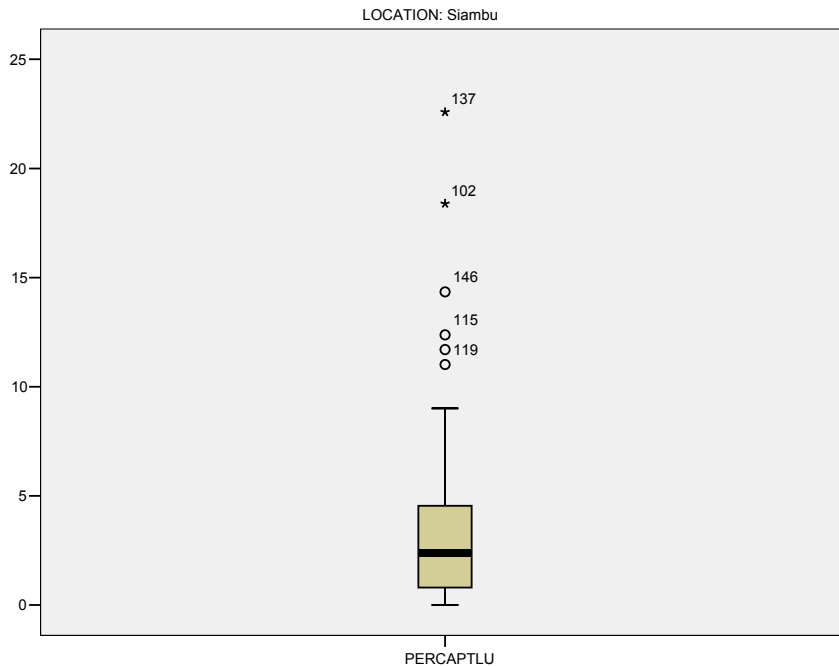
³ A paired t-test on mean per capita TLU for the whole sample comparing 2000 and 2005 was conducted resulting in a t-score of 3.82 with a significance level of $< .001$.

Table 1: Per Capita TLU for Siambu and Mbaringon, 2000 and 2005

Per Capita TLU	Siambu 2000 n=70	Mbaringon 2000 n=89	Siambu 2005 n=70	Mbaringon 2005 n=89	Diff Means 2000	Diff Means 2005
Mean	3.28	2.71	3.69	4.28	t= -1.19	t= .84
Median	2.47	1.85	2.39	2.74		
Mode	0	0	.00	.02		
Std. Deviation	3.28	2.71	4.35	4.40		

Note: Tropical Livestock Units (TLU) were calculated using current exchange rates for livestock: cow=1 TLU, sheep/goats = .08 TLU, camel = 2.5 TLU. Total household TLU was calculated for each household and then divided by the Active Adult Male Equivalent (AAME) for each household. AAME was calculated following Grandin 1981 formula (male >16 years=1, female >16 years = .86, child 0-5=.52, child 6-10 =.85, child 11-15 = .96). Two-tailed t-tests were performed, t-scores reported but not significant at the .05 level.

Chart 1a: Distribution of Per Capita TLU in Siambu, 2005

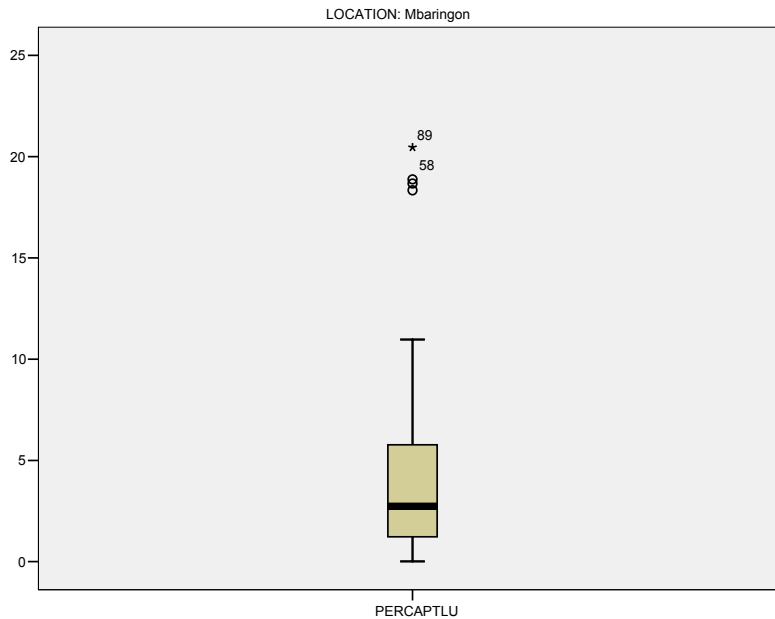


Note: boxplots show the median, interquartile range and extreme values of the variable.

The boxplots in Charts 1a and 1b show the clustering of per capita TLU around the mean and median levels, between zero and five TLU, as well as the presence of a few outliers on the upper end of the distribution in both communities. Thus, in spite of some recovery from the

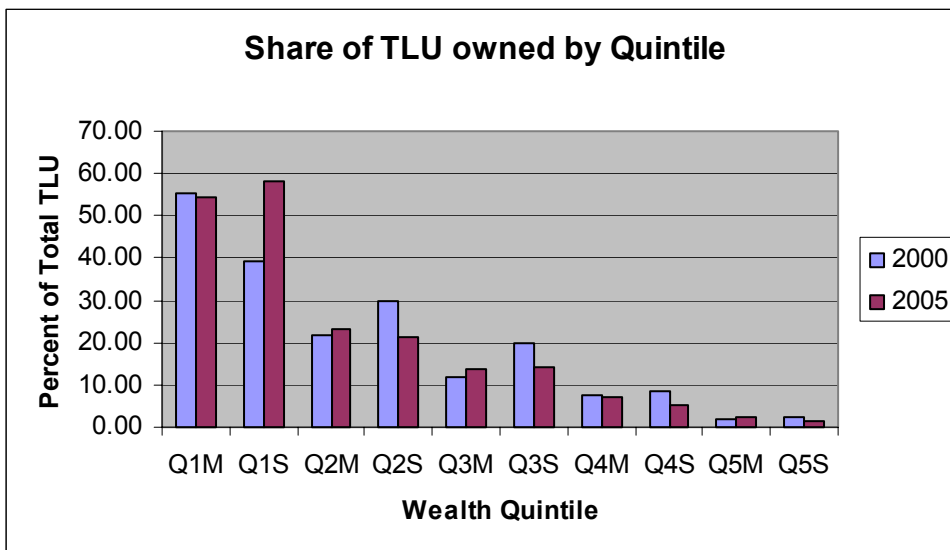
2000 drought, it is evident that most households are still rather poor in livestock, especially if livestock are the primary means of subsistence.

Chart 1b: Distribution of Per Capita TLU in Mbaringon, 2005



To get a better sense of the distribution of wealth, households were ranked by per capita TLU and placed into five quintiles with quintile one being the richest and quintile five being the poorest. The total TLU of each quintile was then compared to the total TLU for the sample in order to determine the percentage of TLU that is owned by each quintile and in that way get a sense of the wealth stratification existing in each community. Chart 2 reveals a considerable degree of wealth stratification in both Siambu and Mbaringon with the richest quintile in each case owning more than fifty percent of the total wealth in livestock in 2005 while the poorest quintile owns less than five percent of the wealth. In Siambu, there has been an increase in the share owned by the richest quintile between 2000 and 2005, while this share has remained essentially the same in Mbaringon.

Chart 2: Share of TLU Owned by Quintile, 2000 and 2005



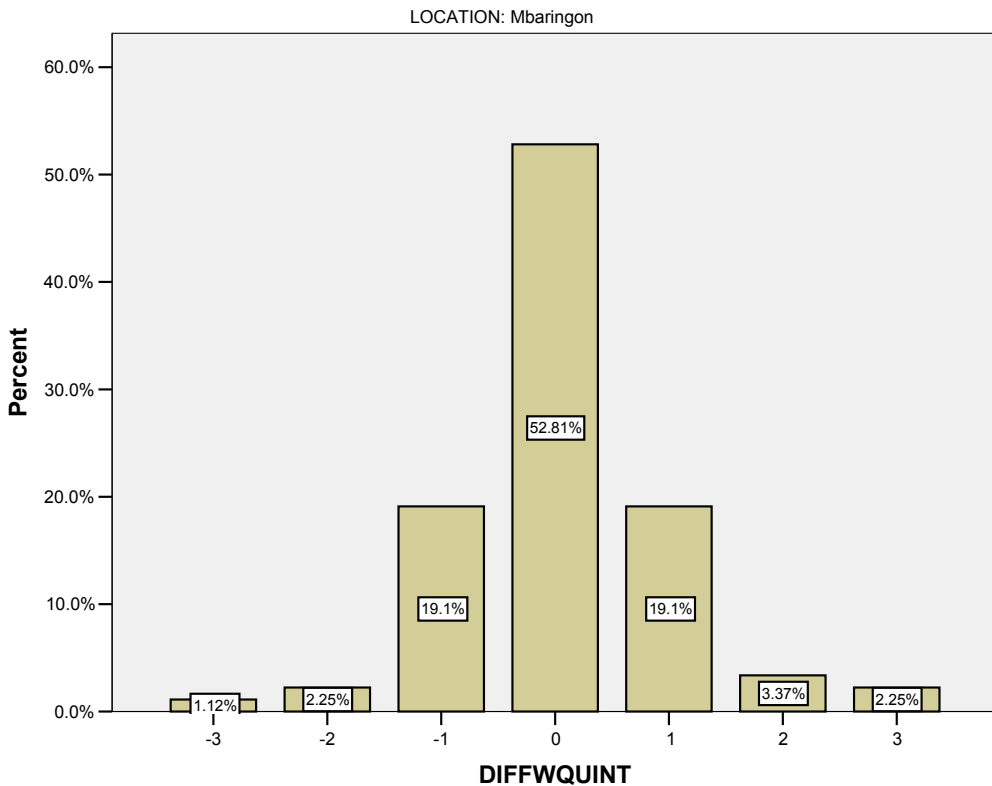
Note: the chart shows the percent of total TLU owned by each quintile in each community in 2000 and 2005. M denotes Mbaringon, S denotes Siambu, Q1 denotes the richest quintile, Q2 the second richest and so on.

The finding of stratification suggests that pastoral communities such as these are not as egalitarian, at least in terms of wealth, as has sometimes been believed by scholars of pastoralism (Salzmann 1999). The fact that stratification is present in both the privatized and communal community indicates that privatization of land, in and of itself, has not led to a higher degree of concentration of wealth, a finding which is corroborated by data on land sales from Siambu showing that only about two percent of land in Siambu had been sold since privatization (Lesorogol 2005). The rather high degree of stratification found here also suggests that different policies and interventions will be needed to address the needs of different wealth groups, a point I return to below.

While stratification clearly exists in both communities, it is mitigated to some extent by mobility across quintiles. That is, over time households may move up or down the continuum of wealth as their fortunes improve or decline. Mobility would be expected in pastoralist

communities that are regularly affected by drought, disease and insecurity resulting in, often dramatic, changes in their livestock holdings. Comparing the quintile position of the survey households in 2000 and 2005 reveals considerable mobility (see Charts 3a and 3b). In Mbaringon (Chart 3a), 53% of households remained in the same quintile while 47% experienced mobility. About the same percent were upwardly mobile (25%) and downwardly mobile (23%).

Chart 3a: Difference in Wealth Quintile for Mbaringon between 2000 and 2005

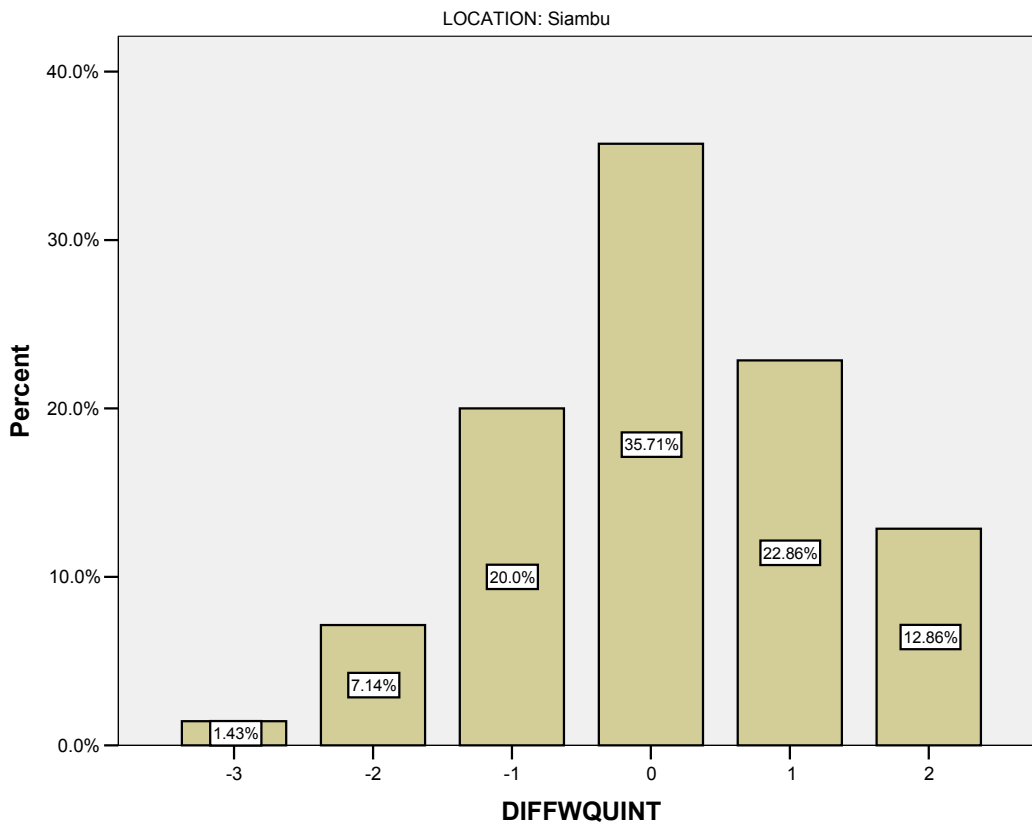


Note: Bars represent the percent of households experiencing a change in quintile (e.g. 1 denotes a rise of one quintile between 2000 and 2005)

However, 38% of households experiencing mobility remained within one quintile of their 2000 position and there were very few extreme shifts in quintile (plus or minus three quintiles).

The pattern of mobility in Siambu is similar to Mbaringon, but Siambu households experienced somewhat more mobility than those in Mbaringon: 36% stayed in the same quintile while 64% were mobile. Of those, 36% moved up and 29% moved down and 43% moved within one quintile up or down. As in Mbaringon, there were few extreme shifts of three or more quintiles.

Chart 3b: Change in Wealth Quintile in Siambu between 2000 and 2005



These data on mobility support the idea that pastoral economies are volatile, although extreme shifts in wealth are unusual. The fact that more households were upwardly mobile than downwardly mobile (more so in Siambu than in Mbaringon) during this period strengthens the argument that this was a period of recovery following the drought of 2000. On the other hand, the fact that many households were downwardly mobile also suggests that the pastoral

economy is not only affected by climatic conditions but that other factors should also be considered in accounting for shifts in livestock wealth. These findings also indicate that while considerable stratification in livestock holdings exists, the particular households that are holding the greatest wealth may change over time.

Income: Diverse Sources and Modest Gains

There is growing evidence that pastoralists rely on income beyond the sale of their own livestock to support themselves (Little et.al.2001) and this was confirmed in the first phase of research in which most households reported several sources of income in addition to livestock (Lesorogol 2005). Information was collected on a wide range of income sources for each household. The survey was designed to elicit detailed information on income sources over the last year. Rather than asking informants to report their total income in a lump sum, the survey inquired about 25 different sources of income that are common in these communities including a range of wage labor occupations and trading activities. Since many activities are engaged in sporadically, interviewers were trained to calculate earnings even from these occasional activities. A separate survey documented livestock sales over the last year including information on the type of animal, age, sale price, where and to whom it was sold.

In addition to these sources of income, an important component of household livelihood comes from products produced and consumed by the household. These include food crops and milk from own livestock. Information on food crop and milk production was collected and current market values were assigned in order to monetize these contributions to household well-being. In order to compare income data from 2000 to those of 2005, both sets of data were adjusted to 2003 shillings, using the Consumer Price Index values available from the Kenya Bureau of Statistics.

The figures for mean and median per capita income (in constant 2003 shillings) for both communities in 2000 and 2005, as well as the standard deviation and difference of means statistic are shown in Table 2. While Siambu had significantly higher mean

Table 2: Per Capita Income in Siambu and Mbaringon, 2000 and 2005

Per Capita Income	Mbaringon 2000	Siambu 2000	Mbaringon 2005	Siambu 2005	Diff Means 2000 (t)	Diff Means 2005 (t)
Mean	16311.57	21658.77	22056.34	20622.12	-2.32*	.377
Median	14524.30	16936.53	14704.00	16262.62		
Std. Deviation	10914.91	17918.03	29409.08	13666.04		

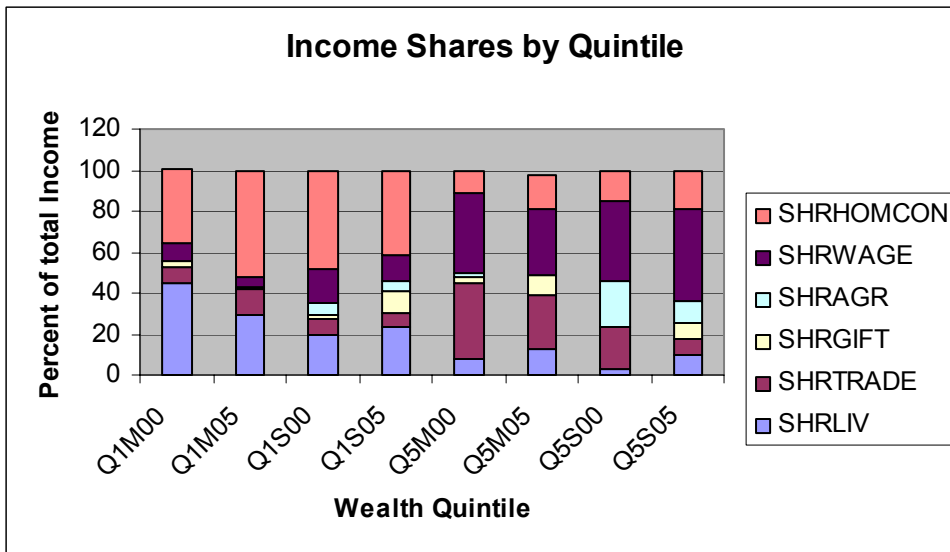
Note: Per capita income reported in constant (2003) Kenya shillings. Two-tailed t-tests were performed to measure difference of mean income between Siambu and Mbaringon in 2000 and 2005. An asterisk (*) indicates difference of means was significant at the .05 level.

per capita income in 2000, this difference is not significant in 2005 due to an increase in income in Mbaringon of about 20%; from KSH 16,311 in 2000 to KSH 22,056 in 2005. Over the same period, Siambu experienced a slight reduction in mean per capita income of about KSH 1,000. The median numbers are closer and exhibit less change over the time period. For the whole sample, the mean change in income from 2000 to 2005 was KSH 2,759, which is not significantly different from the 2000 incomes for the whole sample ($t=-1.37$, $sig=.17$). As with wealth, there is mobility in income over the period. In Mbaringon, the mean change of income was KSH 5,744 with a standard deviation of KSH 28,239, while for Siambu it was a loss of KSH 1,036 with a standard deviation of KSH 20,740.

In order to better understand pastoralist livelihood strategies, it is important to consider their sources of income and whether and how these sources vary depending on household wealth. In the first phase of this research, wealthier households relied for income primarily on sales of their own livestock and home consumption of crops and milk (Chart 4, Q1M00 and

Q1S00). By contrast, poorer households were more dependent on wage labor and trade (Chart 4, Q5M00 and Q5S00). Income from sales of crops and leasing out agricultural land

Chart 4: Income Shares of Highest and Lowest Wealth Quintiles in Siambu and Mbaringon in 2000 and 2005



Note: Q1M00 denotes richest quintile in Mbaringon in 2000, Q1M05 denotes richest quintile in Mbaringon in 2005, etc.

were also an important source of income, especially for poorer households in Siambu in 2000. These patterns of income suggested that wealthier households rely more on livestock production, both home consumption of milk and sales of their assets (livestock), while poorer households depend on employment and trade as well as agriculture in the privatized area (Lesorogol 2005).

The 2005 survey reveals some interesting shifts in income shares across quintiles. In the richest quintile in Mbaringon, the share of income from livestock sales fell while the value of home consumption rose, presumably from greater milk production since crops are negligible, here. For this group, income from wage labor declined slightly while income from trade

increased slightly. For the top quintile in Siambu, income from livestock sales rose slightly while home consumption declined by about seven percent. Wage labor income declined slightly while income from gifts (which includes remittances from working relatives) rose about eight percent. These differences between the top quintiles may reflect the more substantial recovery of livestock in Mbaringon compared to Siambu. Almost the opposite pattern occurs for the poorest quintiles. In both Mbaringon and Siambu, the share of livestock sales and home consumption of the poorest quintile rose, while wage labor (in Mbaringon) and trade (in both) contracted. In Siambu, the share of agriculture fell for the poorest quintile, reflecting relatively poor harvests over the last several years resulting in fewer sales of crops. The share of income from gifts increased for both groups.

The pattern of shifts in income appears consistent with the 2000-2005 period of livestock recovery, but also demonstrates how the recovery process affects poorer and wealthier pastoralists differently. For the wealthier pastoralists, they appear to be conserving their livestock assets (particularly in Mbaringon where recovery was greater) in order to reconstitute herds lost in the 2000 drought, and filling the income gap with wage labor and/or trade activities. The recovery in livestock in Mbaringon is also reflected in the growth of the value of home consumed milk. By contrast, poorer pastoralists, who are also experiencing some growth of their herds, are selling more livestock and engaging a bit less in wage labor and/or trade. They are also experiencing an increase in the value of home consumption from milk and/or crops. This could be a sign that they are not allowing their herds to grow, but rather are consuming the gains they are experiencing. If so, they may be rendered more vulnerable to the next drought (which is actually occurring right now, in 2006) than if they had resisted sales of livestock. On the other hand, given the dearth of jobs in Samburu district and

the risky nature of trade and casual employment, selling livestock may be a sensible strategy for these households even if it comes at a cost later on. Another way of looking at this is that wage labor and trade are, to some extent, drought coping strategies and that the high level of reliance on these by poorer households in 2000 reflects that, while the increasing share of livestock sales in 2005 reflects a more “normal” pattern of income.

It is also interesting to note that the share of income from agriculture in Siambu fell over this period, which is not expected during a period of better rainfall. In fact, for the poorest quintile, most of their agriculture income in 2005 came from leasing out land to commercial wheat farmers and not from producing food crops. Discussions with informants indicated that the timing and extent of rainfall have not been favorable over the 2003-2004 period, though most were expecting a good harvest in late 2005 (but this could not be recorded in the survey since it was conducted prior to the 2005 harvest). Thus, while participation in agriculture has added to the diversity of Siambu survival strategies (including consumption of crops in the home consumption category), it is an uncertain enterprise and crop failures, like drought, are regular occurrences.

Land Inheritance: Emerging Norms

Privatization of land in Siambu created a need for new rules regarding inheritance of land, which have never existed before among Samburu people. During preliminary research conducted in 2004, about ten cases of inheritance of privatized land that had occurred in Siambu were investigated through in-depth interviews with those involved. There was no single pattern, or norm, for inheritance, but there was evidence for several competing rationales proffered as the “right” way for inheritance to occur. On the one hand, there were those who believed that inheritance of land should follow the norms of livestock inheritance, which,

among the Samburu, is a form of primogeniture where the oldest son inherits his father's remaining livestock (and other possessions) upon his death. Not surprisingly, those who most strongly supported this view of inheritance were oldest sons who stood to benefit most if this system were extended to land ownership. However, even those who were not oldest sons recognized the logic of extending existing rules to the new situation, and many admitted that oldest sons had a strong claim based on the livestock precedent.

On the other hand, some younger sons argued that they should inherit their father's land. Their argument hinged on the fact that at the time of sub-division of land, only adult men received parcels. This meant that while many oldest sons received land, many younger sons (who were minors at the time) did not. Their claim to inherit land, then, is based on an argument from fairness—since they did not receive land in the initial allocation, they should be the ones to inherit upon their father's deaths. A third proposal was that land should be divided among all the sons in the family. Again, this argument was made from an equity standpoint.

In addition, there were some informants who recognized that land is qualitatively different from livestock and that this means it may be undesirable to apply the same rules. For example, since land is not movable and does not increase (though it could become more productive) like livestock do, it should not be continuously sub-divided because this would result in uneconomically small parcels over time. These preliminary results suggest that at least some social actors are attempting to establish one system of inheritance as normatively superior and, therefore, the “right” way to do things. Their claims are based on tradition (primogeniture), equity (giving younger sons their share), or efficiency (avoid fragmentation). Whichever of these norms (or some other) is ultimately adopted has implications for access to this critical resource.

In 2005, informants were asked to rank three possible norms for land inheritance in order of their preference. The three norms were: “oldest son inherits”, “youngest son inherits”, and “all sons inherit equally”. Informants were also given the option to name another norm and include it in the ranking. The responses to this question are shown in Table 3. “Oldest son inherits” was ranked number one by almost 60% of informants, followed by “all sons inherit equally” with 28%. Only ten percent of informants

Table 3: Rankings of Possible Inheritance Norms

Norm/Rank	1 n=69	2 n=66	3 n=65	4 n=5
Oldest son inherits	58%	35%	6%	0%
Youngest son inherits	10%	58%	28%	40%
All sons inherit equally	28%	6%	66%	40%
Other	4%	2%	0%	20%

chose “youngest son inherits” as their top choice. Only five informants named another norm of inheritance, and usually it was “all children inherit”, including girls. The fact that very few informants named other norms suggests that the three norms are indeed the relevant norms under consideration at this time. While there is still not total consensus on which norm should be adopted, these results indicate that “oldest son inherits” is the most preferred option, with 85% of informants ranking it one or two. Almost a third of informants ranked “all sons inherit” as their first choice, but 66% ranked it last—perhaps demonstrating a split of opinion over this option. “Youngest son inherits” was ranked second or third by most respondents. However, it should be noted that the informants are land owners (or their spouses) and thus may not represent the views of the youngest sons who lost out in the land sub-division originally.

Preliminary analyses do not show strong correlations between gender or men's birth order and their rankings of the norms. Further analysis is underway regarding the contrast between informants' stated preferences for land inheritance norms and their practice of land inheritance, including analysis of survey and interview data on actual cases of inheritance. These analyses should reveal whether there is a gap between attitudes and practice as well as more detail about the actual process of inheritance.

Policy Implications: Differentiated Intervention and Greater Investment

Understanding the actual survival strategies of pastoralists is fundamental to designing policies that aim to reduce poverty. The results of this study have a number of policy implications. First, the results reported above indicate that pastoral inequality is significant. The wealthiest quintile owns more than 50% of the livestock while the poorest own less than two percent. Since 2000, stratification has increased in Siambu and stayed about the same in Mbaringon. Stratification is mitigated to some extent by mobility across quintiles, but extreme shifts in wealth are unlikely. Development strategies that do not recognize this stratification may address only the problems faced by the wealthier pastoralists while missing the needs of the poorer households. For example, many recent development programs in northern Kenya have emphasized the development of livestock marketing infrastructure and improvements in provision of animal health services. These are undoubtedly useful interventions, but those who benefit most are those who depend most on livestock sales or who own significant number of livestock, and these tend to be the wealthier pastoralists. At the same time, there has been reluctance over the last few years to fund projects that would build the herds of poorer pastoralists (e.g. restocking), ultimately enabling them to benefit more from livestock marketing and animal health interventions.

Secondly, different wealth endowments are associated with different income generating strategies. Wealthy households' livelihoods derive mostly from sales of their own livestock and home consumption of milk and crops while poor households depend very much on wage labor and petty trade for survival. The shares of income from different sources are affected somewhat by the stage of the drought cycle, but these basic differences between wealth quintiles were sustained over the five years from 2000 to 2005. Due to a lack of jobs in Samburu district, those relying on wage labor are often required to leave Samburu district to search for jobs elsewhere, often as far away as Nairobi and Mombasa. This creates multiple problems for women and children left behind while the husband is working far away. Remittances are often irregular and insufficient to support the family, particularly as costs of living in the cities are relatively high. Long separations are common as men cannot easily visit their families and this may weaken the social fabric of the household. There is also heightened risk of HIV/AIDS transmission as men travel to areas of high incidence of the disease. All of these problems suggest that policies designed to create employment in the district are sorely needed. Creative thinking about employment should go beyond the usual ideas of livestock product processing (although even this has not been pursued with much success) and perhaps consider energy production such as solar and wind and more concerted efforts at community-based eco-tourism.

At the same time, the quality and quantity of education and training provided to Samburu (and other pastoralist) children must be improved so that they can better compete for available jobs. Most informants were pleased with the (re)introduction of free primary education and there is evidence that enrolments have risen as a result, but higher enrolments create problems of crowded classrooms and insufficient teaching staff. In Mbaringon, the

primary school has 80 pupils in standard one, in one classroom with one teacher. Reading proficiency in English is very low in the school with many children in class four or five barely able to read. There has been recent emphasis on building schools (e.g. through the Constituency Development Fund) but much more needs to be done to ensure that education is of high quality and to stem the high rates of drop outs of both boys and, especially, girls.

Third, the current use of participatory development strategies, while certainly desirable, should be implemented in ways that are geared toward identifying and addressing the needs of poorer pastoralists, including being aware of the very real risk of wealthier community members dominating the participatory process. In this regard, more attention needs to be paid to problematizing poverty itself and analyzing its causes and dynamics together with communities. Engaging community members in the process of research in order to better understand the situation of their neighbors might stimulate them to focus on development projects that would particularly assist the poorer members.

Land tenure policy is another area of practical application of this research. Much research and advocacy work has focused on securing pastoralists' rights of access to rangelands and in preserving mobility, which are extremely important. However, in some pastoral areas (especially in higher rainfall areas or where other uses are possible, such as tourism) internal pressures to privatize (*de jure* or *de facto*) are a reality and need to be addressed. By providing empirical data on the actual outcomes of privatization in Samburu, this work can contribute to informed policy making. While the results of this research should not be taken as evidence that privatization is always desirable (and it may be quite inappropriate in many cases), they do indicate that communities adjust to changing land tenure rules and may even benefit from a change if it provides greater flexibility and more options for economic diversification. One key

aspect of privatization in Siambu is that land was divided equally among the resident households, which has not been the case in other places (like Maasailand) where some group ranches have been sub-divided. Furthermore, the examination of emerging social norms demonstrates the malleability of social institutions, often accompanied by social conflict and differential gains by various social actors. Thus, good land policy should be sensitive to the likely effects of legal changes, especially for more vulnerable groups such as women and poorer pastoralists.

Finally, while this paper has emphasized the internal differentiation among Samburu pastoralists, this should be considered in a broader context. The fact is that the vast majority of Samburu pastoralists are very poor by any standard—national or international. Their per capita incomes, including monetized home consumption, put them in the “surviving on less than \$1 day” group used to characterize the very poor worldwide. Their levels of wealth are modest and insufficient to support families without additional income from a variety of sources and are subject to fluctuations in response to drought and disease outbreaks. The gains reported here from 2000-2005 are currently being wiped out by the ongoing drought to which the national and international community are responding, as usual, with too little too late. This is in spite of famine early warning systems that have been in place for years and an understanding that droughts regularly occur in this region. Droughts continue to be devastating because there is a lack of attention to long term patterns of impoverishment and a lack of investment in the region to mitigate their effects. The research results here confirm these trends on local level and suggest that considerable and sustained investments in building human and livestock assets are urgently needed in order to improve the situation and reduce vulnerability to future droughts.

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