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# Land Tenure Security and Agricultural Performance in Southern Africa<sup>1</sup>

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by

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There is widespread belief among development specialists that land tenure security is a necessary but not sufficient condition for economic development. Compared with weak or insufficient property rights, tenure security (1) increases credit use through greater incentives for investment, improved creditworthiness of projects, and enhanced collateral value of land; (2) increases land transactions, facilitating land transfers from less efficient to more efficient users by increasing the certainty of contracts and lowering enforcement costs; (3) reduces the incidence of land disputes through clearer definition and protection of rights; and (4) raises productivity through increased agricultural investment (Feder and Noronha 1987, Barrows and Roth 1990).

How tenure insecurity, separately and jointly with other obstacles, constrains agricultural performance is a crucial empirical issue in the economics of land policy and tenure conversion. The relationship is complex and multi-dimensional. This paper first defines tenure security then identifies potential linkages through development of a conceptual model for the crop and livestock sectors. Evidence is then presented from southern Africa to test these linkages and enrich the discussion of outcomes. The paper will conclude with observations on the quality and depth of this evidence, the necessity of looking at broader issues of market access and agrarian structure when evaluating agricultural performance, and finally, thoughts on appropriate tenure forms.

## *Tenure Security*

Tenure systems have two important dimensions: property rights definition (security of land rights associated with tenure possession) and property rights distribution (to whom these land rights are distributed) (Carter, Roth and Feder 1995). Land tenure security is the individual's perception of his/her rights to a piece of land on a continual basis, free from imposition or interference from outside sources, as well as the ability to reap the benefits of labor or capital invested in land, either in

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<sup>1</sup> Southern Africa is defined to include the SADC countries of Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe.

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use or upon alienation. This definition contains three components – breadth, duration and assurance – with legal and economic dimensions (Place, Roth and Hazell 1994):

- Breadth refers to the quantity or bundle of rights held, or possession of key rights if certain ones are more important than others.
- Duration is the length of time that a given right is legally valid. The economic dimension requires, in addition, that the time horizon be sufficiently long to enable the holder to recoup with confidence the full income stream generated by the investment. As land rights are generally secure for the season, tenure insecurity tends to be less important for short-term inputs or innovations (fertilizer, new seed varieties) than for capital long-term improvements with benefit streams stretching far into the future (tree crops, buildings).
- Assurance implies that right(s) and duration are known and held with certainty.

The legal dimension defines the composition (breadth) and duration of rights in the bundle, and implies that one holds with complete assurance all rights embodied in his or her tenure, even if that tenure is of short duration and confers meager rights. As it emphasizes complete possession, it so emphasizes with assurance the right to forbid others from exercising the land right in question. The economic dimension defines the value of economic benefits derived from de facto tenure in the land resource. Economic actions may diverge from legal provisions due to weak or costly enforcement, high transaction costs, and corrupt or illicit behavior.

Tenure insecurity from an economic perspective is thus some function of three factors: (1) inadequate number of rights or lack of key rights; (2) inadequate duration; and/or (3) lack of assurance. These factors must furthermore be applied in ways that address questions of tenure security for whom and to what piece of land – i.e., property rights distribution. One cannot assume that an individual with multiple parcels will hold uniform land rights on each (e.g., purchased versus rented parcel). It also cannot be assumed that land rights can solely be traced to one individual, ignoring the rights of other family members, kin, or the community.

Devising an objective index of tenure security to correlate with agricultural performance is difficult because “security” is unobservable. As seen shortly for southern Africa, analyses have typically emphasized comparative analysis of ranching and pastoral systems, possession or absence of title, and individual versus common property management, all embodying larger and more complex processes than tenure security alone.

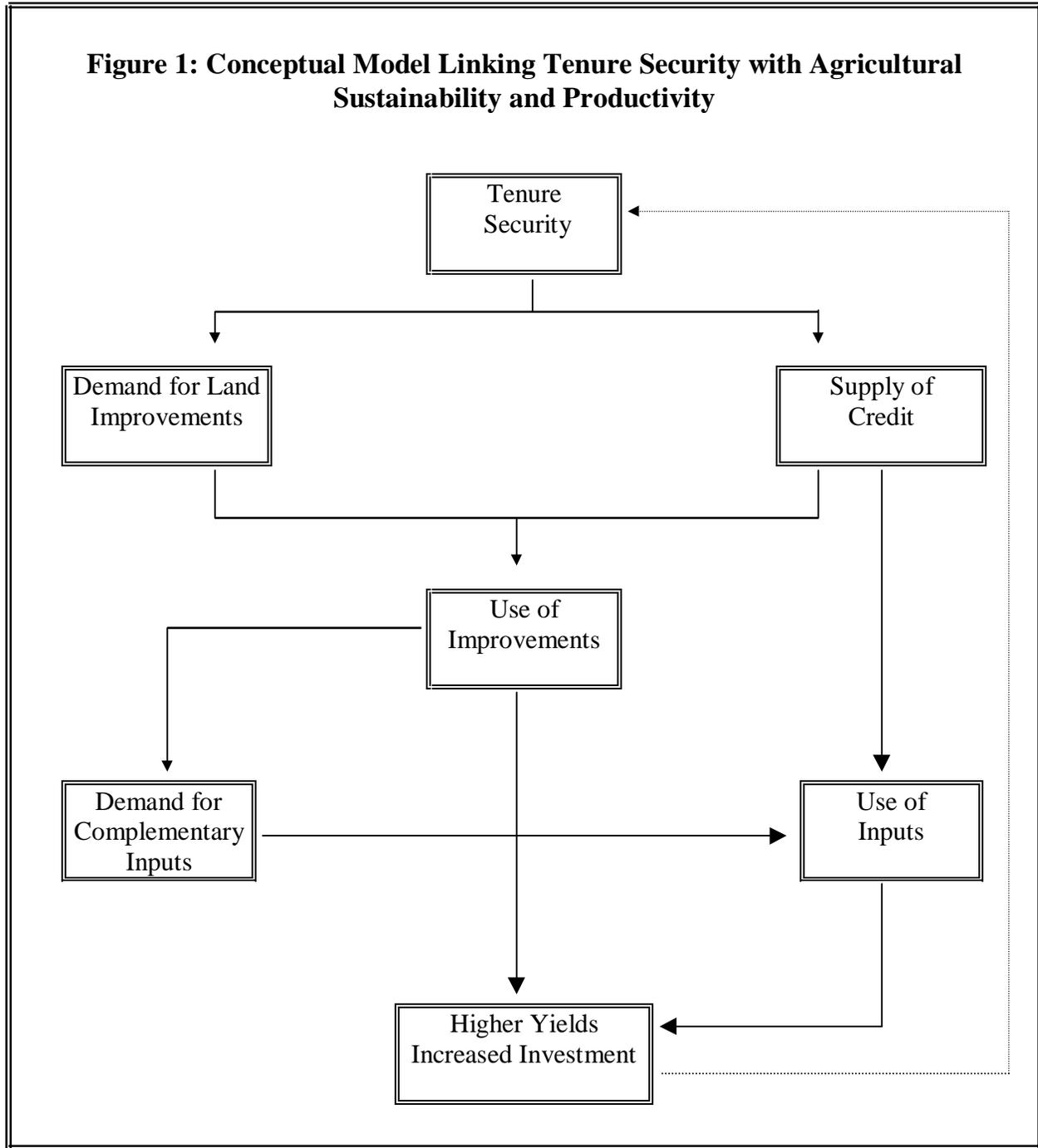
### *Agricultural Performance*

Agricultural performance can be also be conceptualized in two dimensions: (1) productivity and investment impacts; and (2) labor absorption, income distribution and stability. The former and focus of this paper emphasizes efficiency objectives although not entirely. The latter emphasizes the importance of equity objectives, although labor absorption and stability may also constitute efficient outcomes.

The theoretical model relating tenure security to agricultural performance in figure 1 suggests both demand-side (incentives to farmers) and supply-side (incentives to lenders) effects. On the demand side, an enhancement in tenure security would increase farmer demand for medium- to long-term land improvements, and to a lesser extent, for mobile farm equipment. This increase in demand is derived from two sources. First, greater tenure security would increase the likelihood that the operator will capture the returns from investments. Second, increased tenure security would reduce the incidence of disputes, freeing up resources, which would otherwise have been used for litigation. Demand for complementary short-term inputs (farm chemicals, labor) will increase as well, as a

result of enhanced tenure security or derived from land improvements (e.g., higher water retention from construction of ridges increases fertilizer profitability). Assuming the existence of viable technologies, access to inputs and extension advice, and the availability of household labor and financial resources, enhanced tenure security will lead to higher investment and hence higher yields.

**Figure 1: Conceptual Model Linking Tenure Security with Agricultural Sustainability and Productivity**



Because of potential supply-side effects, higher yields are possible even if households lack sufficient financial resources of their own. Individualized tenure accompanied by transferable title may improve the creditworthiness of the landholder, especially for long-term credit, and may enhance the land's collateral value, thereby raising lenders' expected returns.

Land rights typically are not predetermined. Under sporadic land registration systems, the landholder chooses whether or not to register land and may have some choice in the type of tenure. An individual can enhance long term claims to land by investing in improvements. High yields due to good farmer practices may improve eligibility for long-term tenure in government sponsored resettlement or farm development schemes. Land rights normally adapt to agricultural commercialization, and to broader economic and political factors (Feder and Noronha 1987). These dynamics and interdependencies are very complex and greatly complicate the analysis of land tenure and performance.

Usually, sometimes conveniently, such factors are assumed to be exogenous to the individual or household within reasonable time parameters, enabling analyses that conclude "this tenure system produced that result." But there are risks that complicate easy interpretation and synthesis of empirical studies. First, there is risk of spurious causality, in effect concluding that tenure security particular to a system produced or failed to produce a desired outcome when other important or leading factors are discounted or ignored. Second, there is the dynamic risk that the land tenure system observed at one point in time changes states of security in response to population pressure, market access, technological innovation, growing land scarcity and political uncertainty. These problems are raised at the outset both to point out the need to carefully dissect complex processes in getting at the role of tenure security, and to assert the point that few studies anywhere have carefully examined the feedback implied by the dotted line in figure 1.

### *Tenure Security and Agricultural Performance*

A number of studies outside of southern Africa have formally tested the nature and strength of the linkages between tenure security and agricultural performance using the conceptual framework in figure 1 (Feder and Onchan, 1987, in Thailand; Hayes, Roth and Zepeda, 1997, in The Gambia; and Place and Hazell, 1993, in Ghana, Kenya and Rwanda.) How is tenure security influencing agricultural performance in southern Africa? Three larger processes are worth mentioning in the way they have profoundly altered economic opportunities, shaped land policy, and affected agricultural performance:

1. *Economic dualism*: Colonialism's legacy, sometimes continued by minority governments after independence, is a highly skewed land distribution, alienation of the best quality land for large-scale minority owned farms, and unequal access to markets, infrastructure and commercial opportunities. Issues of tenure insecurity are intricately connected with forceful removal of black African populations, their settlement in overcrowded reserves, relocation of majority populations onto poor and marginal land, policies restricting land ownership for blacks, and betterment policies.
2. *Political instability*: Political crisis and war in Angola, Democratic Republic of Congo and Mozambique have uprooted populations and devastated economies in ways that have undoubtedly restricted land access and undermined tenure insecurity.
3. *Socialism*: Following the emergence of income inequality with growth in the mid-1970s and the beginnings of Africa's economic crisis, according to Simon (1995), a number of economies turned to socialism (some with social control over land). Angola, Mozambique, Seychelles, Congo, Madagascar, Tanzania, and Zimbabwe are those that in Simon's definition sought to (i)

break the power of private capital over production and distribution; and (ii) transform society in fundamental ways (e.g., nationalizations, socialization of agriculture, or abolition of markets)

The culmination of these processes has for land policy (see panel 1) meant state control over land allocation (in Mozambique), and widespread government interventions in the land market to redress the region's unequal land distribution (Zimbabwe).

With specific reference to Mozambique, state ownership of land need not undermine tenure security if land rights are unencumbered and leases are automatically renewable and of long duration. Tenure security is nonetheless at risk in Mozambique via restrictions on transfer rights, investment disincentives created by threat of eviction, and lack of legal recourse and right to compensation at market value. Tenure security under customary tenures is in no way assured. Tenure might be upgraded to leasehold through conversion as long as customary systems allow alienation, and if exploitation plans are approved, but at cost of fewer land rights legally conferred. Government appears to want to rationalize land use and increase capital investment through the exercise of development plans, yet risks discouraging investment (and registration) by disallowing any right to indemnification for non-removable investments should title be revoked.

Zimbabwe's land policy seems headed toward full ownership rights on arable and residential land, with provision for group title to pasture land – a significant departure from the past.<sup>3</sup> The government nevertheless seems inclined to want to wait and see whether improvements are made, or other conditions fulfilled, before upgrading title to outright ownership. Tenure security may be compromised in other ways: the inability to subdivide parcels below economically viable farm sizes (Mozambique, Zambia, Zimbabwe), limits on the number of farms that can be owned (Zimbabwe), government determination of land value (Zimbabwe), and prescriptions that land has no value (Zambia and Mozambique). In fairness to these policy frameworks, agricultural performance need not be the priority objective as the social costs of risk of land concentration (Mozambique) and inequality sometimes outweigh the importance of productivity concerns.

Group title is a significant development that may well be a useful instrument for regulating access rights (Zimbabwe) or protecting community interests against land grabbing or speculation (Mozambique). It is nevertheless too early to assess whether group title will enable easy entry and exit of individuals, avoid free-rider problems, and bring customary rights into convergence with national land policy. Ntsebeza's (forthcoming) analysis of local governance and land in South Africa point to difficult times ahead. There, implementation of common property associations intended to define and document individual rights have met with strong resistance from traditional authorities who maintain that the land belongs to them.

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<sup>3</sup> According to Moor and Nieuwoudt (1996), few exclusive individual rights to resettled land in Zimbabwe were granted. Legal ownership of the land was vested in the state; settlers were granted temporary occupancy permits that could be revoked without notice or compensation. Land could not be sold, subdivided or inherited. See also Roth and Bruce, 1994).

**Panel 1: Land Policy in Selected Southern African Countries**

**Mozambique.**<sup>a</sup> Land Law No. 19/97 was enacted in October 1997. Revised land regulations, drafted in July 1998, are currently under review. The law provides for land occupancy and registration. Occupation by individuals and communities are to be in accordance with customary norms and practice. Provisional registrations are given upon approval of an exploitation plan that describes work to be carried out during the first 5 years, buildings to be constructed, cost, and justification. Provisional titles are upgraded to permanent title if plans are fulfilled. Permanent titles are renewable for 50+50 years, but a provisional period of 2 years (for foreigners) and five years (for citizens) is required to determine whether exploitation plans have been fulfilled. Community rights are recognized, paving the way for group registration. The finality of title is not guaranteed – a concession will be revoked if an occupant is able to document an earlier claim. Land cannot be sold, alienated, mortgaged or encumbered (although such transfers might be permissible if conducted in accordance with customary practice.) The law allows for land to be bequeathed and for *inter vivos* transfers of infrastructure, buildings and improvements, but not during the provisional period. Inspection brigades will monitor land use. Land rights may be extinguished if exploitation plans are not fulfilled without right to indemnification for investments that may have been made. Land may not be sub-divided if government deems the economic utility to decline.

**Zimbabwe.**<sup>b</sup> The GOZ intends to acquire an additional 5 million hectares for redistribution to about 91,000 families between 1998 and 2004. The land is to be acquired by appointed committees using as criteria – derelict land, underutilized land, multiply owned land, foreign owned land, and land contiguous to communal areas. The land identified is to be acquired in three ways: (i) Land designated for a period of up to 10 years during which all land will be compulsorily acquired; (ii) Compulsory acquisition (preferred method, p. 13); and (iii) willing seller – willing buyer based on right of first refusal. Land will be resettled by poor households in over-crowded communal areas, retrenched farm workers, women, ex-combatants, agricultural graduates, master farmers and persons of means and ability. The bulk of the land (75%) will be allocated to mixed farming, village-based, settler schemes (Model A<sub>1</sub>), where settlers are allocated individual arable and residential land but share common grazing land, woodlots and water points. Model A<sub>2</sub> (17%) schemes will include self-contained farm units for cropping, residential, grazing, and woodlots. A three-tier model will be used for grazing schemes. Beneficiaries of Model A<sub>2</sub> must have developed a financially viable and agro-ecologically suitable 5-year farming program for the land under application. Under Model A<sub>1</sub> schemes, households are given a 99-year lease with an option for a title deed (automatic after minimal improvements, p. 19) for arable and residential land. Before obtaining freehold, A<sub>2</sub> settlers will be given a 99-year leasehold title, and be eligible for upgrading after the 1<sup>st</sup> ten years of productive settlement. Families failing to fulfil the development requirements will be evicted and replaced by other deserving candidates. Under Model A<sub>1</sub> and Three Tier schemes, group title will be granted to beneficiary households for grazing and common land.

a. Land Law No. 19/97 of 1 October and Revision of the Regulations of the Land Law of July 1998.

b. Government of Zimbabwe. Land Reform and Resettlement Programme, Phase II, June 1998.

### *Crop Sector*

It is difficult to argue against the capital-intensive investment on farms comprising the large-scale commercial sectors in southern African countries. It is probably true that such investments would not have been possible without secure and freely transferable land title. Yet, the positive correlation between title and fixed place investment also derives from southern Africa's dual economy that alienated the best quality land for the mostly white settler population, targeted infrastructure toward minority farming interests, biased access to commercial markets, and distorted financial lending (Weiner et al. 1985 and 1991; van Zyl 1995; Eicher and Kupfuma 1997). Market and policy distortions, particularly credit subsidies and favored access to foreign exchange, have encouraged more capital-intensive farming on commercial farms and given them an absolute advantage in yield and profit compared with labor intensive farming in communal areas (Moyo 1987; Nankumba 1989).

Given inputs and adequate access to market opportunities, peasants can be productive (Weiner et al. 1985, 1991). The cotton and maize revolution in Zimbabwe reflects the capacity of smallholders to invest in inputs and increase productivity when market opportunities and credit access are presented (Eicher and Kupfuma 1997). Akwabi-Ameyaw (1990) compare individual family farms (and communal grazing) versus cooperatives on resettlement schemes in Zimbabwe and conclude that family farms are productive and profitable while coops are failing. Howard and Mungoma (1997) in Zimbabwe also report that smallholders greatly increased their use of inputs (especially fertilizer) with improved access to inputs and credit (however, repayment on government loans was poor).

Does this suggest that tenure insecurity is not a significant constraint to agricultural performance in the aggregate? The answer to this question is not easy because of uncertain outcomes to two prevalent debates in southern Africa: (i) that customary systems confer insecure land rights; and (ii) individualization increases tenure security. On these two issues, the evidence varies widely.

A number of studies assert (with little or no empirical testing) that customary norms and practices confer adequate tenure security. Lane (1990) for example asserts that communal systems have rules that ensure against environmental exploitation, and that government acquisition of communal land for private commercial farming has led to land degradation. Sivji et al. (1994) differentiate between security of land ownership and security of investment. Villagers are concerned with land ownership and customary tenure systems in Tanzania provide them that security. Titling, meanwhile, leads to unequal distribution of land. In Malawi, Kishindo (1995) reports that land rights are inherited and non-tradable; members of core lineages have secure land tenure and make long-term investments. Men who marry into a village at first have insecure tenure and post-pone long-term investments for a few years (or seek alternatives such as returning to their home village). Immigrants (e.g., Mozambican refugees) lack land tenure security and do not make long-term investments whatsoever.

Levin (1988) and Lyne and Nieuwoudt (1991) are far more critical of customary tenure systems. According to Levin for Swaziland, "It is the absence of democratic elements in the social relations underlying traditional land tenure that possibly constitutes one of the greatest obstacles to increased agricultural production and growth amongst the peasantry" (p. 60). Customary law does not allow communities to evict inefficient tenants.

In rural KwaZulu Natal, severe overcrowding is creating acute land shortages, yet large tracts of land are left fallow and yields are low (Moor and Nieuwoudt 1996) – problems that arise because land rights are insecure and transfers are costly under customary tenure systems. Also, small farms are neither efficient nor innovative: "...both the adoption of farm technology and production of surpluses are positively correlated with farm size and the renting or borrowing of land (Lyne and

Nieuwoudt 1991, p. 197). People retain land even if they are employed in the wage sector. Households have little incentive to produce crops as farms are small<sup>4</sup> and the opportunity cost of labor is high. Inefficient farmers might rent out their land to more efficient farmers, however, it is chiefs and their headmen who allocate land. Renting-out land is perceived to be risky due to distrust of local officials, and tenants claiming land rights based on need and current possession. Enabling a private rental market would increase land use efficiency with minimal risk of distressed sales or loss of social security<sup>5</sup> (Moor and Nieuwoudt 1996; Lyne and Nieuwoudt 1991).

In Sub-Saharan Africa, it is women and the socially disadvantaged who have limited land access and the least tenure security. A study in Zimbabwe suggests that this lack of security discourages female farmers from making long-term, ecologically beneficial investments in their land (Fortmann 1998). Women may be given a plot and have seasonal land use rights, but experience limited access to credit, inputs, and market opportunities that would enable more efficient land use.

Regardless of whether communal tenure systems are unproductive, upgrading tenure to individualized freehold does not ensure improved agricultural performance. De Wet and Leibbrandt (1989) found that yields on freehold land in Rabula village were actually lower (1.3 bags of maize per acre) than on Trust land in Rabula (3 bags of maize per acre) and on Betterment land in Chatha (1.8 bags per acre). Pinckney and Kimuyu (1994) compare two similar villages in Kenya and Tanzania; the Kenyan village has land titling. In spite of land titling, the Kenyan villagers operated no differently from the Tanzanians in terms of credit usage, investment in land or land transactions. Since there were no differences in the frequency of land transactions, the Kenyan village did not experience more inequality. They conclude that the “real constraints” on agricultural productivity are not land tenure but infrastructure, market efficiency, and production technology.

In certain instances, communities establish norms, rules, and regulations to manage communal resources, but these prove inadequate due to a breakdown in management policy. According to von Maltitz and Evans (1998), “[m]any farmers seem to farm more as a means of leveraging greater returns from off-farm income rather than a subsistence or economic activity in its own right. This totally changes the way in which economics of farming should be viewed” (p. 560). Changing tenurial arrangements probably would not improve the situation; solutions include fencing, creating a sense of ownership and introducing new, appropriate resource management institutions to the communities.

### ***Livestock Performance***

The literature on livestock and land tenure in southern Africa tends to emphasize three issues: comparative productivity of livestock under ranching and pastoral systems, the effect of communal tenure on stocking rates, and rangeland sustainability. Analyses of comparative productivity and environmental sustainability hinge on *recommended* stocking rates. Figure 2 illustrates that yield per animal is highest at the lowest stocking rate and need not immediately fall as animals are added to the range. At stocking rate A, however, productivity per animal begins to decline sharply. Nonetheless, productivity per hectare continues to increase as long as reductions in animal productivity are offset by increasing herd size. Beyond point B, an increase in the stocking rate will

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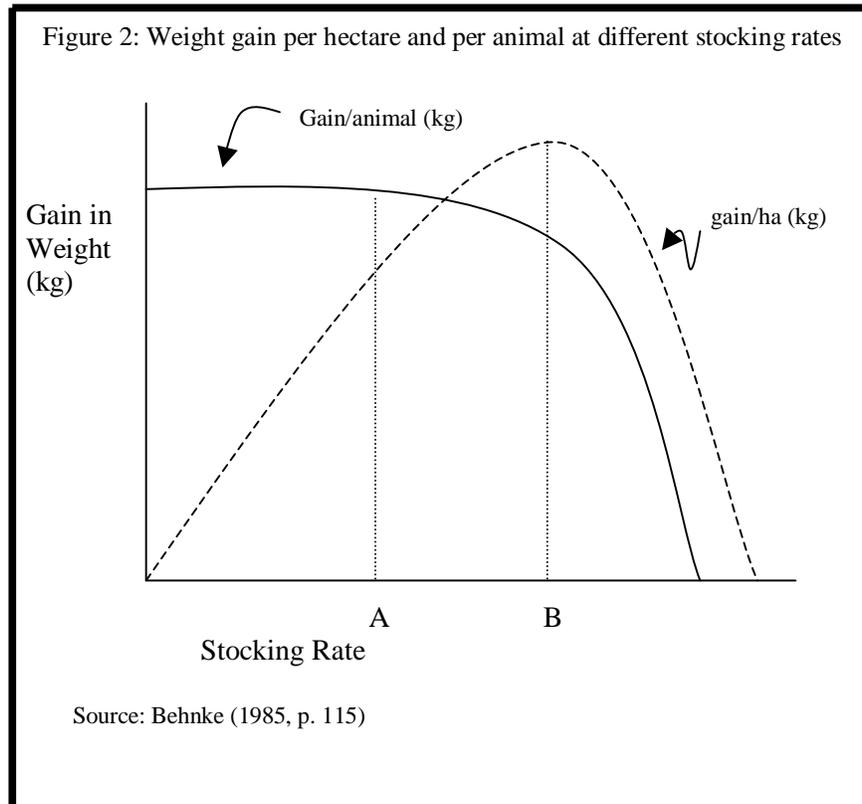
<sup>4</sup> This finding applies to a rather special situation in South Africa where many rural households with agricultural plots earn only a small percentage of their income from agriculture, relying instead on wage labor in cities and remittances.

<sup>5</sup> Creating the individual right to sell land is questionable. As Cross (1987) points out, the desperate nature of poverty can result in sale of assets for cash to their future regret. Enabling a private land rental market would help increase land utilization and thus land productivity, but also help fulfill the needs of poor landless populations.

be accompanied by declines in both yield per animal and productivity per hectare. Short of this threshold (B), maximum weight gain per hectare occurs at heavier stocking rates (Behnke 1985).

Behnke (1985), using biological measurements (births and deaths), observes that ranches outperformed cattle posts (pastoral systems) in Botswana with reasonable consistency, but at a modest margin. Stocking rates on ranches were very low while government reports (unsubstantiated) describe over-stocking on cattle posts. However, simple comparisons of meat or milk productivity distort the true economic returns to pastoral systems because they exclude or discount the full benefits of multi-purpose livestock raising in rural communities (Behnke 1985, de Ridder and Wagenaar 1986, and Scoones 1992).

De Ridder and Wagenaar (1984), in Botswana, compare the productivity of traditional and ranching systems on a per-hectare base taking draft power and milk production into account. They conclude that traditional systems in eastern Botswana were as much as 95% more productive than ranching in terms of liveweight production equivalents. However ranches are more productive on a per animal basis, whether assessed in terms of calving rate, mortality, weaning rate or body weight. Stocking rates on ranches were nearly half that of traditional systems. In a subsequent study, de Ridder and Wagenaar (1986), comparing gross energy and crude protein balances, show that productivity expressed in liveweight equivalents per hectare was at least 20% higher in traditional systems than in ranching. However productivity per LSU was about 65% higher in ranching than in traditional systems.



Scoones (1992) assesses benefits from livestock (oxen, beef cattle and goats) in different ecological zones using data based on biological productivity parameters, milk production, sales and slaughters, manure production, and draft power. Cost-benefit calculations include costs of herding and veterinary care. The study finds very high internal rates of return for all livestock categories, and returns per hectare that are considerably higher than in conventional beef ranching systems. The high economic value of communal area livestock is derived from the ability to stock at high levels, and use of a mixture of species for a variety of uses including meat, milk, draft power, and transport. According to Moorsom (1995), “[w]hile capital-intensive ranching may yield much higher rates of offtake per animal, a superior output per unit [of] land is more doubtful. The more flexible techniques of free range management may not automatically lead to pasture degradation from higher stocking densities than are achievable in the [ranching] system” (p. 52).

In addition, equity benefits are a strongpoint of communal grazing in the Transkei (McCallister 1992): long-term lending and borrowing of animals ensures that livestock are widely distributed, many people other than the owners share in their benefit, manure deposited in the veld can be collected by anyone, and slaughtered animals are consumed by family, neighbors, friends and kin. Also, grazing conditions vary over time and by location, resulting in herd movements throughout the year that help conserve resources and prevent overgrazing (Scoones 1989).

One might conclude from the above evidence that stocking rates on ranches tend to converge nearer to point A, and those on communal pasture nearer to point B. Why doesn't position (A) converge toward position (B) if economic returns/ha are higher? There are several possible factors: (1) Labor and capital constraints on ranches relative to land size constrain higher stocking rates. (2) Low stocking rates based on western norms are more easily enforced by government on ranches. (3) Centralized management and control over profits are ill-suited to capturing the benefits of draft power and transport that accrue to workers. (4) Management of ranches are unable to adequately control for labor shirking and absenteeism. (5) Ranches might be unwilling to rent out pasture rights for fear of pastoralists permanently claiming grazing or residential rights.

Two other possibilities are worth considering: that stocking rates near to point (B) are environmentally unsustainable (i.e., the private benefits of multi-purpose livestock systems are not internalizing the social costs of land degradation), and tenure insecurity is pushing stocking rates to the right of point (B) due to disintegration of common property management. Answers to these two questions have important implications for land reform. Higher returns per hectare under pastoral systems suggest that redistribution of grazing land can enhance both economic profitability and equity. Zimbabwe's justification for redistributing 5 million hectares of unutilized land for resettlement in panel 1 is based on studies by in Roth and Bruce (1994) showing very low stocking rates on arable pasture land, and government objectives to increase stocking rates on commercial farms.

It is land reform, an important government policy throughout the region, that is underscoring the importance of better understanding the relationship between stocking rates and environmental sustainability. Unfortunately, the evidence on sustainability tends to be highly anecdotal. In a case study in Tanzania, Potkanski (1994) concludes that communal property rights for grazing are efficient and sustainable. Seubert (1989), conducting a comparative study in Malawi, finds that estate farms are not sustainable (especially because of soil erosion) while customary farms are diverse and protective of the environment. However, uncertainty of benefits discourages investment.

Commercial farm communities tend to justify low stocking rates on grounds of need to maintain environmentally sustainable practices – crop rotations with pasture, land set-aside programs, maintaining marginal lands under permanent cover. Kakembo (1998), using GIS to

compare communal, private and betterment plots, finds that “land is highly susceptible to degradation under the common property system of land management.” There also was much degradation under the betterment farms, but not the private farms. Kakembo concludes: “Population increase does not explain the observed degradation. It is rather a product of long term sustained injudicious land use activities from the time the land was still sparsely settled.” The solution is titling (pp. 316-7). While Kakembo’s observation may be true, it is worthwhile considering Dorner’s (1992) caution that the environmental impact of land tenure is inextricably linked to other variables including population, poverty and policy, and that the tragedy of the commons is typically a result of socio-economic and political influences, not any particular land tenure system.

Have stocking rates moved to the right of point (B) in certain situations? Considerable literature has assessed the relative merits of individual versus common property systems, much of it inspired by Hardin’s (1968) discussion of the “tragedy of the commons.” According to Hardin, a pasture is over-grazed because costs of animal ownership, and time and money spent in pasture improvement, are incurred by the livestock owner while the benefits of pasture grazing are communally shared. Hardin’s failure to distinguish between open access and true common property resources has discounted the ability of communities to design and enforce elaborate rules and regulations to manage communal resources (Boonzaier 1990; Talle 1991). Cousins (1995) goes further to say that common property management may be the most appropriate way for land reform in South Africa.

Vink and Kaiser (1987) reject the Tragedy of the Commons on a number of grounds: grazing land productivity is not lower in Sub-Saharan Africa (when land of similar production potential is compared); the commons do not always experience overgrazing (based on new methods of measuring the land’s carrying capacity); and the commons are not necessarily characterized by open access. Also most cattle owners have small herds and there is little evidence that these herds increase over time.

Arguing against Vink and Kaiser (1987), Lyne and Nieuwoudt (1991) assert that the commons in KwaZulu Natal have resulted in overgrazing and no investment to improve livestock or land because: there is no internalized cost to overstocking, the free-rider problem discourages investment, and the uncertainty inherent in interdependent (group) decision-making inhibits rational choices. Privatization would solve all three problems, thus encouraging stockholders to reduce stocking rates. Possibly, land might replace cattle as a store of wealth if private title could be sold or inherited. Taxes and quotas can also reduce overstocking but require program and monitoring costs, and would not encourage stockholders to improve pasture and herd quality.

The problem of the commons is not just one of overstocking resulting from open access, but the disincentives to upgrade pasture and increase livestock carrying capacity (Lyne and Nieuwoudt 1990). This would be equivalent to shifting both curves – gain/animal and gain/animal – in figure 2 upward and to the right. Grazing on the commons need not be a zero-sum game (Vink and van Zyl, 1992); the real problem [in southern Africa] is lack of access to productive opportunities. The widespread adoption of improved pasture on commercial (titled) farms in southern Africa would seem to make this connection obvious. But the issue is far more complex in communal systems because lack of investment might mean either tenure insecurity, aversion to risk of theft or loss, unsuitable land, lack of water, limited means, or unequal access to complementary inputs or financial capital.

### ***Customary Versus Freehold Tenure***

Does freehold increase tenure security and improve agricultural performance compared with customary tenure systems? Maybe, maybe not! Many analysts concur that customary tenure systems

are at least if not more secure, and are as productive and environmentally sustainable as freehold agriculture (Angelson and Fjedstad 1995; Atwood 1990; Birgegard 1993; de Wet and Leibbrandt 1989; McAllister 1992; Tapson 1988). Unfortunately, writers rely on dated (from the 1960s through the 1980s). Boonzaier et al (1990) lament the lack of recent, rigorous research on this topic.

Thirtle *et al* (1993) show for Zimbabwe, that over the period 1970-90, agricultural output and total factor productivity (TFP) indices for commercial farms more than doubled, while the input index increased in the early years then fell. However, output for communal farms grew even more rapidly than for commercial farms, as did inputs, TFP, and land and labor productivity. Land purchases in communal areas may have fostered this growth, as well as population growth and increased availability of modern inputs and technology. It is worth noting that two-thirds of the high-potential land is farmed by the commercial sector while 75% of communal farms are concentrated in the low-potential regions, where droughts are frequent and severe (p. 477-9). One might then conclude that communal farms achieve higher productivity on lower quality land.

Aihoon and Kirsten (1994) cite other previous studies which have shown that titling ensures more security, better productivity, and even better environmental management for crops and herds (p. 130). Feder and Noronha tend to agree with Aihoon and Kirsten, but they concede that there is a lack of evidence. Other authors seem more ambivalent about issue (Institute of Resource Assessment 1993; Keck et al 1994; May 1992). For example, Levin (1988) asserts that “there is not technical basis for an assumption that traditional land tenure in Swaziland automatically makes for low productivity and output.” But in the following paragraph Levin says that traditional tenures often do impede agricultural development (pp. 78-79).

Kille and Lyne (1993) compare property rights to land, land transfers, farm productivity, access to credit and on-farm investment among freehold and Trust<sup>6</sup> farmers in Madadeni district of KwaZulu Natal. Tenants on Trust Land are allocated one field and given exclusive rights, but subdivision, leasing out and sharecropping arrangements are forbidden. Land may be forfeited if it remains unused for a year or more, is not cultivated in ways prescribed by the agricultural officer, or if the user fails to pay his rent. The number of cattle owned by each household is restricted and small stock are not permitted (although according to Cross, 1991:79, these restrictions are seldom enforced.) For freehold land, despite having title needs, many properties were co-owned, mutually occupied or registered in the name of a deceased person. Land market activity was generally confined to rental transactions by individuals who had exclusive land use. Investment in on-farm improvements is higher where tenure is private and secure. Exclusive and secure property rights according to the authors facilitate the land market and increase agricultural productivity.

Baber, Moor and Nieuwoudt have summed both sides, stating that the mixed results of previous studies are inconclusive about land tenure security and productivity (Baber and Nieuwoudt 1992; Moor and Nieuwoudt 1996). According to Baber and Nieuwoudt, the commons pasture is overgrazed and overstocked. Agricultural production has stagnated and land use is underutilized due to a shortage of labor and credit. Allowing land transfers would allow “those households who had the incentive and ability to invest the requisite time and capital” to make the agricultural sector more efficient. Communal and trust tenures inhibit land transactions due to moral hazard and high transaction costs. Baber and Nieuwoudt assert that titling is the solution, but has sometimes resulted in improved productivity; and sometimes it has not. “The implication is that formal private tenure should not be centrally imposed on communities, but should follow a process of widespread consultation and empirical research at the community level” (p. 164). Also, Trust land should be

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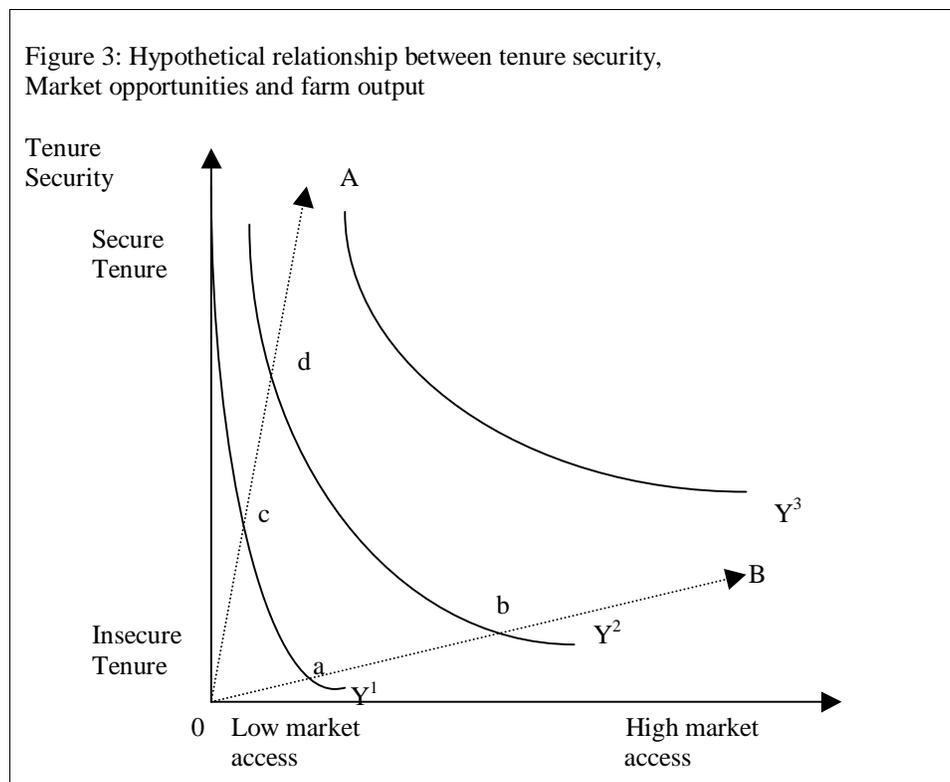
<sup>6</sup> Trust tenure is owned by the state and administered by the south African Development Trust (SADT).

privatized and policy should “revive, adapt and support traditional common property institutions” to prevent overgrazing (p. 165).

### *Tenure Security-Productivity Relationship*

Is tenure insecurity an important issue in Southern Africa? The answer is “yes” with respect to both property rights definition and distribution, but needs to be contextualized by the details of where, under what circumstances and for whom. Is tenure insecurity constraining agricultural performance in Southern Africa. Again the answer is yes, but depends on whether technological and market opportunities enable farmers to respond to increases in tenure security.

The conceptual model in figure 3 relates hypothetical agricultural production ( $Y$ ) to tenure security and market access (infrastructure, technology, inputs). Output on a given curve (e.g.,  $Y^1$ ) is constant. Any given point on a curve reflects a different combination of tenure security and market access. Output is increasing under both factors of production, so that  $Y^3 > Y^2 > Y^1$ . Two stereotypical development paths are indicated – one emphasizes increasing tenure security (e.g., by titling) over broadening market access (building roads, expanding input distribution systems, financial market deregulation) (Path A); the second emphasizes broadening market access over increasing land tenure security (Path B):



The model in Figure 3 is a very crude representation of the tradeoffs that policy planners face in deciding among two development priorities in sequencing public interventions. The intention here is not to engage in the titling debate per se, but rather to determine if meaningful insights might be drawn that can help interpret the findings of empirical studies in the previous section.

1. **Tenure insecurity.** The dual economy created by colonialism combined with government policy have reduced the breadth, duration, and assurance of property rights through a wide variety of interventions – forced removals, land give-a-ways, overlapping tenure systems, prohibitions on land ownership, and land use controls under threat of eviction. Tenure security is highly location specific, and might conveniently be assumed to fall somewhere in the range of “low to moderately insecure tenure” in figure 3.
2. **Tenure Security Regression.** Tenure security increases along the vertical axis from bottom to top. Land titling may or may not increase tenure security depending on prevailing land policy and administration. Benefits of titling increasing legal certainty of ownership can easily be offset by legal prohibitions on land markets and land use conditions that reduce the breadth and duration of rights. Tenure security associated with title has certainly decreased in Mozambique. The same conclusion might be drawn for trust lands in KwaZulu Natal.
3. **Output Response to Increases in Tenure Security.** Development path (A) may boost agricultural productivity initially (to points c and d) with minimal market access as additional land and labor are brought into production, or as better farm managers acquire land on a purchase or rental basis. However, initial output gains are slow in coming in the aggregate, and can accelerate (beyond point d) only with improvements in market access. Title may have little or no effect on productivity due to tenure security regression, constrained market access, or fully employed land and labor on the farm.
4. **Economic Dualism.** Few studies provide adequate clarification on the extent of market opportunities available to farmers when evaluating the tenure security-productivity relationship. It is reasonably safe to assume that market access for the majority of poor farmers in Southern Africa is confined to the left hand side of figure 3 (excluding certain areas of Southern Africa and Zimbabwe). Under extensive crop and livestock systems, improvements in farmers’ (in particular women’s) access to inputs and markets can boost agricultural output (from 0 to a to b) even when tenure security is low. Even under the worse forms of tenure insecurity, crop farmers are generally allowed to harvest crops before being evicted. Livestock farmers are able to relocate livestock.
5. **Diminishing Returns to Market Access.** While increases in market access can show dramatic increases in food production in the short to intermediate run, these gains are typically achieved under low capital intensity. For output to be increased from  $Y^2$  to  $Y^3$ , tenure security becomes a binding constraint. At some point beyond (b), farmers will demand high tenure security before undertaking fixed land improvements or investing in capital intensive technology. Credit supply by informal lenders becomes limiting, while formal lenders will require clear and transferable title before lending. It is doubtful whether the transition to high value crops and a high capital/labor ratio can be achieved without land tenure that confers right of sale, mortgage, and low cost transaction in the eyes of creditors.

### **Conclusions**

New land policies in Mozambique, Zimbabwe and South Africa are providing a fertile testing ground for efforts to redress racial, gender and economic discrimination in tenure security and land ownership. The appropriate policy to increase tenure security remains uncertain and on some points hotly debated. However, an impressive array of policy experiments are underway that include legal reforms to eliminate discrimination; creating or extending individual freehold and leasehold, group title, and land restitution; and upgrading customary land rights through community trusts and common property associations. Land reform and settlement programs throughout the region will

continue to push for a more equitable land and property rights distribution. Overall, governments are still tending to seek state-administered solutions over private market solutions, as the latter in many camps remain distrusted. Accelerated commercialization of smallholder agricultural will require careful attention to both issues of land tenure institutions and market access. The appropriate sequencing and balance of these reforms, and their costs and benefits, are significant policy issues. Unfortunately, too many studies reflect an adequate appreciation of the nexus between tenure security, market access and agricultural growth to adequately advise policymakers on the appropriate path forward.

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