PROPERTY RIGHTS AS A CAUSE OF THE
TRAGEDY OF THE COMMONS:

INSTITUTIONAL CHANGE AND THE PASTORAL
MAAASI OF KENYA

Robert A. Blewett
St. Lawrence University

INTRODUCTION

More than forty years have passed since the publication of H. Scott Gordon's seminal work on common property resources [Gordon, 1954]. Gordon explained the simple economics of the "tragedy of the commons," a term popularized by Hardin [1968] and offered the institution of private property as one possible solution. Unspecified property rights now are considered by most as prima facie evidence of market failure. Many cases of a common property resource (CPR) that operate reasonably well with neither private property rights nor state intervention, however, have been documented. Often these cases are historical or from less developed countries where informal community institutions effectively manage a local commons [Bromley, 1992; Ostrom, 1990; Denen, 1976; Ostrom, 1992a; Ostrom and Gardner, 1993; Tung, 1992; Umbeek, 1977]. Economists should now realize that commons problems are necessarily associated with only CPRs with no restrictions in access. Not all CPRs are open access: some CPRs are managed by other institutions, like the case presented in this article. While economists have often analyzed how property rights can eliminate the overuse of the common property, much recent research concerns the conditions under which the commons problem can be overcome without resorting to property rights or the state [Barthman, 1990; Bromley, 1992; Ellickson, 1991; Larson and Bromley, 1990; Ostrom, 1992; Quiggin, 1995; Rungu, 1992; Seabright, 1993].

This article offers a case, the pastoral commons of the Maaasi in Kenya, where common ownership proved superior to private property. The creation of property rights by colonial and even post-colonial governments diminished the long-run viability of the commons by disrupting the complex institutional structure of the Maaasi. With pastoralism, the tragedy of the commons is often thought to be the result of overgrazing; too many cattle devouring too much grass so that the commons is not sustainable. The Maaasi case differs from the usual pastoral example: the land was used for both grazing and farming. The individual decisions by farmers to substitute the grass areas with farming is analogous to herders deciding to allow more cattle to graze the grass. In both instances, individuals have little incentive to take into account the benefits of the grass for others.

This counterevidence result that property rights can cause a commons problem may seem critical of property-rights literature. On the contrary, this case is a non-
Western application of the literature. Long ago Coase [1967] showed that the transactions costs of cooperation may be reduced by avoiding the need for using alternative institutions, in his case firms. Although unlike a hierarchical firm in structure, Masai social organization like a Coasian firm did provide an alternative institution that efficiently solved complex problems of economic coordination and cooperation. Also like the Coasian firm, the Masai commons avoided the prohibitively high transactions costs associated with a system of private contractual arrangements.

In the next section, I outline the pre-colonial institutional structure of the Masai for “making the commons work,” to borrow from the title of Bremley [1992]. While offering evidence for the contention that transactions costs may be lower with cooperative behavior than with explicit property rights [Seabright, 1995, 124-25], I take exception to the idea that cooperative behavior is only appropriate for resources with low economic value [Cordell and McKeen, 1992; Ruge, 1992] or when more egalitarian distributional outcomes are desired [Bardhan, 1993b; Oksenberg, 1992]. I also examine how rent seeking and a clash of ideologies with the Masai led British colonial farmers to weaken the commons. Finally, I outline how later policies led to a further decline of the pastoral economy by encouraging the creation of individual land holdings. The diminished long-run viability of the commons caused by these policies served only to confirm Western ideology that private property rights were necessary.

PRE-COLONIAL INSTITUTIONS OF THE MAASAI: MAKING THE COMMONS WORK

The Masai are probably the most “picturesque” of all African peoples. I doubt if there is a coffee-table book concerning Africa without prominent pictures portraying the romantic figure of a Masai warrior or of a colorfully and extensively beaded Masai maiden. Much as Frederick Remington’s lithographs capture our romantic and nostalgic visions of the “Old West,” the Masai seem to exemplify an image of a “Vanishing Africa” lost due to colonialism and modernization. This may explain why the Masai have been studied so extensively. Romanticism and economics, however, do not seem to mix very well, at least not the economics of refereed journal articles. This section attempts to undertake a decidedly unromantic view of the Masai and some of their institutions. Their economy and social framework are examined to provide some explanation of why and how they were able not only to avoid the tragedy of the commons but to make the commons work.

The Masai are a semi-nomadic group of subsistence pastoralists located in the Rift Valley of Kenya and Tanzania. While various pastoral peoples have populated this and other areas of East Africa, the Masai dominated the plains of the central Rift Valley by the beginning of the nineteenth century and reached the height of their power in the late 1870s. Their military dominance was achieved without the development of a central state in the modern sense. Instead, the social structure was composed of loose sets of related individuals and groups. The most significant economic units of Masai society were households, camps, neighborhoods, and sections. The family or household was the group that owned and managed individual herds. Some households congregated into camps and coordinated the herding of the cattle and the sharing of labor. Neighborhoods consisted of several camps in one area, had a council of elders, cooperated in both allocating grazing lands and access to watering points, and provided local defense. Sections were collections of neighborhoods that controlled the territory containing resources these groups customarily used.

The complexity of the pastoral economy of the Masai extended well beyond the simple maximization of sustainable yield of cattle on a certain tract of land. One important reason for this complexity was the variable and uncertain rainfall in semi-arid climates. Not only must access to the commons be controlled, but the inherent risks of uncertain rainfall and drought must also be managed to ensure the long-run viability of the commons. Insurance against environmental uncertainties was a very important benefit of common property regimes in pastoral situations.5

Water — not land with sufficient supplies of grasses — was the binding constraint in East African pastoralism. Massailand had generally two dry seasons and two wet seasons annually. Maximum use of the entire commons could be achieved by moving cattle during the dry seasons to the well-watered, dry-season pastures and then back to the far more abundant wet-season pastures when water was available in all ranges. Without these dry-season areas, other range land was essentially worthless. To prevent the tragedy of the commons, access to only certain parts of the commons needed to be controlled. The success of the Masai lay in their ability to control and exclude rival groups from the well-watered, dry-season grazing lands, and watering points and salt licks [Sutton, 1953, 41].

A System of Cooperation: Land Use and Herds

Routine seasonal cattle movements generally were within the territory of sections; collectively pastoralists were able to solve complex coordination problems with these sections. For example, coordinating access to watering points might involve scheduling thousands of animals managed by hundreds of people. Yet among pastoralists, reaching a cooperative solution to such daunting problems was not uncommon [Livingstone, 1986, 10]. Relationships promoting cooperation among herders was a form of insurance in case of low rainfall or drought. They allowed individual herdsmen to dispense their cattle to alternative pastures and watering points in other sections during times of drought [Spearr, 1990, 1].

Keeping large cattle herds was another way to provide insurance against the potentially devastating effects of drought or disease. Not only were at least some cattle within a larger herd more likely to survive a severe drought, but wealthy Masai with many cattle also provided benefits to others with more limited herds. The larger holdings provided a potential source of cattle to replenish depleted stocks, as well as an option for future employment for herdsmen whose own livestock had been destroyed by drought or disease. The importance of this was not lost upon the pastoralists themselves. For example, owners of the more limited herds were reportedly quite hostile to the promotion by government officials of ceilings on individual cattle holdings among Kenya’s pastoral Pastors despite a realization by the owners of possible overgrazing. The ceilings had been suggested because it appeared that the owners of
large herds were obtaining more than proportionate shares of the pasture available [Livingstone, 1986, 9].

Maasai Ideology

The ability of the Maasai to engender extensive cooperation was based on the Maasai concepts of omutu (bond friendship) and eomaaska (thanks). While marriage and other family or clan relationships obligated people to one another, omutu implied that "...preferenceal exchanges between two partners created a kind of kinship transcending social boundaries" [Wallner, 1993a, 228]. Thus trade could be a method of building social networks. In times of need, a Maasai could go to others with whom he had existing ties of marriage, clan, or omutu. These times of eomaaska (thanks) added another layer of obligation among groups and essentially involved the accumulation of implicit debts that may be called in later [ibid., 230].

Maasai ideology which embraced a Maasai ideal of selflessness and generosity helped maintain these implicit obligations and the Maasai women enforced the ideal. To adhere to the ideal, elders tried to portray themselves in public as being extremely generous and therefore worthy of respect. They made concerted efforts to distance themselves from anything that would indicate an interest in personal gain at the expense of others [Spencer, 1963, 152]. Men who fell short of the Maasai ideal by ignoring their obligations might find themselves publicly humiliated by their mocking wives. "While they submit ultimately to the power of the elders within the family and in the community, it is the women who make very public the selfishness and duplicity of the elders in the loud gossip of their songs and dances..." [ibid., 154]. Of course women in such a male-dominated society had very real incentives to expose the failures of men in meeting their obligations; the material welfare of women depended upon the men fulfilling their responsibilities to their wives and daughters. The possible public humiliation of one's own husband thus conferred both public and private benefits. To the proud Maasai male, it was a very effective sanction.

A Vagueness of Ethnicity and Territory

Relations with other ethnic groups provided another form of insurance for the Maasai. Pure pastoralism could not survive in the long run without access to vegetables and grains to supplement the diet when dairy production fell short of the group's need. In times of severe hardship, Maasai could seek refuge with agricultural groups, such as the Kikuyu, situated on the borders of their territories. The concepts of omutu and eomaaska also applied to people of other ethnic groups. Actually, a great deal of mutually beneficial social and economic interaction occurred across the "frontiers" of Masaalland [Wallner, 1993a, 228]. Without this interaction, the pastoral commons lacked long-run sustainability.

The frontiers of Maasai territories were relatively flexible, if not ambiguous, in pre-colonial times. Grazing lands between sections overlapped. Territories also expanded and contracted depending upon the number of cattle. Given the relatively constant cattle labor ratio, as cattle numbers rose, more labor was needed. This was obtained by sharing herds with others, hiring other Maasai or Kikuyu, or adopting outsiders and assimilating them into Maasai society and culture. Increased cattle numbers could also necessitate expansion at the expense of other pastoralists. If cattle numbers fell, then some Maasai might have to take refuge with farmers either as workers, slave, or adoptees. While the expansion of Kikuyu and Maasai territories should be seen as primarily complementary, land use could change at the margin (as did the flow of people into and out of Maasai society) as the relative fortunes of the Maasai and Kikuyu changed.

Uncertain property rights and callitements are usually associated with inefficient resource allocation. In the Maasai context, however, the seemingly ambiguous usufruct rights to land, as well as membership in the group, appears to have generated a flexibility that enhanced the long-run dynamic efficiency of resource use. The "vagueness" of both territory and ethnicity were additional ways of coping with the uncertainties of the pastoral economy.

Cooperative Behavior and Economic Surplus

Runge [1992, 20] maintains that commons property regimes are associated with low surplus resources or low economic rents. Bardhan [1993b] and Oskarsson [1992] maintain that these regimes appear when egalitarian outcomes are desired. The Maasai were certainly an exception to both. Maasai hegemony in the Rift Valley was largely the result of their superior military organization [ Sutton, 1993, 42] and the Maasai's ability to support this military structure attests to the efficiency of Maasai economic organization. Maasai society was organized into age sets. Males roughly between the ages of 16 and 30 were warriors, or murran; after about 30 they became elders. As murran, they were not allowed to marry, nor did they have any other responsibilities except to provide for defense and other military needs. Only the efficient use of a highly productive commons could generate the substantial economic surplus needed to maintain such a large, "unproductive" proportion of the population (Galaty, 1983, 84-85).

Likewise, the fact that some herdsmen kept more cattle than others and that this unequal distribution of herd size was seen as beneficial to the group as a whole, is proof which contradicts the contention that cooperative behavior is appropriate only that when egalitarian outcomes are desired.

Lower Transactions Costs with Cooperative Behavior

Seabright [1996, 124-25] has noted that introducing private property rights can reduce efficiency. He argues that private contractual arrangements cannot always provide effective incentives for all economic activities necessary for a well-functioning commons. Like a Cossian firm, Maasai institutions efficiently reduced the transactions costs of cooperation. It would appear that the complexity of pastoral coordination and risk management problems in East Africa provides a case study in which the high transactions costs of a system of private contractual arrangements would be prohibitive. In a sense, the Maasai pastoral commons with seemingly vaguely speci-
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mon implication of these contradictory views was that Western control was necessary for economic efficiency, if not for the good of the Maasai themselves.

This ideology, coupled with Maasai military impotence, led to the British imposition on the Maasai of the Treaties of 1904 and 1912. Well-watered, dry-season grazing areas were appropriated for European farmers, and the Maasai were forced to relocate during "the Mover" to the designated Masai Reserve further south in what is today the Kajiado and Narok Districts of Kenya. Later, the colonial government also tried to encourage the sales of "superfluous" livestock and the development of agriculture by the "new Maasai" [Campbell, 1993, 260; Waller, 1999a, 245-44].

A clash of cultures and ideologies was evident during the negotiation of the treaties and the Movers. Waller [1993b] outlines how Western and Maasai concepts of "land" differed and how this led to many problems and heated arguments. The British assumed that property rights were essential to economically efficient land use. They also observed the wanderings of the Maasai and their lack of permanent settlements and concluded that the Maasai had no "sense of place." They concluded that pastoralists could be moved anywhere that had range land. The Movers were then viewed as beneficial to both sides since the white settlers would obtain productive land currently tied up in uneconomical uses, while the Maasai would secure their own land with the creation of guaranteed property rights.

**Maasai Ideology and Maasai Views of the British**

The Maasai, however, did not see the benefits of this manifestation of "Pax Britannia." Their objections to the Movers were considered by the British to be vague. They were certainly incomprehensible to the British. Maasai elders admitted there was nothing particularly wrong about some proposed parcel or expanse of land, but rejected the land because they did not "know" it and therefore it could not be "theirs." Colonial authorities dismissed such objections as "grousing" or as being merely obstructionist [ibid., 6].

The Maasai viewed land as a set of social relationships. Possession of the land was defined by being used and using the land required a complex series of social institutions. It was inconceivable that land could be property, like cattle or wives. Just as people in the West (other than economists, that is) have trouble in thinking of the air we breathe as being property, land to the Maasai was something everyone used, but could not be owned. Therefore, when the British, who did not understand the institutional structure of the pastoral economy, offered land without these social institutions in place, the Maasai rejected it. In a Western context this would be tantamount to a developer making an offer to a land owner to swap one parcel of land for another. How could the owner object if the new parcel was of equal or better acreage, slope, or soil quality? The owner might object if the parcel currently occupied had utility connections, an access road, and other improvements and infrastructure while the proffered one did not. The Maasai realized that the new land did not include the social infrastructure and improvements necessary for pastoralism; the British were oblivious to this. To the Maasai, land had to be made [ibid.], or at least be developed in a social sense. Legal institutions like property rights that allow ownership and

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**Encounters with Colonialism and Institutional Change**

The reputation of the Maasai as a fierce tribe of warriors kept nineteenth-century European travelers and adventurers from exploring their land. However, during the 1890s a series of droughts had taken an accumulated toll on livestock while rinderpest and bovine pleuro-pneumonia further devastated herds. The resultant economic hardship accompanied by the spread of smallpox and cholera, and further compounded by intertribal warfare, led to the relative depopulation of Masailand. By the late 1890s, British and German troops in East Africa had little difficulty in pacifying the once-feared Maasai.

Douglas North maintains that enhancement of efficiency by institutional change is usually accidental [Baumganger, 1993, 28]. If this is so, then Lady Luck did not smile upon the Maasai when it came to British colonial policy. The early encounters between British authorities and the Maasai are tales of colonial land grabs and rent seeking, of clashes of cultures and ideologies, and of almost comic endeavors to induce this part of the world to conform to Western concepts of modernity. The institutional changes wrought by colonialism weakened the ability of the Maasai to make the commons work, even though many of these changes might seem reasonable to modern economists. This section outlines the origin and some consequences of British colonial encounters.

**British Ideology and British Views of the Maasai**

Early reports from European travelers viewed a land that was almost empty and certainly underutilized by the "primitive" Maasai [Waller, 1993b, 5]. Later, in more prosperous times, the colonialsists believed desires of pastoralists to demonstrate wealth through larger cattle herds to be irrational, backward, and led to overgrazing and soil erosion [Campbell, 1993, 260]. Others viewed the Maasai more favorably but believed pastoralism to be an anachronism, unable to be incorporated into the modern world with its cash economy. They believed the economic development of the Maasai was possible only if the Maasai would adapt to modern concepts and move up the ladder of social evolution by becoming agriculturists [Waller, 1993a, 230]. The common
exclusion were not what enabled the productive use of land. Rather, the social institutions that controlled access and provided insurance made the land useful and, therefore gave it economic value.

The Failure of British Ideology

Not only did colonial ideology fail to realize the importance of Masai social structure, it also failed to match economic reality. Economic returns to sustainable pastoralism appear to have been substantially greater than those of alternative investments [Livingstone, 1996, 7-8]. The Masai recognized, as did entrepreneurs in the West, the danger of being insufficiently capitalized; large cattle herds were needed as a hedge against droughts. Further, while the best dry-season range might have been more productive agriculturally when considered in isolation, the commons as an entity, which combined both dry- and wet-season pastures, was typically more productive in cattle production. The dry-season pastures, however, were essential to the sustainability of the commons. Additionally, what appeared to be overgrazing was not necessarily permanently damaging and may have reflected the temporary, increased intensity of use in the first stages of a drought as herd size rapidly declined [Livingstone, 1991; McCabe, 1987]. British colonial policy contributed to that overgrazing. Evidence presented in the early 1930s reported that the alienation of the best dry-season grazing land, crucial during drought, led to even more intensive use of the land that was left to the Masai [Waller, 1993a, 243].

British and Masai ideology also conflicted with regard to agriculture. The Masai viewed themselves as "people of cattle," not farmers. Farmers were poor people. (Dorobo, the Masai term for the poor, literally means "without cattle"). Those unable to succeed as herders were farmers. Farming was for failed herders who had dropped out of Masai society proper and were therefore not considered Masai anymore. Within this ideology, "Masai farmers" is an oxymoron. For the Masai, British progress which emphasized agriculture signified poverty [ibid, 246].

British ideology rationalized British rent-seeking behavior, which weakened Masai social structures. The colonial government and white settlers did not receive benefits from subsistence pastoralism. The British had to make the Masai land serve the British interests too. They did so by appropriating Masai land to whites and moving the Masai to designated reserves. The British also marginalized the Masai, thus improving British economic position by encouraging the sale of "excess" cattle. Many historians believe that colonial policies had as their objective the deliberate economic marginalization of the Masai because subsistence dairy ranching benefited only the Masai. There is evidence that the Masai would have sold cattle if the price was competitive, but colonial policy resulted in a higher price of grain relative to cattle. Rather than encouraging the sale of cattle, British policy encouraged the growth of herds by raising the relative opportunity cost of a source of Masai sustenance other than milk [Campbell, 1993, 58-61]. That is, grain became more expensive relative to milk. Mercantilist colonial policies to reduce subsistence herding and encourage agriculture may have been intended to induce Masai incorpora-

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The British creation and enforcement of Masai land rights led to the hardening of ethnic boundaries which in turn contributed to the atrophying of social institutions essential to making pastoral commons work. The Masai Reserve was created as a "closed" reserve, meaning it was exclusively for members of the Masai. This restricted access was believed by the British to be an essential element to the success of communally-held grazing land. With the loss of Kikuyu agricultural lands to white settlers, however, Kikuyu farmers entered the Masai Reserve and used some of the best dry-season range. Without such range, the pastoral commons were at risk. By the late 1920s Kikuyu encroachment was recognized as a problem by the colonial authorities. The solution preferred by the British was to evict the Kikuyu and other squatters, thereby preserving the Masai Reserve, exclusively for the Masai.

The question of who belonged in Masailand, at least to the British, was the same as who was Masai. Who were the Masai and who belonged in Masailand, for the Masai, however, were two separate questions; neither was answerable within the inflexible, categorical manner preferred by colonial bureaucrats and their administrative courts. As noted above, ethnicity was negotiable and ambiguous in pre-colonial times as was the "border" between groups. Before colonization, Kikuyu farming enclaves were in Masai terrritories, a necessary part of the pastoral economy's safety net. As a Masai elder once said, "There was no Masai camp without its Kikuyu" [Waller, 1993a, 241]. Some Kikuyu farmers even participated in the moves to the Masai Reserve. Not until the legal property rights were imposed and enforced by the British was ethnicity and tribal affiliation an issue.

Masai and Kikuyu Rent Seeking as a Response

This exercise in maintaining ethnic purity soon became another case where European authorities, believing Africans belonged to distinct tribes, pursued Africans to create well-defined tribes [ibid, 237]. The British wanted to protect a Masailand that had never existed by separating groups into tribes that had never been separated by an impermeable wall of ethnic identity. Africans soon realized the benefits of redefining themselves to fit into the ethnic taxonomy believed to exist by their colonial rulers. Thus by encouraging such efforts, Pux Britannia allowed the Kikuyu and Masai to discover and participate in rent seeking.

Kikuyu could belong to the Masai by marriage, by claiming to be adopted, or by otherwise finding a "Masai sponsor." Masai themselves would not object to individual Kikuyu with some relationship to the Masai as long as they were useful. While Masai objected in general to Kikuyu squatters taking advantage of ostia and enosha by overstaying their welcome, the Kikuyu presence seemed to be more bothersome to the British. To the British, the backward and gullelble Masais
tolerance was causing their own victimization by the more cunning Kikuyu. After all, the Crown had promised to “protect them” the Masasi could lose their land. By 1912, the Masasi had already lost half of their range to Europeans and were sensitive to further land alienation. If the Masasi wanted the Kikuyu to stay, the British suggested they lease or sell their land outright to the Kikuyu. Of course, the Masasi viewed either option as a further loss of land. In fact, a lease or sale would involve the abrogation of the Treaties of 1904 and 1912. And the treaties did offer some protection against additional colonial land grabs [ibid., 233].

The Masasi sought to satisfy the authorities by becoming more Masasi. If they were to maintain their autonomy and secure their rights, they had to appear to be what the authorities expected, and at least in an ideological sense, separate themselves from the Kikuyu. In public, they collectively opposed the alien presence, but as individuals they continued their patronage of Kikuyu. This infuriated British administrators. In responding to Masasi demands to remove aliens, officials found that, as one Kajjado district commissioner put it, “Whenever you try to remove any individual...there is a storm of protest.” All too often it seems a Masasi would cry, “That’s my Kikuyu!” [ibid., 241].

The British colonial government did not improve the working of the pastoral commons. One is reminded of Hayek’s discussion of institutional evolution, where social order is the product “...of many men but not the result of human design” [1972, 37]. The British failed to see a social order different from their own. Complex social institutions that arose within Masasi pastoral economy were replaced with relatively simple legal institutions based on British ideas of the way things were supposed to work. The imposition of property rights did not allow for the complex social arrangements between the Masasi and Kikuyu. The Kikuyu no longer felt obligated to respect Masasi conventions and their relationship atrophied.

**POSTWAR AND POST-COLONIAL PRIVATIZATION AND LOSS OF THE COMMONS**

Postwar colonial policies toward the Masasi continued to encourage cultivation and to emphasize stock sales to avoid overgrazing. The fact that “overgrazing” occurred only in times of drought did not change the minds of those who maintained those policies. Officials continued to believe common ownership of land was the main cause of environmental degradation. Policies were enacted to solve the problem, and in 1953, the first individual ranch was created out of the Masasi commons. This ranch was placed under the strict supervision of the veterinary department and proved quite successful. Four other ranches were formed in the next few years. These ranches were created in areas with better rainfall and with land suitable for cultivation, removing from the commons dry-season pasture important for the Masasi. The individual owners of these ranches became relatively affluent [Campbell, 1993, 263].

The post-colonial government continued the same policy and ideological biases against pastoralism. The major emphasis was to provide legal title to the land [Mifalul,

1967, 631]. After independence, the Group (Land) Representatives Act allowed the formation of group ranches where members would have a form of common tenancy [Wanjala, 1990, 34]. The group ranches were originally intended to be comprised of traditional grazing areas with sufficient wet- and dry-season pasture. In practice, however, the group ranches were only sufficient in times of adequate rainfall. In times of drought, the ranches continued to rely on each other [Campbell, 1993, 264].

Group ranches were viewed favorably by most Masasi as a means of protecting their lands from non-Masasi farmers. Others hoped that group ranches would be able to use their land titles as collateral to borrow for such improvements as dikes and boreholes to improve productivity [ibid.]. Others maintained that group ownership was intended eventually to lead to individual ownership [Wanjala, 1990, 57]. By 1981, the government policy was set to encourage the subdivision of group ranches. By 1984 twenty-nine of fifty-one group ranches in Kajjado District had subdivided or voted to subdivide. Those that did not subdivide were located in the drier areas of the district [Campbell, 1993, 268].

Other internal pressures contributed to the breakup of the group ranches. Individuals wanted to obtain individual title to use as collateral for access to credit. Credit can be viewed as a type of insurance [Urmy, 1990]. Further, the commons of the group ranch was going to be divided among more and more people as the population grew since under customary law children of members have interest in the land [Wanjala, 1990, 54]. The incentive was to break up the commons before its average capital value was diluted even more.

**CONCLUSION**

The tragedy of the commons is often thought of as the result of overgrazing: too many cattle devouring too much grass so that the commons is not sustainable. For the pastoral commons, this was caused by the dry-season grass being devoured. The Masasi case is different from the usual pastoral example; farming devoured the grass instead of cattle. The individual decision of a farmer to devour the grass with more farming is analogous to a herdier deciding to devour the grass with more cattle. In both instances, the individual has little incentive to take into account the benefits of the grass to others.

The Masasi pastoral commons worked in pre-colonial times because of a complex institutional structure that controlled and coordinated access to resources as well as providing insurance against uncertain environmental circumstances. Rent seeking and a clash of ideologies with the Masasi led British colonial powers to weaken the management of the commons through the alienation of vital dry-season range and by imposing property rights that led to the atrophying of social institutions. The diminished long-run viability of the commons caused by colonialism only served to confirm Western ideology that private property rights were necessary. Ultimately, individual ranches were formed that took the better dry-season range necessary for the sustainability of the commons.

Privatization could not efficiently replace Masasi institutions given the complexity of pastoral coordination and environmental risk-management problems. The high
transaction costs of a system of similar, but explicit, private contractual arrangements among individuals would have been prohibitive. In a society, privatization created externalities by disrupting Maasai social organization and institutions. These indigenous institutions were social capital necessary for the efficient operation of the pastoral economy. The loss of productive, although intangible, social capital is just as inefficient as the loss of productive physical capital.

Indigenous Maasai institutions made the common work, but colonial and post-colonial regimes contributed to the loss of the best dry-season ranges. Some of the best pasture was lost before World War I to white appropriation. After the war, incursion by agriculturists took additional dry-season grazing land. The best remaining dry-season land has been, and is being, lost with the creation of individual property rights. In each instance, those who benefited had no incentive to take account of the collective returns.

The Coasian firm exists because it efficiently reduces the transactions costs of organizing cooperative behavior. The institutions of Maasai pastoralism were likewise efficiently able to reduce transactions costs of managing the commons. These institutions, with typically specified group rights, had the same virtues as a Coasian firm. The problem was that government policies essentially capped the size of the Maasai organization, diminishing the long-run sustainability of pastoralism. Private property encouraged and allowed the destruction of the pastoral commons. The commons was and is being destroyed not by individuals allowing too many cattle to consume the range, but by individuals consuming the dry-season range by converting it to other uses.

NOTES

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1. Hardin ([1968], 176) acknowledges that the tragedy of the commons occurs only with open-access CPRs and that the title of the 1968 article should have been "The Tragedy of the Unregulated Commons.

2. The Maasai structure successfully controlled access to the commons and also provided insurance against environmental uncertainties. These institutions and other aspects of Maasai social organization discussed in this article still exist today.

3. The latest historical and archaeological evidence indicates that East African pastoralists were never completely sedentary herders. Also, the definition of "Maasai" and what it means to be Maasai are highly problematic. Sparr and Walker, 1996. These issues are discussed in the text below.


5. With wolves, the losers could be assimilated into Maasai society or take refuge with other groups.

6. For more detail see Waller (1998).

REFERENCES


SUPPLIER-INDUCED DEMAND AND QUALITY COMPETITION: AN EMPIRICAL INVESTIGATION

W. David Bradford
University of New Hampshire

and

Robert E. Martin
The University of Texas at Arlington

INTRODUCTION

Significant information asymmetry may provide suppliers the opportunity to induce demand. 1 Accident victims may be induced to purchase the services of lawyers and chiropractors, or automobile mechanics may make unnecessary repairs. The more complicated the product or service, the greater is the potential for such nefarious behavior.

Such supplier-induced demand (SID) is a particularly contentious issue in medical economics. 2 As in the legal profession or the service trades, the existence of SID is not the issue. Clearly, some physicians induce demand, just as some automobile mechanics make unnecessary repairs. The important question for public policy is whether the representative physician engages in SID. In other words, how significant is SID empirically? If public policy is based, falsely, on the presumption that the representative physician induces demand, it can reduce social welfare significantly.

The evidence cited most often to support the induced-demand hypothesis is a positive correlation between physician density per capita and fees, 3 or some measure of utilization [Evans, 1974; Fuchs, 1978; Cromwell and Mitchell, 1980]. But physicians may also respond to increased competition by differentiating service quality. If patients value quality, their willingness to pay for the service rises, giving the appearance of demand induction [Green, 1978; Feldman and Sloan, 1988]. To date, no studies have formally tested this quality competition hypothesis.

In this paper we provide such an empirical test. This empirical test has the potential to reject the quality hypothesis and, in so doing, provide evidence that supports the existence of SID. Unfortunately, the evidence cannot refute the SID hypothesis, even when it is consistent with quality competition. The theoretical foundations of SID are poorly specified; therefore, little evidence is inconsistent with it [Reinhardt, 1985]. On the other hand, competing neo-classical hypotheses are refutable.