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INDIVIDUALIZED LAND TENURE AND AFRICAN AGRICULTURAL DEVELOPMENT: ALTERNATIVES FOR POLICY

by

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All views, interpretations, recommendations, and conclusions expressed in this paper are those of the author and not necessarily those of the supporting or cooperating organizations.

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This paper discusses the influence of land tenure institutions on agricultural development. The frame of reference is that of an agricultural system based on shifting cultivation or "bush fallow" and a land tenure system based on extended family or lineage control of usufruct of land. The agricultural and tenure systems of the Mende and Limba in Sierra Leone are used as illustrations. The basic argument is that land tenure rules define the opportunity to earn income and also define the security with which that opportunity is held. Customary tenure rules which emphasize security of opportunity have proved flexible in adjusting to the rapidly changing economic environment in modern Africa. Nevertheless, some argue that the tenure systems have not changed enough and tend to limit both investment in land improvements and availability of agricultural credit. "Individualization" of land tenure has been proposed as a means of overcoming the constraints on investment posed by the customary tenure system. Before embarking on any such scheme, it is necessary to consider the costs as well as the benefits of "individualized" tenure, and to examine the costs and benefits of alternative means of overcoming development constraints inherent in customary tenure systems. These points are discussed in detail.

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INDIVIDUALIZED LAND TENURE AND AFRICAN AGRICULTURAL DEVELOPMENT: ALTERNATIVES FOR POLICY

by

Richard L. Barrows*

The seeming inability of traditional African land tenure systems to adjust rapidly to the changing needs of economic development has prompted much discussion among development planners and policy-makers alike. The purpose of this paper is to discuss the influence of land tenure institutions on agricultural development. The frame of reference is that of an agricultural system based on shifting cultivation or "bush fallow" and a land tenure system based on extended family or lineage control of usufruct of land. The agricultural and tenure systems of the Mende and Limba in Sierra Leone will be used as illustrations in the discussion. The basic argument in this paper is that land tenure rules define the opportunity to earn income in agriculture and also define the security with which that opportunity is held. Customary tenure rules which emphasize security of opportunity have proved flexible in adjusting to the rapidly changing economic environment in modern Africa. Nevertheless, some argue that the tenure systems have not changed enough and tend to limit both investment in land improvements and availability of agricultural credit. "Individualization" of land tenure has been proposed as a means of overcoming the constraints on investment posed by the customary tenure system.[1]

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[1]"Individualization" of land tenure will be defined to mean the registration of land and the granting of individual titles. An individual would control the land in fee-simple ownership, and would gain the right to sell land to any prospective buyer.

Before embarking on any such scheme, it is necessary to consider the costs as well as the benefits of "individualized" tenure, and to examine the costs and benefits of alternative means of overcoming development constraints inherent in customary tenure systems. These points will be discussed in detail in the following section.

Functions of a Land Tenure System

A system of land tenure rules defines both the opportunity to earn income from agriculture and the security of that opportunity. The tenure rules define the rights and duties of people to each other, with respect to land (Parsons, 1971, p. 16). Tenure rules delineate rights and obligations concerning land acquisition and use, and the security of the individual's opportunity to earn a living from agriculture. These functions of a land tenure system will be discussed in the context of the Mende and Limba societies of Sierra Leone.

Access to Land. Among the Mende and Limba, usufruct is characteristic of the tenure system.[2] Clans, lineages, or other descent groups have rights to the use of certain areas of land, based on inheritance and passed down from the individual who first cleared the land. A descent-group member is allotted land to use on the basis of his family membership and his position

[2]This description of traditional tenure systems is necessarily brief and is meant only to capture the "flavor" of customary tenure rules. For a more complete, and more accurate description, see Barrows (1970), Little (1967), and Finnegan (1965).

or status within the family.[3] Although land allotments are usually made by the oldest male in the group, no individual has the right to sell any portion of family land. Access to land, and thus the opportunity to earn at least a subsistence income in agriculture, is open to every member of the family. However, because land cannot be alienated from the descent group the ability of the individual to use or dispose of the land resource in the most profitable way is limited.

Security. The tenure system also defines the security of economic opportunity in agriculture by defining the security of access to land. In general, the Mende and Limba tenure systems provide for a high degree of security of access to land. Customary tenure rules guarantee the individual the right to use some part of his descent group's land, although the individual is not guaranteed the right to use any specific plot of land. In general, an older member of the descent group may displace a younger member from a particular piece of land. The individual is certain of having an opportunity to earn income in agriculture even if he has been absent from the village for many years. Parsons writes:

> Since these birth-right claims...signify that a person has the privilege of returning to his 'village' at any time and claiming the right to use his share of the family lands, such claims are a major means of providing security. In effect, these birth-right interests assure to an individual the reservation right to a survival opportunity... (Parsons, 1971, p. 14).

Although the tenure system provides economic security, it does so by limiting economic opportunity. Inability to alienate land increases security but

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[3]"Strangers" in a village, i.e., those who are not members of one of the local descent groups, may obtain the use of land through "begging" a chief or other descent group member. Over time, a "stranger" may gradually obtain usufructuary rights to land by his continued residence in the village. "Strangers" also may obtain usufructuary rights through marriage into one of the local descent groups.

limits the opportunity of the ambitious or successful farmer to purchase land and expand the size of his operations.[4] The traditional tenure system had no provisions to deal with permanent investments on the land, since the traditional farming system did not include investments in land improvements. In addition, there was no provision for collateral for credit since the concepts of "loan" and investments on the land did not exist. The customary tenure system was well-suited to an economy based on slash and burn agriculture where land was plentiful and the social system was organized around the descent group. Changes in this economic and political environment will lead to changes in the tenure system.

Changes in Traditional Tenure Systems

Rapid economic change in Africa has brought about changes in land tenure systems. In Tende and Limba society the introduction of cash crops and the increased potential for export led to changes in the tenure systems to deal with continuous cultivation of a plot of land for many years. Other changes were brought about by increases in population density, urbanization, and demand for food together with decreases in the bush fallow period and the amount of unsettled land. These changes increased the use-value of agricultural land and resulted in more frequent pledging or leasing of land.[5]

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[4]Although the inalienability of land places some limits on the opportunities of an ambitious or successful farmer, the clever farmer might still increase his land use by taking additional wives or taking relatives into his household.

[5]Pledging is the practice whereby a farmer may give usufruct of his land to someone outside the family, in return for cash which is often used to pay debts. The farmer (pledger) may redeem his land at any time by paying the exact amount of the pledge to the man holding usufruct rights. The land pledged is redeemable at any time and the pledgee has no usufruct rights after his money has been returned.

Thus, the Mende and Limba tenure systems changed to allow for investment in land and to facilitate transfer of land-use rights between individuals.

Investment in Land. Changes regarding tree crops are an example of how tenure systems adjusted to allow more or less permanent investments on the land. The introduction of tree crops meant that an individual had to control a specific plot of land for many years. This was facilitated by a tenure system which distinguished between ownership of land and ownership of trees. The individual was viewed as owning the cocoa or coffee trees even though he had no permanent right to the land on which the trees were planted. The rapid growth of cocoa and coffee cultivation (Table 1) in Sierra Leone attests to the flexibility of the land tenure system in allowing for cash cropping.

Table 1

Growth of Coffee and Cocoa Cultivation in Sierra Leone
(Tons Exported)

Year	Coffee	Cocoa
1920	--	17
1930	30	80
1940	65	663
1950	300	1620
1960	3894	3250

Sources: (Murfitt, 1967, p. 1, Saylor, 1967, p. 38)

Transfer of Land. With increases in population density, urbanization, and market participation land has become increasingly scarce and has begun to assume a cash value in some areas. In this context, pledging has taken on a new importance in the land tenure system. It is important to note that in Mende and Limba country, pledging occurs with greater frequency in areas

where the available or highly productive land is scarce (Finnegan, 1965, p. 88). It has been noted that pledging is widespread only in areas in which individual rights in land have begun to take precedence over group rights on land. In the absence of a land market, pledging is one means of transferring land to individuals who are able to use the land in a more productive manner.

Examples of Tenure Changes. In specific areas of Sierra Leone, the land tenure system has changed to allow for investment in land, and to allow for transfer of land to more productive users. These changes are most noticeable in areas where land has a particularly high development potential. In the area along the Little Scarcies River, the mangrove swamps have been cleared and transformed into extremely valuable and productive rice fields. Land along the river is almost individually owned, with virtually every plot having been acquired through pledging (Njala Univ., 1967, p. 5). In some areas the second generation is farming the pledge-acquired lands (Barrows, 1970, p. 65).[6] In the Bonthe area where flood plain grasslands are mechanically plowed by the Rice Corporation, government-sponsored cooperative societies organize the plowing and have acquired the land-rights from the original holders. The cooperative society allocates land to farmers each year and settles any land disputes which may arise between the farmers. When a farmer ceases to cultivate his alloted plot, the land reverts to the cooperative (Jedrej, 1967, p. 8). In some areas, the original ownership has more or less lapsed (Finnegan, 1965, p. 88). Cooperative societies have

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[6]In theory, the pledge may be redeemed at any time and hence the individual cultivator does not have absolute security of tenure.

also taken charge of land distribution in some of the mechanically cultivated bolilands near Makeni. The cooperative arranges with the various "owners" of the plowing site for land rights and then assigns areas of land to specific farmers. In both cases, the cooperative society has assumed many of the functions of the descent-group head--allocating land, adjudicating disputes, and controlling the use of the land.

Summary. In general, the traditional land tenure systems have proven to be flexible and have changed to accommodate changes in the economic environment. The Mende and Limba tenure systems adapted to the production of cash crops, and changed to facilitate an increase in individual rights on land through pledging. Finally, in particular areas of Sierra Leone the tenure systems proved flexible enough to accommodate group farming and mechanical cultivation.

Nevertheless, there are some who argue that these changes have not been enough to allow agricultural development to proceed unhindered (Savlor, 1967, pp. 44-58). Critics of traditional tenure systems argue that investment in land is discouraged and that the investment that does take place is biased toward short-run projects. In addition, it is argued that agricultural credit is severely constrained because the inalienability of land means that land cannot be used as collateral for loans. As a solution, critics often propose a system of "individualized" tenure. These arguments will be discussed in the next sections.

Development Bottlenecks

Bottlenecks in the development process could result from several types of inefficiencies induced by the customary land tenure system. The tenure system discourages investment in land improvement, results in a bias toward

short-run projects, and limits agricultural credit. These various sources of inefficiency will be discussed in the framework of the investment decision made by the individual farmer.

To analyze the investment decision, assume that the cost (c) of the investment is concentrated at one point in time and occurs in the first year. Second, assume that the benefits or returns from the investment are spread over a number of years, with the benefit in year i denoted B_i. Any investment involves uncertainty, and future benefits will be discounted to allow for the increasingly uncertain nature of the benefits further removed from the present. The benefit in year i will be discounted by a factor $1/(1 + r)^i$, where "r" represents the rate of discount for uncertainty. The rate of discount increases with increases in the uncertainty of the investment prospect. Finally, assuming that the individual has no alternative use of his funds, he will make the investment if the sum of all discounted benefits exceeds the cost, i.e., if

$$\sum_i \frac{B_i}{(1 + r)^i} > C$$

Using this framework the development constraints imposed by the land tenure system may be analyzed.

<u>Investment Limited</u>. Since the tenure rules do not guarantee an individual the use of a specific plot of land, farmers are reluctant to put investment into land. If a farmer does succeed in dramatically increasing the productivity of a piece of land some other member of the descent group is likely to request, and be granted, use of the land the next season. In principle, an individual could gain use of a given plot of land by obtaining

the consent of all other members of the descent group. This procedure would be very time consuming and costly, and in effect, increases the cost of the investment. Alternatively, the individual could invest without prior concensus but would be forced to discount any possible future returns quite heavily. This means that the discount rate would be large so that the sum of discounted benefits would be quite small. In any case, it is likely that the cost of the investment would outweigh the expected returns, so the investment would not be made.

Short-Run Investment. Since the discount factor $1/(1 + r)^i$ increases greatly for benefits removed further from the present, there is an incentive to invest only in short-run projects. The increase in the rate of discount (r) due to tenure uncertainty results in a bias toward short-run investments such as fertilizers as opposed to more permanent improvements such as contour bunding or erosion control.

Credit Limited. Since land is not "owned" by an individual, it has no mortgage value and cannot be used as security against a commercial loan. Saylor notes that "the supply side of the investment process would thus appear to be greatly restricted by the traditional usufructuary rights..." (1967, p. 88). Farmers may apply for loans from large-scale traders and local money-lenders although the interest on these loans may often reach 25 percent a month (Saylor, 1967, p. 90). Agricultural investments may actually have a potentially greater rate of return than industrial or commercial projects yet will not be undertaken due to the lack of credit. The agricultural credit that is extended tends to go to wealthy farmers whose security for loans is derived from activities other than agriculture (Pilgrim, 1967, p. 9). The effect is, of course, to increase the cost of investment in land,

and, hence, decrease the actual amount of investment undertaken.

Summary. It has been argued that the customary tenure rules limit investment in land and bias those investments that do occur toward short-run projects. In addition, traditional tenure rules result in increased cost of credit for agricultural investment projects. Development of agriculture may be viewed as the process of increasing productivity per worker or increasing productivity per unit of land, and both goals may be furthered by investment in land. Since the land tenure system acts to limit this investment, some scholars have recommended that the tenure rules be changed to allow for individual ownership and sale of land.

Individualization of Land Tenure Rules

Parsons notes that "It is not enough to consider whether and how customary systems of tenure restrict or retard agricultural development. The basic problem is that of how innovations in tenure are achieved which give positive support to the modernization of agriculture" (Parsons, 1971, p. 29). Both the benefits and the costs of various tenure innovations must be carefully examined and compared in order to facilitate rational development planning.

Benefits of Individualization. The arguments in favor of individualized tenure are well known and will be only summarized briefly.[7] Parsons argues that individualized tenure would: (1) increase the security of investment; (2) support the economic mobility of land; (3) allow for technologically efficient increases in farm size; (4) attract innovative entrepreneurs

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[7]For a more complete discussion of the benefits of individualized land tenure rules, see Saylor (1967), pp. 44-58, or the report of the East African Royal Commission, Ministry of Agriculture, Nairobi, 1954, parts of which are reproduced in Verhelst (1968).

(Parsons, 1971, p. 34). It is argued that individualization of land holding would probably result in greater security of tenure and thus reduce the rate of discount of future investment returns. This would lead to more investment in land, and would remove the extreme bias toward short-run investment projects. Land could be used as collateral for commercial loans, thus reducing the cost of agricultural credit and increasing its availability. This would reduce the cost of investment in land and result in larger investments. Land could also be more easily transferred through the market to those with the best resources to use it.

In East Africa, some rather bold statements have been made concerning the benefits of individualized tenure by the East African Royal Commission.[8] The Commission's argument was that individualized land tenure would lead to a "commercial revolution" in agriculture through increased investment in land and the resulting increse in productivity. The Commission acknowledged that individualization of land tenure would lead to a large number of landless peasants, but argued that the increased demand for labor in the stimulated industrial sector plus the new demand for labor from the commercial agricultural sector would absorb the displaced persons.[9] Thus, it was argued that the benefits of individualized tenure would be increased productivity in agriculture and an increase in industrial employment and output.

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[8]The Commission was set up by the British government in 1953 to study land tenure and develop land reform policies for Kenya.

[9]There is some doubt as to whether or not individualization will lead to a large number of landless peasants. There is some indication that this has happened in certain areas in Kenya, but the evidence is far from conclusive (deWilde, 1967, p. 14; Christodoulou, 1966, p. 4).

In terms of the functions of a land tenure system, individualization would expand the range of opportunities for some, if not all, farmers. The landholder would have increased economic liberty to buy and sell land although he would be exposed to the possibility of losing all his land as well.

It may be well to note at this point that a change in land tenure rules does not necessarily imply a change in land use. Many types of land use are consistent with a single tenure system. Given the fact that, at least in Sierra Leone, the tenure system has been flexible enough to adjust to many different development needs, it is possible that the tenure structure is not the bottleneck to investment in agriculture. In Kenya, changes in land law to prevent fragmentation of holdings through requirement of a minimum acreage inheritance had little effect on land use. The rules on inheritance of land were circumvented when an individual would allow his brothers to farm the inherited land, or when the death of the original land holder was not reported to land administrators.[10]

Costs of Individualization. There are numerous costs of individualization of land tenure, and most are extremely difficult to evaluate in monetary terms. Individualization would incur great risks and would represent a fundamental change in social organization. Second, such basic tenure changes would have distributional impacts--increasing opportunity for some and decreasing it for others. Finally, individualization might result in a decrease in security for virtually all farmers.

The traditional tenure system was an integral part of a delicately

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[10]Personal communication from Mr. H. W. O. Okoth-Ogendu, a Kenyan lawyer conducting research on land-use patterns in Kenya.

balanced agricultural system formed as an adaptation to a particular environment. Any basic change in the agricultural system (such as new land tenure rules) is likely to upset the balance between the institutions and the biological environment. Given the state of knowledge in economics and other social sciences, the results of changes in the tenure aspect of the agricultural system would be extremely difficult to predict. The impact of tenure changes on the bush fallow period, agricultural employment, income distribution, and the entire social system are unknown. Uchendu has argued that "Until the government fully understands the operation of the present tenure system and its relation to agricultural viability, it is quite risky to alter the basic principles of land tenure" (Uchendu, 1969, p. 10).

Although the ultimate impacts of individualization are unknown, it is quite conceivable that tenure changes would have far-reaching social consequences. The tenure system is an integral part of the social system, with its emphasis on communal responsibility centered around the descent group. Individualized tenure rules would change the basis of economic opportunity in agriculture from descent-group rights and obligations to a more competitive, individualized structure. Bohannan has observed: "'Land reform' for the rationalization of the economy, whereby land is treated as a factor of production, means concommitant 'reform' of the social structure..." (Bohannan, p. 148). Basic changes in tenure rules may result in far-reaching social change, and imply a disruption of traditional social systems (Parsons, 1971, p. 30). The cost of this social disruption must be counted as a cost of individualized land tenure.

Another serious cost of individualized tenure might result from the inability of the urban-industrial sector to employ individuals displaced from

agriculture. In many African countries, for example in Sierra Leone, the industrial sector is small and unemployment in urban areas is quite high. Thus, there would appear to be surplus labor in the nonagricultural sector, and individualized land holding may simply worsen the situation. Persons displaced from the land either through the process of title registration or consequent sale of land would likely migrate to the cities seeking employment. Employment problems are intensified for rural migrants because of their lack of urban-industrial skills. In Freetown in 1968, the unemployment rate for "craftsmen and laborers" was 22 percent, and the corresponding rate for rural migrants in those occupations was undoubtedly much higher (Sierra Leone, Central Statistics Office, 1968, p. 52).[11] The arguments of those who claim that displaced agricultural labor can be absorbed in the nonagricultural sector need to be seriously questioned. This potential unemployment must be considered in analyzing any scheme to individualize land tenure.

Individualization might result in significant impacts on the distribution of land holdings, employment, and, hence, on the distribution of income. While individualization would widen the scope of possible economic actions, and broaden the opportunity to earn income through agriculture, it would most likely displace some individuals from the land. For these persons, opportunity to earn a living in agriculture would be severely decreased. Since these individuals would likely not find employment in the industrial sector, the tenure changes would result in a more skewed

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[11]An unemployed individual is defined as one who is actively looking for work but is not employed. "Craftsmen and laborers" include tailors, machinists, repairmen, electrical workers, carpenters, masons, construction workers, millers, other craftsmen and skilled workers, and laborers.

income distribution. In addition, individualization might imply that those who would be in the best position to acquire land would be those who had substantial income derived from nonagricultural activities. These individuals would have the assets to enable them to buy land and would be able to bear the inherent risks more easily. In addition, these individuals may not necessarily be the most efficient farmers.

Another factor contributing to a more skewed income distribution might be the inevitable irregularities and "land-grabbing" which the registration of titles might occasion. The traditional tenure system operated as a constraint on excessive aggregation of land by any one individual (Gaitskell, 1968, p. 232). Individualization would destroy this constraint by permitting sale of land, and in the process of granting title. Christodoulou has written: "It is well known that often the most enthusiastic supporters of the granting and registration of individual titles are strong personalities, often chiefs, who have a tendency to allocate to themselves exorbitant portions of the group land" (Christodoulou, 1966, p. 7). Thus, individualization of land tenure might result in a much more unequal distribution of land among farming families.

Another serious cost of indi idualization is the loss of security of economic opportunity, even though the individual's right to use of a <u>specific</u> plot of land may be made more secure. The customary tenure system provided security of opportunity through the guarantee of a right to earn at least a subsistence living from farming. Individualized tenure exposes the individual to the possibility of losing his land, and thus losing the opportunity to farm. The guarantee of at least a subsistence income in agriculture would be destroyed. Alternative forms of economic security such

as unemployment insurance, guaranteed annual income, old age social security, or income-maintenance programs are not available in most African countries. Individualization of land tenure removes the only guarantee of an opportunity to earn at least a subsistence income. Of course, once alternative forms of security are provided and industrial employment becomes more of a possibility for displaced farmers, the attractiveness of the subsistence opportunity will weaken (Parsons, 1971, p. 58). Until that time, the customary tenure system represents the sole source of economic security, and the loss of that security must be counted as a cost of individualized land tenure.[12]

Finally, individualized tenure would involve substantial administrative costs. Financial resources must be devoted to the process of registration and the determination of individual ownership. Trained personnel, legislative backing, and administrative machinery would be needed. Finally, the adjudication process would require.

> near faultless people, clever, shrewd, well-versed in law and custom, familiar with all details of law, custom, and practice among the group concerned, absolutely independent (and often fearless), uninfluenced and incorruptible (Christodoulou, 1966, p. 6).

Needless to say, such individuals are scarce in any country.

In addition to the costs of establishing and maintaining administrative machinery, registration of title would involve enormous survey costs, particularly in heavily forested areas where aerial photography cannot easily

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[12]Of course, it is also true that group control of land does not imply a high degree of security in all cases. If group solidarity and equality break down, group ownership might result in greater insecurity than an individualized tenure system. The question becomes when is the optimum time to switch from group to individual control. It is the author's view that group control of land continues to provide a high degree of security for Mende and Limba subsistence farmers, and that individualization would increase the insecurity and vulnerability of these individuals.

be used to establish boundaries. Since ground-level mapping would be prohibitively expensive, the alternative would be to assign title on the basis of boundaries established by the chief or by a group of elders, recognizing that inequities may result from the process. The substantial costs of administration must be considered in any evaluation of the benefits and costs of individualized tenure.

Summary. On balance, individualized land tenure does not seem so obvious a solution to development bottlenecks when the costs as well as the benefits are considered. Individualized tenure would decrease uncertainty as to land ownership, remove some constraints on investment in land, and might increase the availability of agricultural credit. The increase in investment and the increase in the ease of transferring land to more productive users should lead to an increase in agricultural production. On the other hand, individualization has many unpredictable effects, some of which could be quite undesirable. The traditional social system would most certainly be disrupted since group control of ancestral lands is an integral part of traditional social life. The security offered by the present system would be destroyed and there are at present no social security or income-maintenance systems to replace it. It is possible that a large number of farmers would eventually lose their land and seek employment in urban areas. However, the capability of the industrial sector to employ these persons does not exist at present and is unlikely to develop in the near future. Due to these employment effects and possible inequities in the land registration process, the distribution of personal income would become more skewed. Finally, the individualization process might place a severe drain

on limited governmental financial resources and personnel. However, the critical question remains: What are the benefits and costs of alternative means of overcoming the development constraints posed by the land tenure system?

Alternatives to Individualization

There may be alternatives to individualized tenure which could provide all of the benefits but entail few of the costs of dramatic changes in tenure rules. The two most widely proclaimed "benefits" of individualized tenure are increased investment in land improvements and more readily available credit.[13] The remainder of this paper will consider alternative means of stimulating investment without incurring the costs of tenure changes. The examples of alternatives for stimulating investment and providing credit should not be construed as concrete or well-developed proposals for overcoming development bottlenecks. The discussion is simply meant to illustrate the range of alternatives to drastic changes in tenure rules.

Investment. One of the main bottlenecks posed by customary tenure rules is the limits placed on investment in land due to the uncertainty over future use of a particular plot of land by a potential investor. The effect of the tenure system on investment was analyzed by noting that the discount factor (r) was relatively large due to uncertainty over land rights. Individualized

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[13]The other potential benefits of individualized tenure dealt with adjustments to technological change and development possibilities. It has already been shown that traditional Sierra Leone tenure systems have been adapted to allow for technological change and new economic opportunities, for example, the extensive mechanical cultivation of bolilands and highly labor-intensive cultivation of former mangrove swamps along the Little Scarcies River. The discussion of these issues will not be repeated.

tenure would make the investor's rights on the land more secure. Thus, the rate of discount would be reduced and the discounted benefit stream would be increased, i.e., $\sum [B_i/(1 - r)^i]$ would increase. Under individualized tenure, many investments would be profitable (total discounted benefits greater than costs) which would not have been profitable under customary tenure and the correspondingly higher rate of discount.

An alternative to reducing uncertainty (and, hence, the discount rate), is to reduce the cost of the investment to the farmer. One method of reducing investment cost is by various types of government subsidy. The critical question is again: What are the benefits and costs of government-subsidized investment in land? Of course, the question cannot be answered in general, but will depend on the specific area and the particular program under consideration. It is conceivable (and in the author's opinion, it is likely) that there are many countries or sub-national regions in which government-subsidized investment in land can overcome the development constraints posed by customary tenure, at a much smaller cost than individualized tenure would entail.[14]

An example of the type of government action that might overcome tenure-imposed constraints without drastic changes in the tenure system is the Inland Valley Swamp Scheme administered by the Sierra Leone Department of Agriculture.[15] The objective of the scheme was to bring relatively fertile inland

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[14]In addition to the Sierra Leone rice scheme discussed in this paper, another example of government action might be the Oil Palm Rehabilitation Scheme in Eastern Nigeria.

[15]The author worked as an agriculture instructor (extension agent) with the scheme for two years, 1967-1969. The discussion of the scheme is based on the period 1967-1970.

valley swamps into the production of rice. The scheme was operated in the following manner: Each farmer who wanted to participate in the scheme would be required to clear, stump, bund, and when possible level one acre of swamp, under the direct supervision of the local agricultural instructor (extension agent). The farmer was provided with improved seed which he would plant according to the instructions of the extension agent. The farmer would be provided with fertilizer and instructed on its use, and would receive a cash subsidy of Le 10 ($12) to "help" with the stumping and bunding. The subsidy was set such that all costs of the investment were not covered, to avoid encouraging farmers to apply for acreage in the scheme simply to obtain the cash involved. If the farmer hired labor, the Le 10 did not cover even one-half the initial costs, although high yields virtually ensured a net profit in the first year.[16] The success of the scheme varied from chiefdom to chiefdom, depending on the number of available swamps and their fertility, the status and performance of the extension agent, and, of course, the enthusiasm of local participants. In general, the scheme was quite successful in the 1967-1970 period with which the author is familiar. Total acreage in the scheme at the end of 1969 was approximately 2000 acres (Barrows, 1970, p. 87).

Thus, in the case of swamp development in Sierra Leone, the farmer's unwillingness to invest in land was overcome by government investment and subsidy. In effect, the swamp scheme removed much of the risk from the investment by lowering the cost of the investment to the farmer. If the

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[16] Returns to family labor averaged Le 48 per day, assuming development costs are written off in the first year. This compares with a return of Le 33 per day for "traditional" farms (Karr, 1972, p. 16).

farmer's swamp was later claimed by an older kinsman, then he still has part of his cash subsidy and his rice to reward him; if he hired labor to do the clearing and bunding he gained the increase in yield made possible by the improved seed, fertilizer, and water control. The costs of the scheme were outweighed by the increase in productivity even in the first year.[17] From a national perspective, the costs were offset by increased productivity in the first year, and the productivity of the land was increased many years into the future. The main point is that the increased investment which individualized tenure might bring was achieved without many of the costs. The monetary cost of the swamp scheme was quite small in relation to the private and social costs which individualized tenure would entail.

Credit. Another major benefit claimed for individualized tenure is that it would allow farmers to use their land as security for loans and would thus increase the availability of agricultural credit. The lack of agricultural credit is another "bottleneck" in the process of agricultural development which might be overcome without major changes in the tenure system. It is possible that farmers could be provided with small, short-term loans without the need for using land as collateral. One potential source of small loans to farmers which has been unexploited to date is the numerous small African shopkeepers. It is possible that shopkeepers could give short-term credit

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[17]Through 1969, some 3200 acres had been brought into production at a public cost of Le 40,000, or an average of Le 12.50/acre. With an average yield of 2400 lbs/acre, the return is Le 100/acre (based on a price of Le 2.50/bu.) or a return of 800 percent. If opportunity costs are taken into account, the rate of return falls to 400 percent if the alternative was traditional upland farming (yield = 1200 lbs/acre), or 200 percent if the alternative was traditional swamp farming (yield = 1800 lbs/acre). (Sierra Leone Division of Agriculture, 1970).

to farmers in the form of supplying them with annual inputs such as fertilizer and seed, with payment to be made in-kind at harvest.[18] This would enable the poorest farmers to obtain modern inputs, as long as they were deemed "trustworthy" by the local shopkeeper. The author's experience in working to establish a small shopkeeper credit scheme was that the shopowners were quite willing to give credit--they knew whom they could trust to repay--but were entirely unwilling to make any investment in stocks of an unknown good such as fertilizer. The government could aid by extending credit to shopkeepers for fertilizer and seed purchases for two or three years until the system of short-term credit is established, and by control of interest rates to avoid exploitation of the small farmer by shopkeepers. If the government would remove the high risk to the shopowner at first, the financial benefits of the arrangement might ensure that shopowners would assume the risks after the program is established. Such a scheme would also break up the foreign monopoly on short-term unsecured loans to Sierra Leoneans. The major advantage of such a scheme would be the provision of agricultural credit without requiring changes in the land tenure system.

Provision of long-term credit might be a function appropriately assumed by the government. In Sierra Leone, the government has stated that "where most farmers are unable to offer that degree of security which is reasonably demanded by the banks, the duty of promoting such credit must fall to the

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[18] The author's experience indicated that the credit arrangement of one bag of phosphate fertilizer in May (value Le 1.50) in exchange for one bushel of rice in December (value Le 2.50) was acceptable to shopkeepers. The fertilizer would typically increase rice yields by 150-1318 lbs/acre (a value of from Le 3.68 to Le 41.24), depending on the region and the type of farming. Thus, the arrangement is quite profitable for both shopkeeper and farmer.

government" (Saylor, 1967, p. 88). The government has provided credit through the Agricultural Loans Scheme and through loans administered by the Cooperative Department. The Loans Scheme supplied loans for establishment of coffee, cocoa, citrus, and oil palm plantations and other specific projects.[19] The loans scheme has been plagued by repayment problems. Exact repayment figures are not available, but indications are that the repayment percentage is quite low. Farmers tended to view direct government credit as a gift rather than a loan.[20] Loan programs administered through cooperative societies have also been faced with repayment problems. A review of loans granted to 75 randomly selected rice, cocoa, and thrift-and-credit societies from 1953 to 1966 indicated the percentage of overdue principal and interest as related to total outstanding balance was 62 percent, 81 percent, and 82 percent, respectively (Njala Univ. College, 1969). These results seem to indicate that governmental credit to small farmers is not a viable alternative for provision of long-term credit.

Given the repayment problems of public credit schemes, it may prove less expensive for the government to simply subsidize agricultural investment than to lend money. Provision of credit entails two types of costs--administrative costs, and the write-off of debts by those farmers who cannot or are not willing to repay the loans. The experience of Sierra Leone seems to suggest that the costs of credit schemes are quite high due to the rather poor repayment performance of farmers. Although exact data are not available, some

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[19]For a more detailed discussion of government credit schemes, see Saylor (1967) and Barrows (1970).

[20]The author worked in an area in which loans had been made to several farmers to establish cocoa plantations. As of 1968, no repayment had been made, and when the government sent representatives to try to collect, there was general outrage and refusal to pay on the part of the farmers.

insights may be gained by a brief analysis of loan scheme data.[21] As of 1967, for example, 134 loans had been approved for establishment of oil palm plantations, totaling Le 80,365 for 775 acres planted (1,325 acres approved), an average of Le 104 per acre. If the figure for "acreage approved" is used, the average loan is Le 61 per acre. In comparison, in 1969 the Sierra Leone government began an oil palm project in the eastern province which was similar to the Inland Valley Swamp Scheme discussed above. Farmers were given Le 14 per acre to "help" in clearing the forest and planting improved variety oil palm seedlings. The cost of the seedlings and fertilizer was deducted from the subsidy, and the entire operation was supervised by the local agriculture instructor. For one acre of oil palms, the loan scheme required at least four times as much government funds. Even assuming administrative costs to be equal in the two programs, if the rate of defaulting on loans is greater than 25% (and it most likely is), then the direct subsidy to farmers represents a more efficient use of government funds.[22] Not only would the cost of the subsidy program be less, but also the government exercises direct control over the use of the funds and can influence agricultural practices more directly. Even given individualized tenure, where land is used as security for loans, it is possible that administrative and write-off costs in a loan scheme would exceed the costs of direct subsidy tied to the extension service.

It is possible that nonpayment of loan debts may be a "social" or

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[21]The data are taken from Saylor (1967), p. 89.

[22]Recall that the percentage of payments in arrears to total balance was 62 percent, 81 percent, and 82 percent for selected rice, cocoa, and thrift-and-credit societies in 1966.

"cultural" phenomenon which would not disappear even if tenure were individualized and land were used as collateral. The government would then be in the position of either forcing people off the land (which might be politically impossible) or writing off the debts--the latter implying that individualized tenure changed nothing in regard to agricultural credit.

In summary, long-term credit may be supplied in ways which do not requir tenure changes, and government subsidies may be less costly than loan schemes On the other hand, changes in tenure rules would not necessarily lead to more readily available agricultural credit. Once again, most of the benefits of individualized tenure may be achieved without incurring the costs of more skewed income distribution and unemployment, not to mention the human costs resulting from drastic changes in the social fabric.

Conclusion

Traditional land tenure systems defined the opportunity to earn income in farming, and provided the security that an individual would always have access to some part of his family's lands. With changes in the physical and economic environment, tenure systems changed to allow for investment in land and transfer of land to those in a position to use the land more productively. The introduction of cocoa and coffee posed no great tenure problems, for the tenure system adjusted to allow more or less permanent occupation of a plot of land by an individual who, although he may not actually control the usufruct of the land, was certain of his right to the produce of his trees. The introduction of mechanical cultivation into the boliland areas in Sierra Leone gives another example of the ability of the land tenure system to change in response to changes in the agricultural system. Mechanical cultivation induced changes in the tenure system toward cooperative society control

of land, as noted in the Bonthe area and in the northern bolilands of the Makeni area. Near Mange, intensive cultivation of cleared mangrove swamps led to the establishment and strengthening of individual rights in land through pledging.

Some argue that these changes have not gone far enough, that investment in land improvement and increases in productivity are hindered by tenure rules (see for example Saylor, 1967; Parsons, 1971). "Individualization" of tenure rules has been proposed as a solution, but the costs as well as the benefits of such a policy must be considered. The benefits of individual tenure might be an increase in agricultural investment and availability of credit, increased mobility of land, and productivity gains in agriculture. Some likely costs of individualization would be social disorganization and disruption of tribal society, loss of economic security for the individual, and rather severe distributional impacts with respect to landholding and employment. Finally, the unknown nature of the ultimate results of tenure changes greatly increases the risks involved in introducing any program of tenure individualization.

Alternatives to "individualized" tenure systems must be considered. The development bottlenecks caused by the tenure system may be broken in ways which do not require significant changes in tenure rules. An example was provided which indicated that in Sierra Leone constraints on investment in land induced by the tenure system were overcome by government subsidies. Production was increased and the uncertainty and high cost of changing customary tenure rules was avoided. In countries where customary tenure systems pose impediments to agricultural development, the following points should be considered in formulating land tenure policy: First, it is necessary to fully

understand the functions performed by the traditional tenure system, and the mechanisms by which these functions were performed. Second, any government-imposed changes in the system of land tenure must provide for the performance of these same functions, guaranteeing, for example, economic opportunity and economic security to the individual. Finally, in proposing changes in the land tenure rules, the costs and benefits of alternative tenure systems must be considered and compared to other means of overcoming development bottlenecks caused by traditional tenure systems.

The necessity of considering alternatives for overcoming tenure-induced bottlenecks can hardly be contested. The suggestion that individualized tenure may not be appropriate at this time in Sierra Leone deserves further comment. It was pointed out that tenure-induced bottlenecks were overcome by government subsidy, but there are several conditions which make public subsidies a particularly attractive alternative. First, population pressure on the land is not nearly so great in Sierra Leone as in some other West African areas. Population density ranges from 28 to 131 people per square mile, as compared to a range of 350 to 1017 in the Ibo areas in eastern Nigeria (Saylor, 1967, p. 22; Huth, 1969, p. 37). Population is growing at a rate of 1-1/2 percent per year, a rate significantly below that for other countries. Not only is population pressure less, but there is also evidence that productivity per acre may be significantly increased without major changes in the farming pattern (Agricultural Mission ..., 1968). It may be that the <u>relatively</u> low population pressure and the relatively large potential increase in productivity account for the ability of the government to overcome tenure-induced development constraints. In other areas of West

Africa the combination of population pressure and exhaustion of the land may not allow such flexibility. These arguments reinforce the point that, in considering changes in the land tenure system, a government should consider the costs and benefits of individualized tenure, and the costs and benefits of alternatives to tenure changes, in overcoming development bottlenecks.

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