PN-ABL-176
76918

Beyond "Dualism": The Changing Face of the Leasehold Estate Subsector of Malawi

Richard Mkandawire
Steven Jaffee
Sandra Bertoli

The Social Analysis of Policy Change in East Africa Project

1990

With the assistance of Dede Kamkondo, George K. Phiri, Elias Ngalande-Banda, and a team of fourth and fifth year Bunda College students.

The study, carried out with the support and funding of USAID/Malawi and USAID/REDSO East Africa, was a collaborative effort between Bunda College (University of Malawi) and the Institute for Development Anthropology.

This paper is produced by the Institute for Development Anthropology and reports on work supported by the Social and Institutional Aspects of Regional Resource Systems (SARSA) Cooperative Agreement No. DHR 5452-A-00-9083-00, at Clark University, the Institute for Development Anthropology, and Virginia Polytechnic Institute and State University, funded by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Rural and Institutional Development, Division of Rural and Regional Development. The views and interpretations in this publication are those of the authors and should not be attributed to the Agency for International Development or to any individual acting on its behalf.

Table of Contents

List of Tables iii

List of Figures iv

Acronyms v

Preface vii

Executive Summary ix

Introduction 1
1. Study Objectives 3
2. Sample Survey Methodology 4
3. Outline of This Report 7

Chapter One: The Emergence, Expansion, and Role of the Estate Subsector in Malawi . . 9
1.1 Customary Land Tenure Arrangements in Malawi 9
1.2 The Origins of Estate Agriculture during the Colonial Period 10
1.3 Land Tenure Changes in the Post-Independence Period 11
1.3.1 The Recent Expansion of the Leasehold Estate Subsector 13
1.3.2 Regional Dimensions of Estate Expansion 18
1.4 Factors Contributing to Leasehold Estate Expansion 22
1.5 The Economic Role of the Estate Subsector 27
1.5.1 Contribution to Gross Domestic Product 27
1.5.2 Export Earnings 28
1.5.3 Employment 29

Chapter Two: The Structure of the Estate Subsector 32
2.1 Total Size of the Estate Subsector 32
2.2 Size Distribution of Estates 33
2.3 Typologies of Malawian Estates 37
2.4 Estate Crop Mix 40

Chapter Three: Land Acquisition, Land Use and Conservation 45
3.1 Land Acquisition for Estates 45
3.2 Land Use and Cropping Patterns 47
3.2.1 Land Use Variations between Districts 49
3.2.2 Land Use and Cropping Intensities by Estate Size Category 50
3.3 Factors Contributing to Nonutilization of Estate Land 52
3.4 Crop Mix on Sampled Estates 54
3.5 Crop Rotations on Sampled Estates 57
3.6 Land Use Patterns on Tea Estates 59
3.7 Soil and Other Resource Conservation Measures and Problems 60

3.7.1 Woodlots, Woodlands, and Other Sources of Poles and Fuelwood 63
3.7.2 Sources of Poles/Fuelwood 64
3.8 Problems of Smallholder Encroachment 64

Chapter Four: Management, Labor, and Other Production Inputs 68
4.1 Management 68
4.2 Composition and Remuneration of the Estate Labor Force 72
4.2.1 Labor Intensiveness of Estates of Different Size Categories 74
4.2.2 Tenants and Tenancy Relations 75
4.2.3 Permanent Laborers 82
4.2.4 Casual Laborers 84
4.3 Credit and Fertilizer Procurement 85
4.3.1 Fertilizers and Other Inputs 87

Summary 89

Working Bibliography 97

Annex A: Statistical Tables 103

Annex A: List of Tables 105

List of Tables

Table 1. Number of Estates in Strata from Which Random Sample Was Drawn 6
Table 1.1 Changes in Land Tenure Arrangements 12
Table 1.2 Leasehold Estate Expansion, 1970-1989 13
Table 1.3 Estate Development by District through 1989 21
Table 1.4 Auction Prices for Malawian Burley Tobacco 25
Table 1.5 Commercial Bank Advances to the Agricultural Sector 26
Table 1.6 Estate Agriculture and Gross Domestic Product 27
Table 1.7 Average Annual Growth Rates of Real Gross Domestic Product by Sector . . 28
Table 1.8 Estate Crop Exports as a Share of Total Malawi Exports 29
Table 1.9 Labor Force by Sector 30
Table 1.10 Employment in the Estate Subsector 30
Table 2.1 Number and Area of Agricultural Estates (1989) 33
Table 2.2 Breakdown of Estates by Size Category 34
Table 2.3 ADD-Specific Distributions of Estates by Size 37
Table 2.4 Malawian Estate Typologies 39
Table 2.5 Estate Crop Production (1989) 41
Table 2.6 Regional Distribution of Estate Tobacco Production 42
Table 2.7 Changes in the Structure of Estate Burley Tobacco Production 42
Table 2.8 Distribution of Tobacco Sales Quotas 43
Table 3.1 Estate Owner Cultivation Prior to Lease Registration 46
Table 3.2 Estate Land Use (Entire Sample) 48
Table 3.3 Land Use by District for Sampled Estates 49
Table 3.4 Land Use Patterns for Estates of Different Size Groups 50
Table 3.5 Variations in Cropping Intensities 51
Table 3.6 Reported Reasons for Noncultivation of Arable Land 53
Table 3.7 Cropping Mix of Sampled Estates 54
Table 3.8 Cropping Mix by District 55
Table 3.9 Cropping Mix by Estate Size Categories 56
Table 3.10 Form of Production for Burley Tobacco and Maize 57
Table 3.11 Types of Crop Rotations on Sampled Estates 58
Table 3.12 Land Use Patterns among Tea Estates 60
Table 3.13 Soil Conservation Measures on Sampled Estates 61
Table 3.14 Major Reported Environment Problems 62
Table 3.15 Woodland/Woodlot Area as Percent of Total Estate Area 64
Table 3.16 Sources of Poles/Fuelwood 65
Table 3.17 Encroachment Problems on Estates 66
Table 4.1 Identity of Estate Managers 69
Table 4.2 Prior Experience of Managers with Tobacco Production 69
Table 4.3 Educational Attainment of Estate Managers 70
Table 4.4 Basic Salaries of Hired Managers 71
Table 4.5 Reported Labor Force on Sampled Estates 73
Table 4.6 Permanent and Casual Laborer Work Force Composition 74

Table 4.7 Intensity of Permanent Worker Employment 75
Table 4.8 Land Allocations to Tenants 77
Table 4.9 Differential Values of Inputs/Food Ration Credits 78
Table 4.10 Cash Payments To Tenants 79
Table 4.11 Average Cash Payments to Tenants 79
Table 4.12 Tenant Turnover Rates 81
Table 4.13 Reported Payments to Adult Male Permanent Laborers 83
Table 4.14 Payments to Children Working as Permanent Laborers 84
Table 4.15 Distribution of Commercial Bank Credit 87
Table 4.16 Sources of Fertilizer 88
Table 4.17 Intensity of Fertilizer Use 88

List of Figures

Map 1. Location of Survey Districts 5
Figure A. Expansion of Estates (1970-1989) 15
Figure B. Expansion of Estates (1970-1989), by Area Leased 16
Figure C. Estate Expansion in the 1980s, Number of Leaseholds by Estate Size 17
Figure D. Estate Expansion in the 1980s, Additional Area by Leasehold Size 19
Figure E. Rapid Estate Expansion, 1981-1983 and 1987-1989, by Leasehold Size 20
Figure F. Number of Estates by Size 35
Figure G. Total Estate Area by Estate Size 36

Acronyms

ADD	Agricultural Development Division
ADMARC	Agricultural Development and Marketing Corporation
DLV	Department of Lands and Valuation
EEC (EC)	European (Economic) Community
FMB	Farmers Marketing Board
GDP	Gross domestic product
K	Kwacha (currency unit)
NSO	National Statistical Office
T	Tambala (currency unit: 100 T = 1 K)
TAMA	Tobacco Association of Malawi

Note: The kwacha fluctuated between 2.6 and 2.85 per US dollar during the period of the study. Its value at the end of 1990 was approximately 2.64 = $1 US.

Preface

The Institute for Development Anthropology (IDA), under the auspices of the Cooperative Agreement on Social and Institutional Aspects of Regional Resource Systems (SARSA), has been engaged in a series of focused studies in eastern Africa on the socioeconomic dimensions of policy change and reform. To date, the program has carried out studies of the role of local institutions in the agricultural and environmental sectors of Botswana; rural and urban household incomes and expenditures in Burundi; and a review of appropriate social science methodologies for examining the effects of policy changes on rural incomes and welfare. The goal of this program is to generate significant data sets on social and economic indicators that will allow future monitoring of the impacts of policy reform on rural (and urban) economies and societies. This objective is to be achieved by employing cost-effective field methodologies that generate scientifically sound data in a timely fashion, and by using African social scientists and institutes in the research program to the maximum extent possible. The latter process is critical for building the capacities of African institutions to research and monitor the effects of state policies in their own countries.

This report on the Malawi leasehold estate subsector provides a wealth of data that will assist decision makers in formulating policies for the country's agricultural sector. It represents a truly collaborative effort between the Bunda College of Agriculture in Malawi and IDA: a member of Bunda's faculty, Dr. Richard Mkandawire, served as the team leader, and more than 20 of his colleagues and students also participated. The support of Bunda College and its faculty and students is greatly appreciated.

The report itself represents the first phase of a four-part study of the leasehold estate sector that is to be conducted over a fifteen-month period. The other three parts of the study will address smallholders, tenant farmers, and labor markets associated with the sector. It would be presumptuous to summarize the main findings of the report here. Nonetheless, two important points that the authors so adeptly demonstrate need some emphasis. The first is that the term "estate" masks the exceedingly complex and dynamic nature of the sector. In contrast to estates elsewhere in the world, most of these units in Malawi are very small (less than 30 hectares), and they are not managed as estates, which usually rely on agricultural wage labor. Instead, household and tenant farming are the predominant forms of production on most Malawian estates. As the authors point out, it is perhaps more accurate to define this sector on the basis of tenure rights--that is, to call it the leasehold sector--rather than on the basis of a particular form of production (estate). The second finding, which is clearly related to the first, is that drawing a meaningful distinction between "estate" and smallholder agriculture is often very difficult. With the exception of tenure rights, agricultural production on the vast number of small estates differs very little from that on many smallholder farms.

Peter Little
Project Director, SARSA

Executive Summary

(1) In a series of recent publications and policy documents written by government bodies, consulting organizations, donor agencies, and academics, a large number of claims have been made about the structure, operations, and performance of the estate subsector in Malawi. Such claims, relating to aspects of the use of land and other resources--including labor and management on estates--as well as to the structure of the subsector, have provided the basis for ongoing policy discussions within the Malawian government and between the government and donor agencies regarding future support and regulatory systems for the subsector. Some of these claims, however, are based on only anecdotal evidence or on information that is now outdated. Detailed empirical studies on selected aspects of the estate subsector have been exceedingly rare.

(2) Through an analysis of Agricultural Development Division (ADD) estate file data and a multi-district sample survey of estates, this exploratory study has tried to provide a more comprehensive body of empirical evidence on which to ground these ongoing policy discussions. The study has also sought to provide the basis for designing a series of subsequent studies to examine critical elements of estate operations in greater detail, including the interface between the estate and the customary smallholder subsectors.

The Size and Structure of the Estate Subsector

(3) Considerable uncertainty has existed as to the actual size of the estate subsector in terms of the number of estates and the land area they occupy. Recent estimates from official and donor sources place the number of estates at between 8,500 and 9,000, and the total estate area at between 510,000 and 605,000 hectares. On the basis of a listing of the estate files in the major ADDs, however, we have found that both the number of estates and the total estate area are considerably higher than prior estimates. We estimate that at the end of 1989 there were 14,671 estates (leasehold and freehold), occupying an area of 843,327 hectares. Such an area comprises about 9 percent of the total land area of Malawi.

(4) The estate subsector expanded dramatically during the 1980s. In 1979 there were only about 1,200 estates, covering about 300,000 hectares. Over the next decade, more than 13,000 new estates were established, with an area exceeding 500,000 hectares. Estate expansion during the 1980s occurred primarily during two main periods: 1981-1983 and 1987-1989. The first period featured an addition of 161,000 hectares to the estate subsector, while in the second period, 240,000 hectares were added. Each of these periods of rapid growth followed, and accompanied, large increases in the nominal and real prices of tobacco sold across the auction floors in Malawi.

(5) The expansion of the subsector during the 1980s had structural characteristics quite different from the pattern of estate expansion during the 1970s. In the earlier period, many of the newly established leaseholds and most of the expanding estate land was on large-scale estates belonging to corporations, prominent businessmen, and civil servants. In contrast, during the 1980s, the vast majority of new "estates" were very small in scale. Some 71 percent of the

estates registered in the 1980s were less than 30 hectares in size, and many are considerably smaller.

(6) Most estates of less than 30 hectares have been established by progressive smallholder farmers, registering customary land which they, and frequently their relatives, had been cultivating--often for many years. In some cases these farmers registered estates individually; in others, extended families joined together to form an estate from their customary land, registering the estate in the name of one or two family heads. Most of these smaller estates are basically enlarged smallholder farms, as they lack all or most of the characteristics usually associated with the idea of an agricultural estate (e.g., salaried managers, a high degree of cash-crop specialization, and large permanent work forces.)

(7) An appropriate term for the owners of these small-scale estates is "graduated smallholders." Such farmers have indeed graduated from their status as smallholders, a status that restricted the crops they could legally grow and the marketing channels through which they could sell. As smallholders, they also had poor access to credit. As leaseholders, however, they are now permitted to grow burley tobacco, to sell such tobacco directly across the auction floors, and to approach commercial banks directly in search of seasonal credit. Nevertheless, such leaseholders retain one foot in the smallholder ("customary") subsector. As our sample survey shows, such farmers still obtain (subsidized) fertilizers, predominantly from the Agricultural Development and Marketing Corporation (ADMARC) or from farmers' clubs, still have contacts with the ADD extension system, and remain active users of the resources (e.g., land and firewood) of the customary subsector. The widespread entry of such "graduated smallholders" into the estate subsector suggests that the long-standing description of Malawian agriculture as "dualistic" may not be realistic. What has emerged is a more varied continuum of agricultural enterprises. In addition, the long-held position that smallholders have totally failed to benefit from the development of export-oriented agriculture in Malawi is now called into question.

(8) The movement of such progressive smallholders to register leaseholds has been prompted not only by the positive incentive of growing burley tobacco and making direct auction sales, but also by the perceived or actual threat of land insecurity in many locations, given that large areas around them have been registered as estates, sometimes by people from outside the local communities. In some areas, traditional authorities have actually encouraged their subjects individually or jointly to lease a plot in order to acquire greater security of tenure.

(9) With the widespread entry of smallholder farmers into the estate subsector, the structure of this subsector has been transformed. While in 1979 the average size of estates was 207 hectares, by 1989 it was reduced to 53 hectares. In the latter year, some 68 percent of estates had less than 30 hectares and some 47 percent less than 20. Still, large-scale estates continue to account for slightly more than half of the total leasehold area.

(10) The pace and extent of estate development has differed considerably among regions and districts. Estate development has been most extensive in the Central Region, which accounts

for 77 percent of the total number of estates and 67 percent of the total estate area. Within the Central Region, the largest concentration of estates has been in Kasungu (218,900 ha), Mchinji (91,500 ha), and Ntchisi (74,900 ha) Districts. In these three districts, estates presently occupy more than 25 percent of the total land area. Because of poorer infrastructure, lower population density, and more serious transport constraints, estate development has been less extensive in the Northern Region, with estates accounting for only 3.9 percent of the region's total land area. Still, the region has experienced rapid recent growth in Mzimba and Rumphi Districts. In the Southern Region, most estate development took place during the colonial period and up through the 1970s. Relatively little new estate development has occurred since then, with the exception of Mangochi and Machinga Districts. For the region as a whole, 5.5 percent of the area is registered under estates.

(11) Land for estate development has been acquired by a variety of different means. In contrast to past views, it was found that there is an active land market, both covert and overt. In our sample, one-third of estates above 100 hectares were purchased by the then-current owner. The study found that inheritance is another important form of estate acquisition. In contrast to the previous view that the vast majority of estates were established on virgin land, this survey found that for many estates, the current owner had been cultivating at least part of the estate land for several years prior to registering the estate. For one-fourth of our sample, the leasehold owner had been cultivating at least part of the estate for 10 years or more prior to registering it.

(12) While past estimates of the proportion of estate land under cultivation ranged from 8 to 14 percent, this study found a far higher rate of land utilization. For our entire sample, 27.9 percent of leasehold land was reported to be under cultivation during the 1989-90 season. Significant differences were found among districts and among estates of different size categories. In Kasungu and Lilongwe cropping intensities were found to be very high, with the proportion of land under crops 35 percent and 42 percent, respectively, for our sampled estates. In contrast, in Rumphi and Machinga cropping intensity was much lower--at 20.6 percent and 19.4 percent, respectively. Cropping intensities were found to be extremely high in the case of estates of less than 30 ha, approaching nearly 50 percent. Among medium-scale estates (30-100 hectares), the intensity of land use varied considerably, although it averaged 37.8 percent for our sample. For large-scale estates, average cropping intensity was considerably lower, at 23.2 percent, with more than a third of the estates cultivating less than 15 percent of their total land. Only among these larger estates did we find considerable areas of land not currently under use that could be potentially cultivated.

(13) The factors contributing to the apparent underutilization of land on some estates are varied. On some of the larger estates, much of the unutilized land is not arable, being steeply sloped, waterlogged, under forest cover, etc. Where arable land has remained uncultivated, the primary factors appear to be shortages of capital, limits set by the allocated tobacco quota, and transport difficulties. We found some instances where estates were registered simply to obtain an additional market quota, with no immediate intention of developing the estate.

(14) It is assumed that prior estimates of very low land utilization were based strictly on the area under major cash crops, such as tobacco, tea, and sugar. Such estimates seemingly ignore the planting of maize and other food crops on estates. This study found that maize and other crops (groundnuts, beans, fruits, and other vegetables) took up as much area as burley tobacco, and that for the relatively small "tobacco estates" maize plantings exceeded those of tobacco. Maize is produced on estates both for feeding workers and for commercial sale.

(15) Among the sampled estates, plantings of hybrid maize far exceeded those of local maize. This dominance of improved varieties over local varieties occurred in Lilongwe, Kasungu, and Salima Districts, reflecting the impact of long-established integrated rural development projects. Hybrid maize predominated over local maize even in the smallest size category of estates (less than 15 hectares). The survey found that while the bulk of hybrid maize is produced by direct hired labor, most of the local maize is produced by tenants for their own consumption.

(16) Little diversification was found in the crop mix of the sampled estates, although many of the smaller estates did report limited plantings of groundnuts, other legumes, and fruit and vegetables. Only a few of the larger estates reported any substantial diversification away from a tobacco/maize regime. While more than a third of the estates reported an interest in diversifying their crops (or livestock), such diversification has been constrained by lack of access to medium-term credit and by the fact that the core of their extension contacts are tobacco-related.

(17) Only 6 percent of the sampled estates report following the Ministry of Agriculture's recommended crop rotation of tobacco-maize-fallow-fallow. The dominant crop rotations followed were of two years (tobacco-maize-tobacco-maize) and of three years--two crops and a fallow (e.g., tobacco-maize-fallow-maize). Maize was a critical element of nearly all rotations. Although monocropping of tobacco was very rare among small-to-medium-scale estates, one-fourth of the large-scale estates reported monocropping. Such estates appear to crop a fertile portion of the estate continuously until its fertility deteriorates, and then shift to other parts of the estate.

(18) While many estate managers report having a planted woodlot on the estate, it was reported and observed that most woodlots are not well developed and certainly do not cover the 10 percent of total land that is stipulated in the lease covenants. However, in several of the districts covered in our sample, estates have extensive areas of natural forest cover. As a result, about 18.5 percent of the total area of our leasehold estates was under some form of forest cover (woodlot or woodland). In Rumphi and Machinga Districts, the wooded area on our sampled estates exceeded the area under crops.

(19) Estate managers report obtaining poles and fuelwood from a variety of sources, including their own woodlots and woodlands, customary woodlands, government forest reserves, other estates, and private wood dealers. The majority of small-scale estates appear to rely heavily on customary woodlands and government forest reserves for their fuelwood needs.

(20) Smallholder encroachment was very common on our sampled estates. Such encroachment has been either in the form of fetching thatch, firewood, or small animals, or in the form of actual cultivation of estate land. While such cultivation is generally on a limited scale (2 hectares or less), some estates reported cultivation encroachment of 10 hectares or more. For our entire sample, some 5 percent of the total cultivated land on estates was reported to be cultivated by encroachers. The common incidence of encroachment is a reflection of the growing scarcity of land and other resources within the smallholder customary sector and is a manifestation of an apparent growth in tension in some areas between estates and surrounding communities.

(21) The study found absentee ownership of estates to be an uncommon phenomenon, a divergence from previous claims. Some 60 percent of the sampled estates are actually managed by a resident owner, while in most other cases, the owner visits daily. For the districts included in our sample, only in Salima was absentee ownership found to be at all common.

(22) The vast majority of estates in our sample do not feature a salaried manager. Most of the managers were the owners themselves, and in most other cases the managers were paid or unpaid relatives, typically sons, spouses, or brothers of the owner. There were virtually no salaried managers among estates of less than 30 hectares. Only for large-scale estates are salaried managers commonly found.

(23) The educational qualifications of estate managers were found to be generally low, with 15 percent having had no formal education at all and only 27 percent receiving at least some secondary school education. In addition, relatively few estate managers reported having attended any training course pertinent to their current work.

(24) Among the sampled estates, very few managers reported having had any managerial experience prior to their present job, while nearly one-fourth reported having had no prior experience at all with tobacco production. Most of the prior experience of managers has been as tenants or laborers on other estates, or as farmers growing dark-fired or burley tobacco on smallholdings.

(25) As a result of their prior education and experience, most estate managers can be regarded as "tobacco technicians," well versed in the basic cultural practices required to grow a tobacco crop, but not well equipped to handle more general farm management problems, including those related to land husbandry and labor relations. This "tobacco technician" syndrome has been reinforced by the managers' extension experiences. The most common extension contact reported is that of field days organized by TAMA. Such field days deal with particular features of tobacco production and postharvest care, but do not address the introduction of new crops or broader management issues.

(26) The labor force of leasehold estates consists of: (a) unpaid family members of the leaseholder and/or manager; (b) permanent laborers (hired for periods ranging from a few months to year-round); (c) tenants and their unpaid family members; and (d) casual laborers

hired at peak work periods. Among permanent workers (i.e., the first three categories), tenants and their family members are numerically most important, especially on larger estates.

(27) An analysis of the composition of the labor force for our sampled estates found that children comprise 22 percent of the number of both permanent laborers and casual laborers. Adult males make up 70 percent of permanent laborers and 42 percent of casual laborers. While adult females are only a very small proportion of the permanent laborers (7.6 percent), they comprise some 35 percent of the casual workers, being primarily responsible for the carrying and tying of harvested tobacco.

(28) An analysis of the permanent worker force for our sampled estates found that the number of permanent workers per hectare of leasehold area decreases for larger estate-size groups. In terms of crop production, however, large-scale estates were found to be more intensive in their use of permanent workers than medium-scale estates. Nevertheless, overall, the smallest estates (i.e., less than 15 hectares) are the most intensive in their use of permanent laborers.

(29) Wide variations were found in the terms and remuneration of tenants on estates of different size categories as well as within individual categories. On average, tenants were reported to have received payments considerably higher than the minimum agricultural wage and higher than the income obtained by most smallholders. For our sample, the mean reported tenant cash payment was K 621. However, small estates reported paying cash sums considerably less, at a mean level of K 373. In addition, an analysis of the tenant records of individual estates indicates that tenant incomes are quite skewed, with a large number of tenants receiving no income at all while relatively few tenants account for a large share of receipts. Tenant turnover rates were found to be very high: 31 percent for the whole sample. Such findings raise questions about the possibility, under prevailing price arrangements and cost conditions, for tenancy arrangements to alleviate poverty on any significant scale.

(30) An analysis of the payments made to adult male permanent laborers on our sampled estates found that 49.5 percent of such laborers were paid less than the statutory minimum wage, and 32 percent were paid less than K 30/month. Wage payments did differ across estate size categories, with the larger estates tending to follow more closely the minimum wage guidelines. Less than one-fourth of the permanent laborers on estates of less than 15 hectares were paid the minimum wage or more. In addition, it was commonly reported that permanent laborers are paid only at the end of the season. Payment of children working as permanent laborers is almost universally below the statutory minimum wage. More than half of the children working as permanent laborers on our sampled estates are paid K 20 or less. Observations suggest that the availability of large numbers of Mozambican refugees has served to keep estate wages below the statutory minimum wage.

(31) Casual workers are paid either in cash or in kind, with payment frequently linked to their output. The severe food shortages faced by many such laborers during the so-called "hunger months" (November-February) frequently induces such laborers to prefer payment in

the form of food. When cash is paid, adult females are typically paid only two-thirds of the wage of adult males, while children are paid half the adult male wage.

(32) On the sampled estates housing conditions are frequently poor and few, if any, social amenities are available. On a large majority of estates, tenants' houses consist only of small grass structures with no nearby latrine or other sanitary facility. Despite the covenant provision that all estates must have a source of clean water, some one-fourth of the sampled estates did not have such a facility. The conditions of tenants' houses and the overall provision of social amenities was found to be better on larger estates than on smaller estates.

(33) A large majority of the sampled estates reported insufficient capital as a problem. While the larger estates have had difficulty obtaining medium-term credit, many of the smaller estates reported that either they did not apply for credit or they faced difficulties obtaining seasonal credit on a timely basis. Among our sampled estates, credit allocations were heavily skewed in favor of the large-scale estates.

(34) Consistent with earlier assumptions, it was found that "leakage" of subsidized fertilizers into the estate subsector is common. Fifty-nine percent of the sampled estates reported obtaining fertilizer from ADMARC; 18 percent reported buying fertilizer from farmers' clubs. These were the predominant sources of fertilizer for estates smaller than 30 hectares, but 36 percent of large-scale estates also reported obtaining fertilizer from ADMARC.

(35) While most prior attention and policy discussion has focused on the issue of land utilization on estates, the results of this study suggest that issues concerning the use of human resources (including work conditions and remuneration, the participation of children and women in the labor force, the terms of tenancy, the training of managers) are at least as important in understanding the development potential of, and the problems faced by, the estate subsector. Furthermore, our results suggest that greater attention must be given to interfaces between the estate and smallholder subsectors--both the tension points and the interdependencies that connect these subsectors.

Introduction

A major increase in the number of leasehold estates in Malawi and in the land area given over to such estates has occurred over the past two decades. The large-scale transfer of land from the customary (smallholder) subsector to leasehold estates has been justified on economic grounds through claims that:

(1) leaseholds provide greater security of tenure than customary land tenure arrangements and thus provide improved incentives to undertake productivity-enhancing investments in agriculture; and

(2) an efficient estate subsector can be more effective than smallholder agriculture in generating economic growth, in expanding export-crop production, and in absorbing Malawi's expanding labor force.

During the 1970s, agricultural estates did indeed serve as the primary engine of growth in the economy of Malawi, although a large number of the newly established estates experienced managerial and financial problems. This expansion of the estate subsector came partly at the expense of further development of smallholder agriculture (Kydd and Christiansen 1982). The expanding estate subsector drew the inexpensive sources of finance and labor it required from smallholder agriculture. Heavy taxation of smallholder cash crops not only provided large financial surpluses that were transferred to the estate subsector, it also reduced the returns to labor within the smallholder subsector. This stimulated smallholders to seek full- or part-time employment on estates despite a steady decline in real wages. A rapidly expanding estate subsector thus coincided with stagnation in smallholder agriculture.

During the 1980s, the estate subsector expanded at an even more rapid pace, with most of this growth occurring among estates producing burley tobacco. In contrast, smallholder agriculture has remained stagnant. The greatly expanded number of leasehold estates has increased concern about the alienation of land from the customary subsector and about the efficiency and equity implications of ongoing structural changes in Malawian agriculture. In a series of recent studies, it has been claimed that:

(1) **Growth of the estate subsector has resulted in the permanent alienation of large areas of land from the customary smallholder subsector, preventing smallholders from cultivating such land either now or in the future.** This transfer of land from customary to leasehold status is said to be a major contributing factor to land shortages and fragmentation in certain parts of the country (Mkandawire and Phiri 1987; World Bank 1987; Sahn and Arulpragasam 1990).

(2) **The land that has been leased by estates has remained greatly underutilized, with crops being planted on only small portions of estates and "large tracts of land" remaining entirely idle.** Some recent studies have estimated that the proportion of leasehold

land used for cultivation is only 8-14 percent (Deloitte, Haskins and Sells 1986; Kydd 1988; World Bank 1987, 1990).

(3) **Many estates have absentee owners and inadequately skilled and poorly motivated managers. As a consequence, such estates are accused of achieving low yields and declining product quality, while giving inadequate attention to soil and other resource conservation measures.** Such problems are said to be especially common on tobacco estates (Agmark 1989; Deloitte, Haskins and Sells 1986).

(4) **While estates have provided employment to thousands of workers, employment on (tobacco) estates has been insecure, and many estate workers have been poorly remunerated.** As a result, estate employment has made little contribution to the alleviation of poverty (Nankumba 1990; Nyanda 1989; Sahn and Arulpragasam 1990).

Such assessments have contributed to policy discussions within the Malawian government and between the government and donor agencies, especially within the context of the Agricultural Sector Adjustment Program. Among the major policy issues pending are those related to: (l) the further transfer of land from customary to leasehold tenure; (2) the design and implementation of positive and negative incentives to induce more efficient land use; and (3) the continuation of restrictions on smallholder production of certain crops (e.g., burley and flue-cured tobacco) formerly reserved for estates.

The ongoing policy discussions have thus far been based on only a partial understanding of the structure and performance of the estate subsector. In the first place, **major uncertainty has existed regarding the actual number of estates and the scale of estate landholdings.** While the World Bank, in its Land Policy Study (1987) indicated that estates cover 691,000 hectares of land, three years later the Bank (1990) suggested that the total estate area is 605,000 hectares. Files from the Department of Lands and Valuation show just 511,000 hectares under leasehold tenure. Similar uncertainty exists regarding the actual number of leasehold estates in the country.

Second, **the major expansion of the burley tobacco estate subsector during the late 1980s has remained poorly understood, in terms of both its scale and the characteristics that differentiate it from earlier estate expansions.** Conclusions about the implications of major land transfers that occurred during the 1970s and early 1980s may not be appropriate for the more recent estate expansion.

Third, **land use patterns on estates have not been well studied:** claims regarding the widespread underutilization of land have been based either on national-level estimates of plantings of individual estate crops (e.g., Deloitte, Haskins and Sells 1986) or on very limited estate surveys (e.g., Mkandawire and Phiri 1987). Prior studies have not examined and compared land use patterns among estates in different regions and of different size categories.

Fourth, **claims about absentee ownership and about the inadequacy of training and incentives for estate managers have been based on anecdotal evidence rather than on survey and other data.** Whether or not such problems are more significant in certain types of estates is not clear.

Perhaps the greatest deficiency in the existing analysis has been the **widespread tendency to lump together estates of widely differing characteristics when analyzing land use patterns, management characteristics, resource conservation problems, the remuneration of estate workers, etc.** This practice has inhibited an understanding of the actual structure of the subsector, of the problems encountered by different types of estates, of the interface between the estate and smallholder subsectors, of the policy measures required to improve efficiency within the subsector, and of efficiency and distributional implications of a further expansion of leasehold estates.

1. Study Objectives

This study was designed to provide a body of empirical knowledge about the structure and performance of the leasehold estate subsector in Malawi. It was designed to be an exploratory study, part of a larger three-phase study, the results of which will:

- **provide a basis for discussions between the Government of Malawi and USAID regarding the focus and content of the latter's Agricultural Sector Assistance Program;**

- **provide a baseline for monitoring the impact of the Agricultural Sector Adjustment Program on the development of the estate subsector; and**

- **provide a basis for designing a series of subsequent studies that will examine in greater detail critical elements of estate operations and major components of the interface between the estate and customary smallholder subsectors.**

In the design and implementation of this first phase of research the following objectives were set:

(1) to determine more closely the actual size of the leasehold estate subsector in terms of the number of estates and the land area that they cover;

(2) to begin to analyze the recent rapid expansion of the estate subsector, discussing the primary contributing factors and describing the structural characteristics of this expansion;

(3) to describe the current structure of the estate subsector, discussing the distribution of estates by size and location, the different types of estates that exist, and the main crops produced;

and, based on a nation-wide sample survey of estates:

(4) to examine patterns of land use, giving particular attention to the intensity of crop cultivation and the mix of crops produced and making distinctions among estates of different sizes and from different districts in the country;

(5) to examine common land husbandry and resource conservation measures and problems on estates;

(6) to examine the characteristics, qualifications, and incentives of estate managers; and

(7) to examine the major forms of estate labor and explore the conditions and remuneration of work on estates.

2. Sample Survey Methodology

An exploratory sample survey of estates was designed to study land and labor utilization as well as management on the basis of on-site field visits and interviews with estate owners or managers. The objective of the sampling design was to choose a national representative probability sample of 120 estates stratified by size, to provide enough cases for projected analysis as well as the minimum sample size to be representative on a national basis.

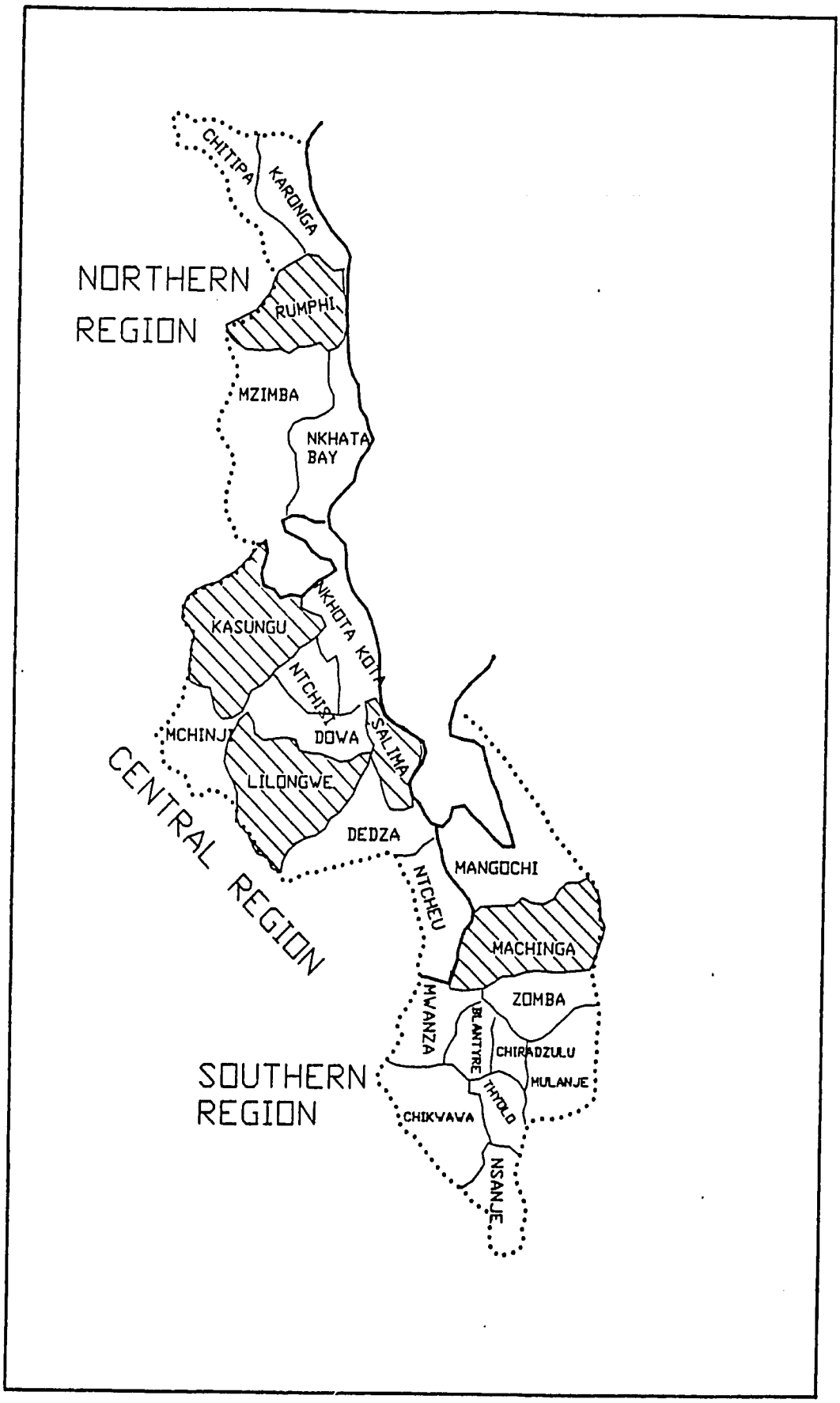
A sampling frame was constructed from a listing of the files on estates in the six ADDs where most estates are located. The list was compiled by 16 enumerators and data clerks who visited Lilongwe, Kasungu, Salima, Mzuzu, Liwonde, and Blantyre ADDs and went through the files. Information on the size of the estate, the year of the lease, and the district was recorded for a total of 14,759 estates.

Examination of the distribution of estates by ADDs and districts resulted in the selection of five ADDs with a significant number of estates. The five ADDs chosen for sampling were Mzuzu, Kasungu, Salima, Lilongwe, and Liwonde. Blantyre ADD was not included because of its smaller number of estates and because the larger portion of estates there are freehold, not leasehold.

Within each ADD one district was chosen that had a large number of estates, including numerous estates in the larger size categories. Geographic distribution of the districts was also considered important, to provide regional representation. The five districts chosen for sampling were Rumphi (in Mzuzu ADD), Kasungu, Salima, Lilongwe, and Machinga (in Liwonde ADD) (see Map 1).

Additional estates were added to the sampling frame for four of the districts sampled from a Department of Lands and Valuation (DLV) listing of agricultural leaseholds that had been leased prior to the 1980s. To avoid duplication, these were cross-checked (by estate names, leaseholder names, and size of the estate) with estates listed from the ADD files. Additional

Map 1. Location of Survey Districts



estates were not added to Kasungu ADD from the DLV lists as 8,546 estates had been listed in that ADD by the time the sample had to be drawn, and resources did not permit cross-checking so many listings with a second list (no computer-generated common ID was available). Furthermore, judging from the file numbers an estimated 500 to 1,000 files remained to be located in the Kasungu ADD files. In the cases of Blantyre, Liwonde, Mzuzu, and Lilongwe, the listing was a complete enumeration of files through June 1990. For Salima, the listing included those estates registered through December 1989.

Within each of the five districts selected for sampling, estates leased in 1988 or earlier were sorted into four size strata: 15 hectares and less; 15.01 to 30 hectares; 30.01 to 100 hectares; 100.01 hectares or more.

A random sample of six estates with four alternates was drawn from each stratum. Numbers of estates in the strata from which the random sample was drawn are indicated in Table 1.

Table 1. Number of Estates in Strata from Which Random Sample Was Drawn (hectares)

District	15 and under	15.01-30	30.01-100	100.01+
Lilongwe	235	417	167	38
Rumphi	189	168	116	24
Salima	91	189	245	77
Machinga	57	83	105	88
Kasungu	759	1,271	828	189
	1,331	2,128	1,461	416

Field supervisors and enumerators were instructed to locate and interview the owners or managers of these sampled estates. Dr. George Kanyama-Phiri, agronomist, and Professor Dede Kamkondo, communications specialist, both faculty members from Bunda College, served as field supervisors for the survey. Sixteen Bunda College fourth- and fifth-year students were selected, four to serve as data entry clerks and twelve as enumerators.

A precoded data collection instrument was prepared in both English and Chichewa. The data collection instrument included sections on:

- How and when the estate was acquired
- The owner's background
- The farm manager's characteristics and experience
- Who initiates decisions about major estate functions
- Capital investments on the estate
- Land utilization - crops grown; livestock

- Crop rotation practices
- Production inputs
- Sources of technical information and assistance
- Labor utilization and remuneration
- Financing of seasonal production costs
- Land degradation and conservation measures
- Woodlots and sources of poles and firewood
- Relations with smallholders
- Estate problem assessment

The data collection schedule was pretested on twelve estates in the area around Bunda College during the first week of August. The week after final revisions and training of field supervisors and enumerators, fieldwork began in Lilongwe ADD. In the following week two teams, one in Machinga and one in Salima, each consisting of a field supervisor and six enumerators, each completed 24 interviews. During the last week of August, one team interviewed sampled estates in Rumphi and the other in Kasungu.

A total of 119 valid observations was completed in three-and-a-half weeks of fieldwork. The one observation that was deleted was a case where an owner had two estates; because the one that had been drawn in the sample was in the process of initial development, the owner referred to his second estate in answering the questions. In several instances sampled estates were listed in official records as being in one size stratum, but the informant reported a hectarage that put the estate in a different category. The final sample resulted in 27 estates in the "15 and under" hectares category, 33 in the "15.01 to 30" category, 31 in the "30.01 to 100," and 28 in the "100.01 hectares and larger" category.

Data entry and verification were completed in the second week in September, and the production of basic frequency tables and a report of preliminary findings completed the ten-week, exploratory first phase of the estate-sector study.

3. Outline of This Report

This report, in addition to the Executive Summary and this Introduction, consists of four main chapters and a statistical annex. Chapter One draws on official statistics, secondary sources, and ADD estate files to examine the emergence, recent expansion, and economic role of the estate subsector in Malawi. The chapter highlights the major differences between the pattern of estate expansion during the 1980s and that of the 1970s.

Chapter Two outlines the current structure of the estate subsector in terms of the overall numbers and land area of estates, their locational and size distribution, their varied characteristics, and the primary crops grown on them.

Chapter Three provides preliminary analysis of the results of our sample survey with respect to issues of land acquisition, land use, cropping patterns, resource conservation measures and problems, and smallholder encroachment on estates.

Chapter Four provides preliminary analysis of the results of our sample survey with respect to management (identity, qualifications, motivation, and remuneration), labor (composition of the estate labor force, conditions of employment, and worker remuneration), and production inputs (e.g., credit and fertilizer procurement and use).

Annex A provides tables that summarize the results of the sample survey.

Chapter One: The Emergence, Expansion, and Role of the Estate Subsector in Malawi

This chapter draws on official statistics, secondary sources, and data from Agricultural Development Division (ADD) estate files to examine the emergence, recent expansion, and overall economic role of the estate subsector in Malawi.

1.1 Customary Land Tenure Arrangements in Malawi

Under customary law, most ethnic groups in Malawi did not regard land as a marketable commodity. Hence, the idea of selling land did not exist. The right to occupy a piece of land depended on being accepted as a member of a community. Any member of the village community who wanted land and was capable of using it productively was given access to land. Although people received rights to control certain plots of land, they did not own the land.

All village land was traditionally under the custodianship of the village headman. The village headman subdivided land under his jurisdiction among various lineage groups, whose leaders then further subdivided the land among group members and households. Approval was needed from the village headman before virgin land was utilized and before a household could dispose of its land to someone from outside the community. The latter provision served to protect the group against possible land shortage within the village and helped to maintain the identity of the tribe. All disputes arising from the allocation, use, and misuse of land were adjudicated by the village headman (Mkandawire 1983).

Before the colonial period, most ethnic groups in Malawi practiced a system of shifting cultivation. As a result, rules of inheritance were not strictly adhered to. With the expansion of the cash economy and the emergence of land scarcity in certain locations during the colonial period, rules of inheritance gained greater importance.

Traditional inheritance practices differed considerably between matrilineal and patrilineal societies within Malawi. Among the matrilineal societies of the central and southern regions (especially the Chewa), on the death of the cultivator, land generally reverted to his matrikin who corporately decided who would take up cultivation of the land. In view of the growing scarcity of land in these regions, such land has frequently been subdivided among different members of the matrikin, such as mothers, brothers, maternal nephews, etc. Land pressures have also resulted in a trend toward increased inheritance along patrilineal lines (e.g., a son inheriting land from the father) in such traditionally matrilineal societies.

In contrast to the Chewa, the patrilineal Tumbuka and Ngoni of the northern region have a clear order of preference for inheritance of land. The eldest son has first priority to inherit land of his father. In areas of abundant land, other sons are expected to open up new land, while in areas of land scarcity, the eldest son is expected to share the father's land with his brothers. When there are no sons, succession passes to the eldest brothers of the deceased.

1.2 The Origins of Estate Agriculture during the Colonial Period

The development of agricultural estates in Malawi has its origins in the 1890s, following the establishment of the British Protectorate in 1891. Initially, European companies, individuals. and Christian missions acquired land through treaties with local chiefs. The first estates were developed for coffee production, but the collapse of world coffee prices at the turn of the century badly affected the settlers' estates. Settler attention then turned to cotton, tobacco, and tea. The estate subsector developed very slowly until the 1920s because of high transport costs, undercapitalization, and shortages of skills (Christiansen and Kydd 1987).

More expansive estate development took place during the 1920s, when the colonial government began to issue legal titles to land in order to stimulate further European settlement in the colony and to generate funds for the administration of the Protectorate. The government examined all land claims held by Europeans and confirmed most of them by issuing legal documents in the form of claim certificates. In doing this, the state effectively conferred on individuals and organizations the private ownership of land. Most of the land so granted was on a freehold basis. In subsequent years, however, long-term leaseholds (21 to 99 years) were also granted. By 1930, it was estimated that 78,329 hectares of land had been alienated in freehold and 47,977 hectares in leasehold, almost all to Europeans (Pachai 1978).

Land not privately owned by individuals or companies was declared to be either Crown Land or African Trust Land. Crown Lands were defined as "all public lands in the protectorate which are subject to the control of His Majesty by virtue of any Treaty, Convention, or Agreement, and all lands which shall have been acquired by His Majesty for the public service or otherwise howsoever" (Pachai 1978). African Trust Land was designated as all other land that was under customary occupation and controlled by a village headman or chief for a given area.

European alienation of land was most extensive in the Southern Region, where large estates were developed to produce tea and flue-cured tobacco. One individual estate, that of the Blantyre and East Africa Company, covered over 50,000 hectares. During the interwar years, the fate of the tea and tobacco estates closely followed world market conditions. For example, while buoyant tobacco prices led to a doubling of estate tobacco plantings between 1919 and 1927 to reach over 10,000 hectares, expanded production in Southern Rhodesia and depressed international prices later brought about a production cutback to less than 2,500 hectares (Nyasaland Protectorate 1939).

Large-scale land alienation in the Southern Region, together with a substantial immigration of the Lomwe people from Mozambique in the early 1900s, resulted in a scarcity of land within the African Trust areas and in major conflicts over land between the European estate owners and smallholder encroachers. A "solution" to this conflict emerged from the development of a tenancy arrangement whereby peasants had to supply labor to the estates in exchange for a small plot of land. This tenancy system came to be known as *thangata*, which, in Chechewa, has the ironic meaning "to assist." Under this system, in the areas of traditional

matrilineal settlement, settlers forbade young men from settling on the land of their prospective spouses and compelled youths, once they became of age, to enter into a contract or be expelled from the estate. Most families working on estates were consequently alienated from their kinship ties and communities.

The Central and Northern Regions were not characterized by conflicts over land like those that were experienced in the south. It was only in the 1920s, after the improvement of roads and the buildup of market places, that European farmers settled in the Central Region, primarily to produce tobacco. In the period up to 1941, nearly 24,300 hectares of land was leased to some twenty Europeans in this region, particularly in Lilongwe, Dowa, and Mchinji. Still, land shortages were virtually unknown in these regions, as hundreds of thousands of hectares of fertile land retained Trust Land status (McCracken 1983).

The tenancy system that evolved in the Central Region differed from that developed in the south. Tobacco production was based not on direct labor but on a system involving sharecropping producers and other smallholder farmers. Several European estate owners developed a system of distributing seeds to tenants on estate land (and to other peasants in surrounding villages as well), supervising production, and purchasing the resulting crop. This system came to be known as the "Visiting Tenancy System." It provided a major source of income for Africans and resulted in a large expansion of Malawi's tobacco production during the 1930s, primarily burley and fire-cured tobacco (Ng'ong'ola 1986).

In the postwar period, the number and total area of tobacco estates based on the Visiting Tenant System expanded steadily. Tenancy contracts became standardized, and the number of tenants increased from about 3,000 in 1954 to 5,900 in 1964. While the tenant producers obtained only a small share of the profits being realized by tobacco estate owners, the income received by tenants was still about twice that obtained by smallholders growing fire-cured tobacco on Trust Land (Watson 1964). Discontent with the exploitative elements of the *thangata* system, on the other hand, resulted in rural unrest in the early 1950s and eventually to the abolishment of this labor contracting system.

1.3 Land Tenure Changes in the Post-Independence Period

In view of the conflicts over land matters experienced during the colonial period, in the period immediately following independence, the Malawi government attempted to gain tighter control over the acquisition of land by private individuals or companies. The control mechanisms were embodied in the 1965 Malawi Land Bill which classified land as:

> **Public Land:** "land which is occupied, used, or acquired by the government and any other land not being customary or private land." This land consists mainly of forest reserves and game parks. Neither smallholder farmers nor any other individuals are allowed access to this land without government consent. Any freehold or leasehold land that is surrendered reverts to the government as public land.

Private Land: land that is owned, held, or occupied under private ownership. There are three classes of private land--(1) freeholds, (2) leaseholds, and (3) customary land converted to private lands under the Customary (Land Development) Act of 1967. The last category of land classification has been applied only to the Lilongwe ADD.

Customary Land: land that is held, used, or occupied under customary law. Control of the allocation and use of such land vests in the village headman or chief of a given area.

The Land Bill provided that customary land could be transferred to leasehold only with the consent of chiefs. As chiefs are indirectly government appointees, this provided the government with very strong leverage over the allocation of land. The power to convert land from one form of tenure to another has been widely applied, resulting in significant changes in the division of land among the different tenure categories. Such changes in the land tenure structure can be gleaned from Table 1.1.

Table 1.1 Changes in Land Tenure Arrangements (thousand hectares)[a]

Year	Public Land	Customary Land	Freehold Land	Leasehold Land	Total Land
1964[b]	1106.7	8183.3	167.8	72.0	9529.7
1967[b]	1206.8	8100.9	153.4	68.6	9529.7
1970[b]	1525.6	7777.7	147.5	79.0	9529.7
1973[b]	1592.1	7700.6	107.6	129.5	9529.7
1976[b]	1681.3	7602.3	85.3	236.8	9529.7
1979[b]	1674.1	7547.7	52.1	255.8	9529.7
1982[c]	1659.5	7358.3	51.8	379.1	9448.7
1985[c]	1641.6	7271.2	52.0	484.1	9448.7
1988[d]	1641.6	7066.2	52.0	688.9	9448.7

[a] The data in this table should be regarded as "orders of magnitude" rather than exact figures, given the uncertainties associated with the primary data sources.

[b] Derived from the registry of the Department of Lands and Valuation (DLV), as reported in Mkandawire and Phiri (1987).

[c] Data for public and freehold lands derived from the same DLV registry. Leasehold land was calculated from the agricultural estate files for Kasungu, Mzuzu, Salima, Liwonde, Lilongwe, and Blantyre ADDs. Customary land data is the residual.

[d] Data for public and freehold lands are estimates. Leasehold land data are derived from the ADD files, while the customary land figure is a residual.

During the first decade of independence, land classified as public land increased by nearly 44 percent as a result of the creation of large additional forest reserves and game parks on former customary land, and the assumption of public control over part of the area that had been

European-owned estates. Since then, the public land area has remained relatively steady. The area under freehold has remained relatively steady since the late 1970s.

As the table indicates, the most significant changes have been the large and continuous decline of the area of customary land and the large increase in leasehold land since the early 1970s. Over the 25-year period considered, the area of customary land has declined by more than 1,100,000 hectares or 13.7 percent. Approximately half of this area was lost between independence and 1979, with most of this land being transferred to public land status. During the 1980s most of the land transferred from the customary subsector has been to leasehold estates.

1.3.1 The Recent Expansion of the Leasehold Estate Subsector

Since 1970, the number of registered leasehold estates has increased from fewer than 250 to more than 14,000, while the total area of registered leaseholds has increased nearly tenfold. This expansion of the leasehold estate subsector is summarized in Table 1.2. The table does not include the limited number of estates found in Karonga and Ngabu ADDs, as information regarding the year of lease for such estates was not obtained. According to data from the Department of Lands and Valuation, the leasehold estate area in these two ADDs totals 23,200 hectares.

Table 1.2 Leasehold Estate Expansion, 1970-1989

Year(s) Leased	# of New Estates	Area Leased (000 ha)	Mean Size (ha)	Cumul. # of Estates	Cumul. Area (000 ha)	Cumul. Mean (ha)
To 1970[a]	229	79.0	345	229	79.0	345
1970-1979[a]	876	176.8	202	1105	255.8	192
1980[b]	216	17.3	80	1321	273.1	207
1981[b]	765	46.9	61	2086	320.0	153
1982[b]	1714	65.6	38	3800	386.0	102
1983[b]	1006	49.2	49	4806	435.2	91
1284[b]	486	24.9	51	5292	460.1	87
1985[b]	363	31.4	87	5655	491.5	87
1986[b]	592	26.4	45	6247	517.9	83
1987[b]	1867	70.2	38	8114	588.1	72
1988[b]	3839	107.7	28	11953	695.8	58
1989[b]	2402	63.6	26	14355	759.4	53

[a] Derived from registry of the Department of Lands and Valuation as reported in Mkandawire and Phiri (1987).

[b] Derived from leasehold files for Kasungu, Mzuzu, Salima, Lilongwe, Liwonde, and Blantyre ADDs.

The table indicates that prior to 1970 there were relatively few leasehold estates, and that these were generally very large. During the 1970s an additional 876 leasehold estates were established (most of them in the latter half of the decade). Most of the new estate area was opened up by large private and parastatal corporations, including Press Farming, General Farming, ADMARC, Spearhead Ltd., and Malawi Dairy Industries. Malawian businessmen, politicians, and active and retired civil servants also acquired large leaseholds during this period.

The 1980s has witnessed a dramatic expansion in number and total land area of leasehold estates. As indicated in Table 1.2 and illustrated in Figures A and B, estate expansion during the 1980s occurred primarily during two "boom" periods, one lasting from 1981 to 1983 and the other beginning in 1987 and continuing through 1989 to the present. During the first boom period (1981-1983), 3,485 new estates were registered, having a total area of nearly 162,000 hectares. During the second boom period (1987-1989), 8,108 new estates were registered, having a total land area of over 241,000 hectares.

The structural characteristics of the recent estate expansion differ from the patterns characterizing estate development in the 1970s. During the 1980s, the vast majority of newly registered estates have been relatively small in size. In fact, 71 percent of the new estates are smaller than 30 hectares, while 49 percent are smaller than 20 hectares. A substantial number of medium-scale estates (30 to 100 hectares) was also established during the 1980s, accounting for about 24 percent of the total. Large-scale estates (more than 100 hectares) accounted for only 5 percent of estates registered during the 1980s. This division of the new estates among size categories is illustrated in Figure C.

As these numbers indicate, the primary mode of estate expansion during the 1980s has not been via large-scale investments by corporations or by prominent businessmen and civil servants. Instead, the primary modes of estate development have been through:

- conversion of cultivated customary land into leaseholds by individual smallholders or smallholder extended families;

- development of new estates by former managers, tenants, clerks, or other employees of the large-scale corporations; and

- investment in estates by medium-level civil servants (e.g., teachers, agricultural officers) and small businessmen (e.g., shopkeepers).

Such developments are rapidly altering the structure of Malawian agriculture. Where once a sharp dualism could be discerned between the "smallholder" and "estate" subsectors, the emergence of smallholder-owned estates is breaking down that distinction.

Despite the relatively small number of newly established large-scale estates, such estates still accounted for more than one-third of the land transferred from the customary to the leasehold subsector during the 1980s. Of the approximately 503,000 hectares that were so

FIGURE A. EXPANSION OF ESTATES (1970-1989)

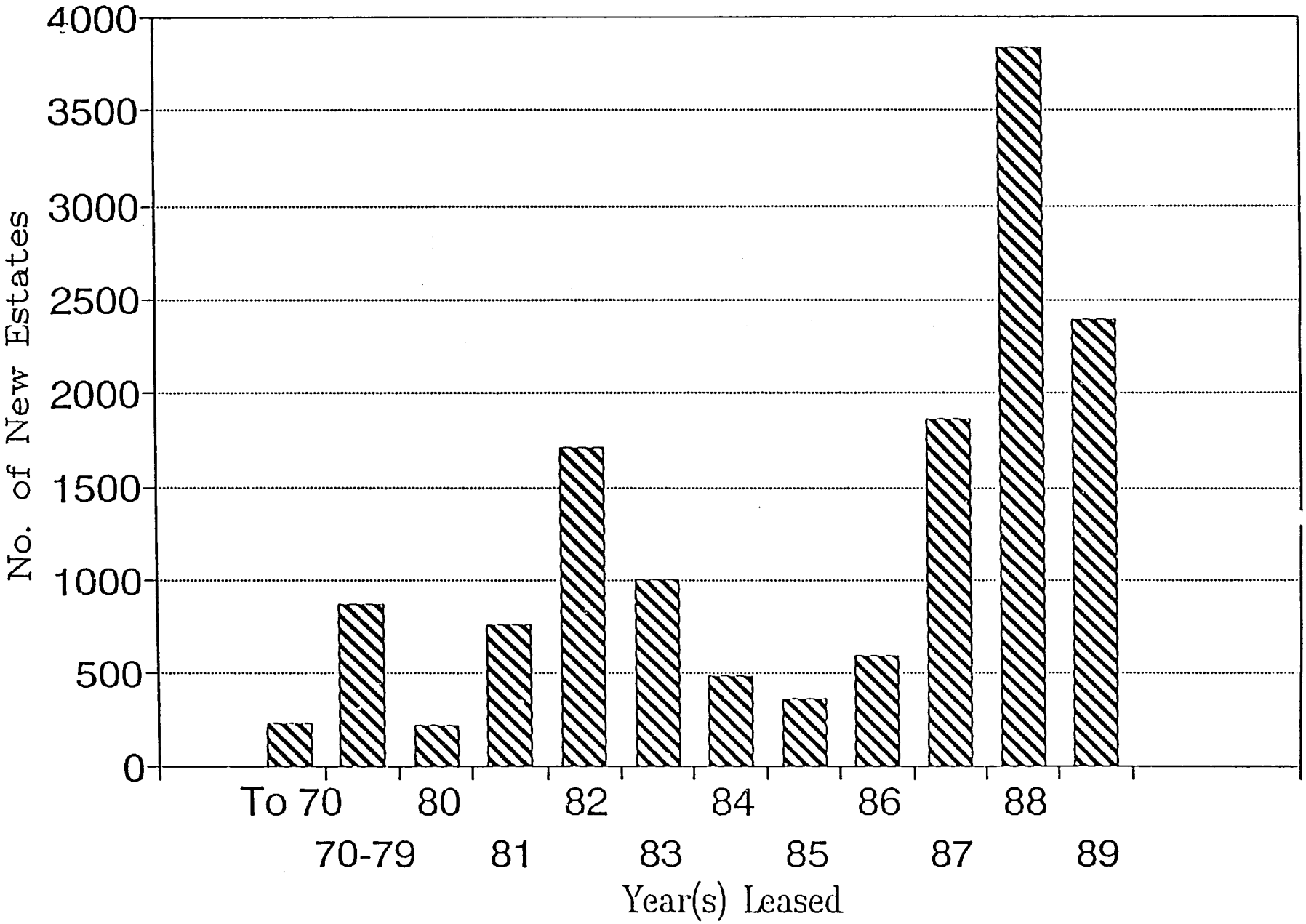


FIGURE B. EXPANSION OF ESTATES (1970-1989)

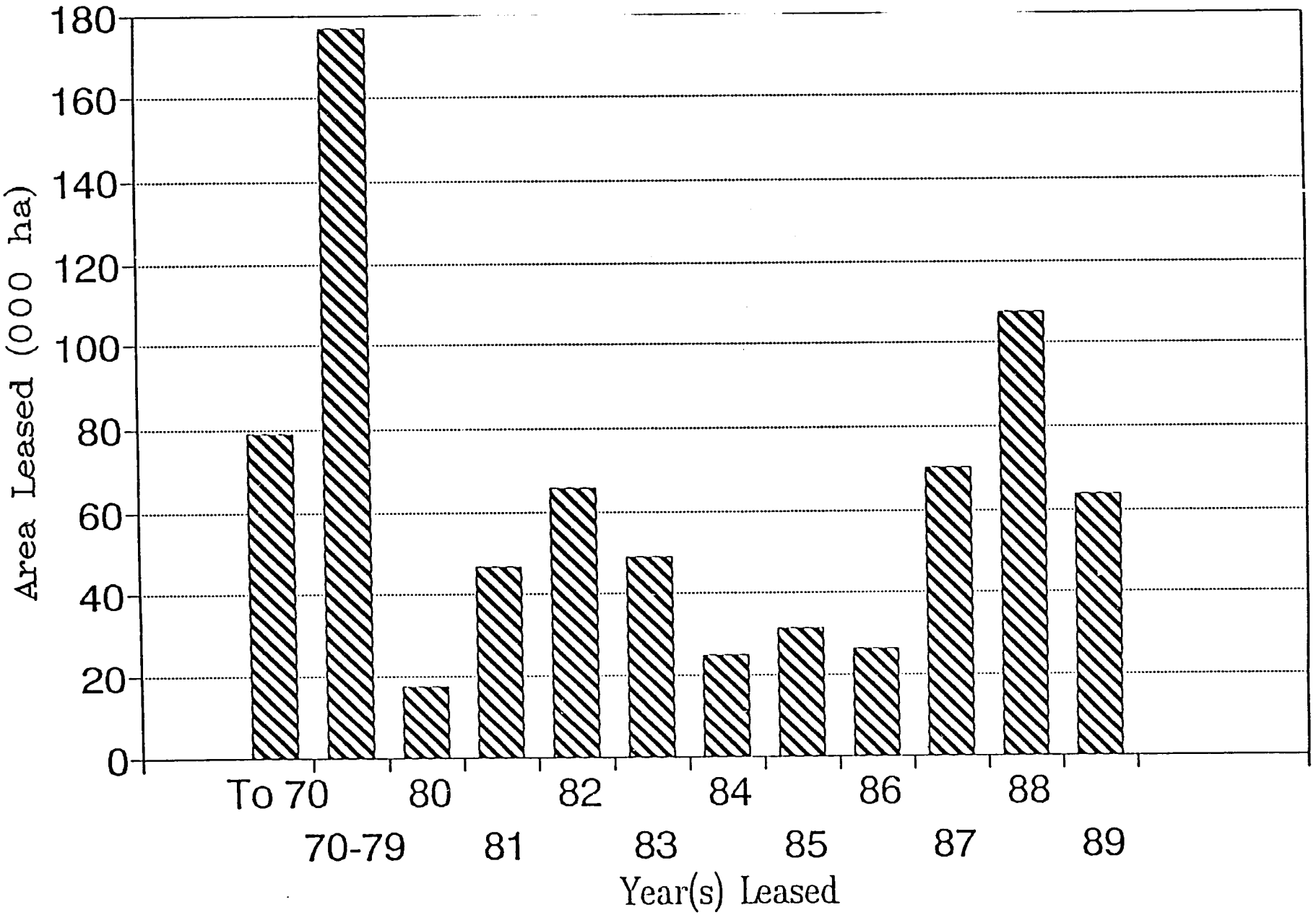
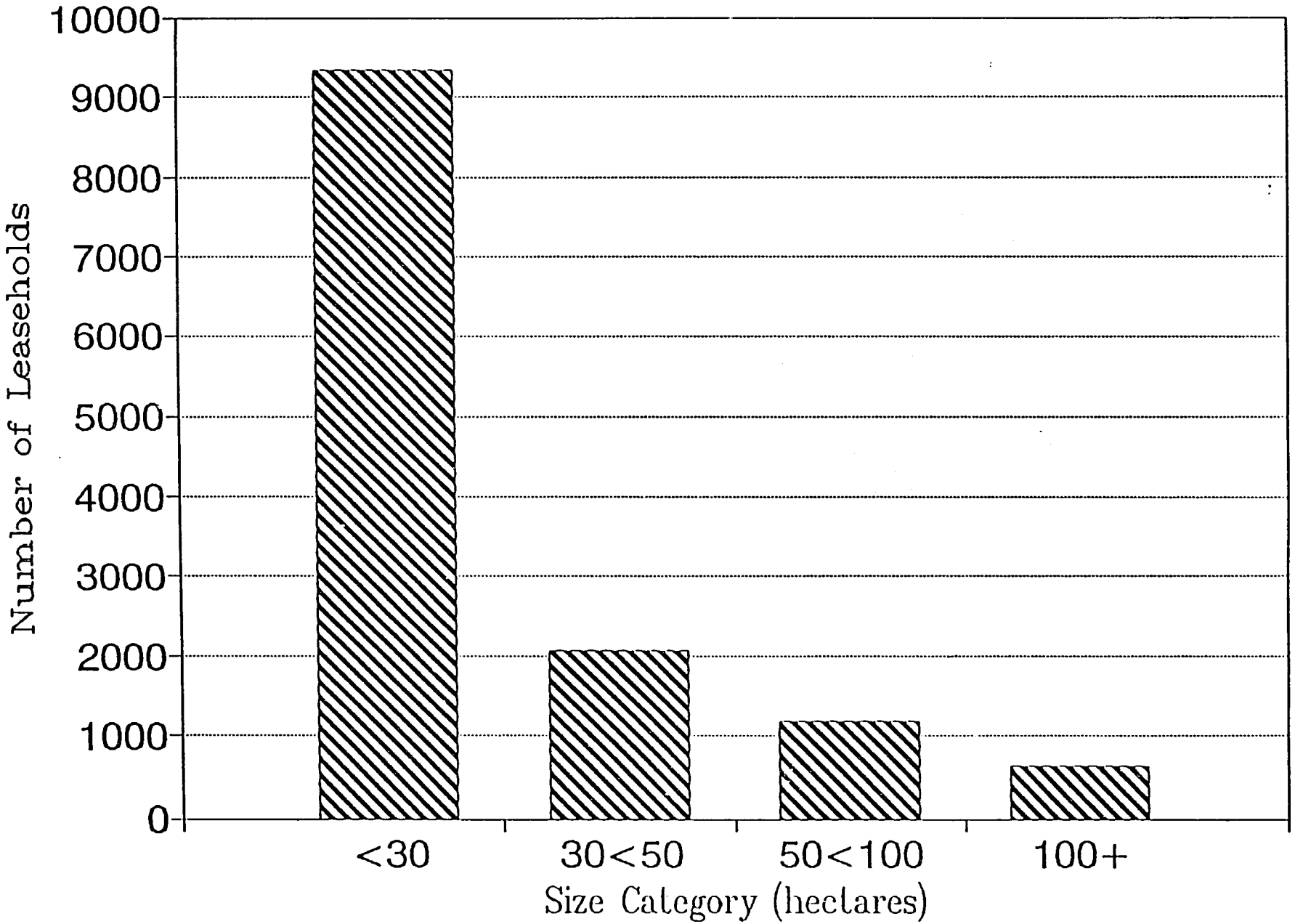


FIGURE C. ESTATE EXPANSION IN THE 1980s



transferred during this decade, large-scale estates accounted for 37 percent, with small-scale estates (smaller than 30 hectares) and medium-scale estates (30 to 100 hectares) accounting for 32 percent and 31 percent respectively. This division of the additional leasehold area among estates of different size categories is illustrated in Figure D.

An important difference between the structural characteristics associated with the 1981-1983 boom period and those related to the 1987-1989 boom period concerns the area of leaseholds by estate size. In both periods small-scale estates have been numerically predominant, but it is only in the more recent period that small estates have also accounted for the largest proportion of the incremental leasehold area. The different structural characteristics between the two estate expansion booms are illustrated in Figure E.

The changing character of the leasehold estate subsector has been little recognized in recent studies on Malawian agriculture, although certain reports indicate that some newly established estates are of relatively small size (Dickerman and Bloch 1989; World Bank 1990). Clearly, however, the changing structure of the subsector and the growing participation of smallholder farmers in estate development have major implications for ongoing policy discussions regarding land tenure, crop licensing, and agricultural credit policies, and for the design of the new Estate Extension Service. Over the past three years, more than 40 percent of the added leasehold area has been accounted for by smallholder farmers registering their customary land. While prior analysis has emphasized the problematic distributional consequences of Malawi's development of a limited number of large-scale estates, the efficiency and distributional implications of the recent estate expansion have not been addressed.

1.3.2 Regional Dimensions of Estate Expansion

The extent and timing of estate development has varied greatly among the regions and administrative districts of Malawi. This can be seen in Table 1.3. The table shows that for Malawi as a whole, estates occupied some 9.0 percent of the total land area at the end of 1989. The concentration and importance of estates varies greatly among regions and districts, however. Estate development has been most extensive in the central region, this region accounting for about 77 percent of all registered estates and 67 percent of all estate land. While for the central region estates occupy 16 percent of the total land area, in such districts as Ntchisi, Kasungu, and Mchinji, estates contain 25 percent or more of the land area. Estate development in this region dates to the 1920s and was quite extensive during the 1970s, but since the mid-1980s the number of estates has increased substantially in such districts as Kasungu, Nkotakota, Dowa, Lilongwe, and Mchinji. There is some evidence that the halting of lease registration in Kasungu and other areas is resulting in a scramble to acquire land in other districts, both within the central region and elsewhere.

Estate development in the southern and northern regions is far less extensive, although quite significant in individual districts. In the southern division, the majority of estates were established prior to the 1980s, with estates occupying large areas only in Mangochi, Machinga,

FIGURE D. ESTATE EXPANSION IN THE 1980s
by Leasehold Size Category

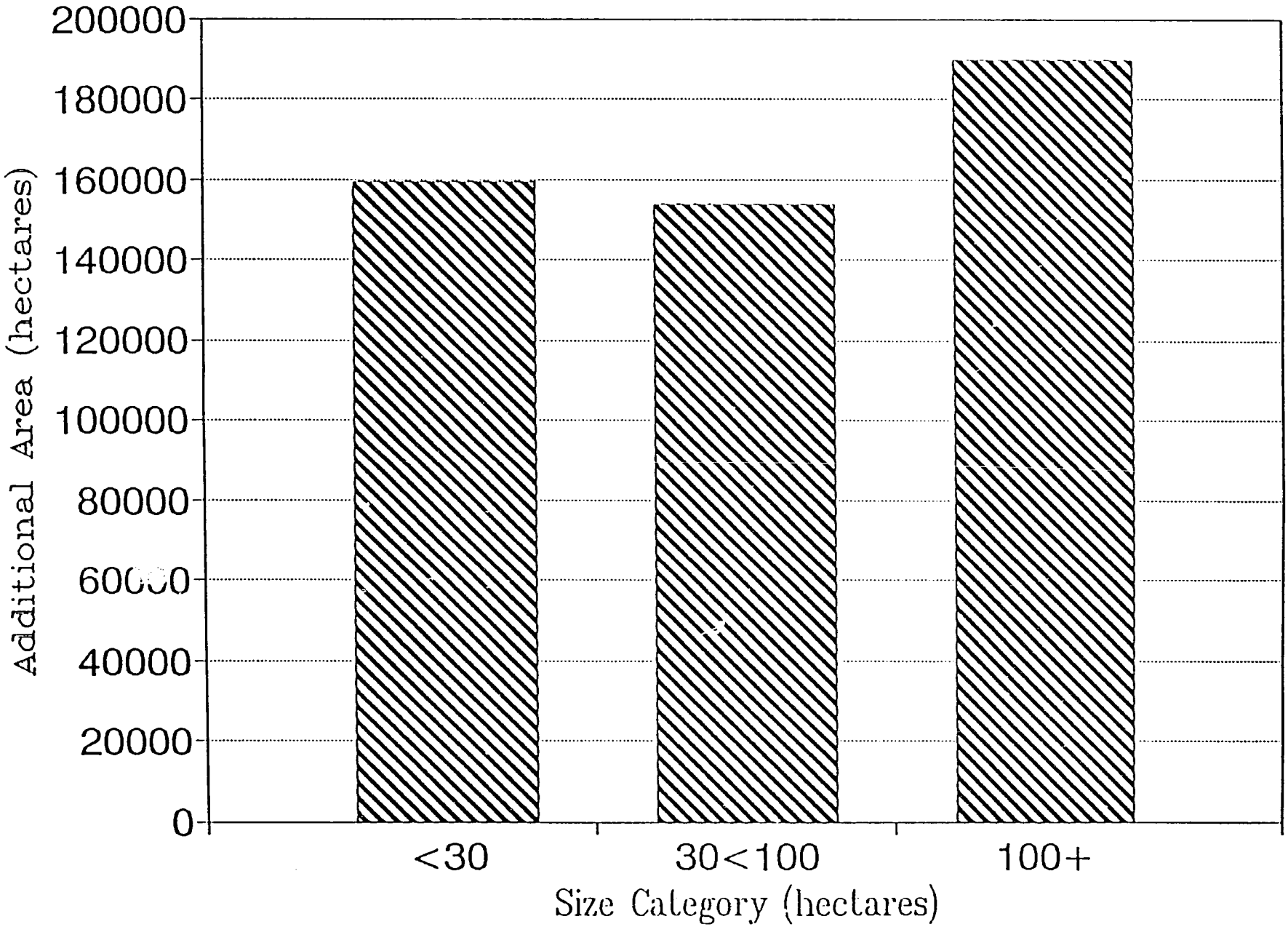


FIGURE E. RAPID ESTATE EXPANSION 1981-83 and 1987-89

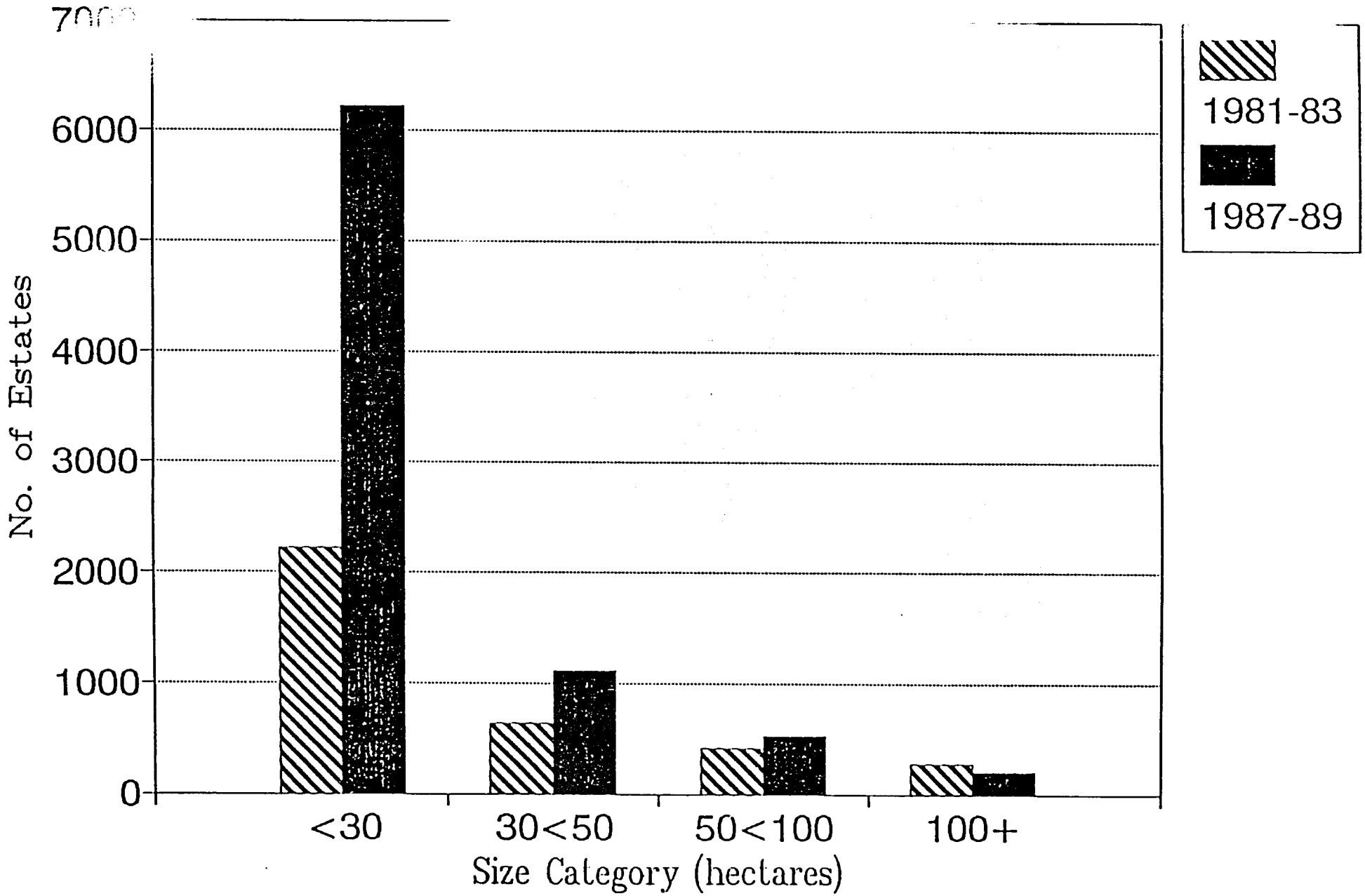


Table 1.3 Estate Development by District through 1989[a]
(includes both leasehold and freehold estates)

District	Total # of Estates	# of Estates Estab. Pre-1986	# of Estates Estab. 1986-1989	Estate Area (000ha)	Total Land (000ha)	Estate Area as % of Total Area
Northern Division						
Chitipa	-					
Karonga[b]	53	N.A.	N.A.	2.1	295.5	0.7
Rumphi	623	131	492	19.0	595.2	3.2
Nkata Bay[b]	33	N.A.	N.A.	10.2	409.0	2.5
Mzimba	1363	211	1152	73.9	1043.0	7.1
Total[c]	**2072**	**342**	**1607**	**105.2**	**2693.1**	**3.9**
Central Division						
Kasungu	3971	1834	2137	218.9	787.8	27.8
Nkotakota	666	59	607	49.4	425.9	11.6
Ntchisi	578	204	374	74.9	165.5	45.3
Dowa	1716	861	855	37.6	304.1	12.4
Salima	713	268	445	35.0	219.6	15.9
Lilongwe	1344	273	1071	37.8	615.9	6.1
Mchinji	2096	918	1178	91.5	335.6	27.3
Dedza	44	31	13	4.9	362.4	1.4
Ntcheu	100	53	47	18.6	342.4	5.4
Total	**11228**	**4501**	**6827**	**568.6**	**3559.2**	**16.0**
Southern Division						
Mangochi	553	299	254	69.4	627.2	11.1
Machinga	365	231	134	40.2	596.4	6.7
Zomba	233	166	67	10.9	258.0	4.2
Chiradzulu	16	16	0	2.8	76.7	3.6
Blantyre	34	34	0	4.4	201.2	2.2
Mwanza	20	20	0	2.5	229.5	1.1
Thyolo	21	21	0	20.3	171.5	11.9
Mulanje	27	27	0	2.0	345.0	0.6
Chikwawa[b]	15	N.A.	N.A.	18.2	475.5	3.8
Nsanje[b]	11	N.A.	N.A.	2.8	194.2	1.4
Total[c]	**1295**	**814**	**455**	**173.6**	**3175.2**	**5.5**
Malawi[c]	14595	5657	8889	847.4	9427.6	9.0

[a] Unless otherwise indicated, these data are derived from ADD agricultural estate files. For each estate the district, land area, and date of establishment were recorded. Information on date of estate establishment was missing for 565 estates. Such estates were assumed to have been established prior to the 1980s.

[b] Derived from computer file data of the Department of Lands and Valuation, deducting leaseholds with 5 hectares or less, as these are assumed to be nonagricultural sites.

[c] Subtotals for pre-1986 and 1986-1989 will not add up to totals because of missing data on years leased for estates in Karonga, Nkata Bay, Chikwawa, and Nsanje.

Source: ADD Estate Files; Department of Lands and Valuation.

Thyolo, and Chikwawa. Only in Mangochi and Thyolo do estates occupy 10 percent or more of the total land area. For the region as a whole, estates occupy 5.5 percent of the total land area.

In the northern region, estate development is a relatively recent phenomenon, although a limited number of larger estates were established in the mid-to-late-1970s. The poorer development of basic infrastructure and the sparse population density in this region inhibited estate development. Despite a recent expansion of estate development in Rumphi and Mzimba, estates still only account for 3.9 percent of the total area of the region.

1.4 Factors Contributing to Leasehold Estate Expansion

The agrarian policy of the early post-independence government was geared largely toward the support of smallholder farmers. In the 1962-1965 *Development Plan*, it was noted that:

> production in agriculture must increase at a phenomenal rate, so that reliance on it as a source of income has meaningful content not only for the few, but also the masses. It will do so only if there is a sustained and effective campaign to encourage and assist the masses to take up cash crop farming. This is what Government sets to do in the present plan (Nyasaland 1962).

Throughout the 1960s, nearly all of the Ministry of Agriculture's local resources were allocated to smallholder projects. At the same time, external financial institutions that had invested in estate agriculture during the 1950s redirected their funds toward smallholder projects (Kydd 1985:319). With the government appearing to be cool to estate expansion, many European owners sold their estates.

In the late 1960s, a shift in the government's agrarian policies began to take shape. :nst a background of wide interannual variations in smallholder tobacco production and two - harvests of smallholder maize, the 1968 *Economic Report* raised doubts about the ability :mallholder agriculture to generate economic growth and to provide sufficient government :nues for investment purposes. Expansion of the estate subsector came to be viewed as a tentially more reliable source of growth and revenues. Civil servants and leading political :ficials were strongly encouraged to establish estates that were expected not only to expand .gricultural output but to provide a training ground for the country's future commercial farmers.

The subsequent expansion of the estate subsector during the 1970s was facilitated by several factors. First, with the government emphasizing the development role of estates, individuals and corporations were accorded the *opportunity to lease large tracts of land at very little cost.* Sizable transfers of land from the customary subsector occurred under the perception ·at there were wide areas of unused customary land. Hence, it was believed that smallholder iculture would be unaffected, at least in terms of access to land. No land tax was imposed .. d land rents, even though they were set at nominal levels, frequently went unpaid.

A second important factor was the *market opportunities made available to estate leaseholders.* One major market opportunity was provided by the imposition of sanctions on Southern Rhodesia following its unilateral declaration of independence in 1965. Leading international tobacco buyers encouraged Malawi to expand production to compensate for the reduced Rhodesian output and sales. Malawi's market position was further enhanced by the passage of the Lomé Convention in 1973; this provided duty-free access for Malawi's tobacco into the EEC and thus gave it an advantage over supplies from the United States and South America. Especially favorable market opportunities for burley and flue-cured tobaccos were reserved for estate producers through the Special Crops Act in 1972, which imposed a licensing system for these crops. Any potential competition from smallholder producers was thus eliminated. Unlike smallholder producers who were growing dark-fired and air-cured tobaccos, estate producers of burley and flue-cured were permitted to sell their tobacco directly over the auction floors, realizing international prices for their crop. Though stagnant during the early 1970s, such international tobacco prices increased sharply during the mid-1970s.

Favorable access to low-cost financing was a third important factor in the expansion of the estate subsector during the mid-to-late 1970s (Kydd and Christiansen 1982; Minster Agriculture Ltd. 1983). Financing for the emergent estates came from two main sources. One source was the commercial banks. Beginning in the early 1970s, commercial banks were placed under heavy pressure to extend loans to estates. As a result, commercial bank advances to the agricultural sector increased from only K 2.1 million in 1970 to K 13.6 million in 1975, and to K 81.9 million by 1979. Over this period, the share of agriculture in loans advanced by the commercial banks increased from only 9.7 percent to 48.0 percent. Much of the additional financing was directed to tobacco estates. For example, long-term loans from the National Bank of Malawi to tobacco growers increased from K 26,400 in 1973 to K 21.6 million in 1982, while its seasonal overdrafts to such growers increased from K 4.1 million to K 67.3 million.

The second main source of finance for the emergent estate subsector was agricultural smallholders, whose surpluses were extracted via implicit taxation. In 1971, the Agricultural Development and Marketing Corporation (ADMARC) was created to replace the former Farmers Marketing Board (FMB). While it retained most of the powers and duties of the FMB, ADMARC was given a variety of new ones, the most notable being to assist any public or private organization with capital, credit, or other resources in "the prosecution of any . . . projects, schemes, enterprises relating to the development or improvement of the economy of Malawi" (Government of Malawi 1971). ADMARC was well positioned to perform this function, as it retained monopoly rights over the purchase and sale of smallholder maize, rice, groundnut, cotton, and tobacco production.

During the 1970s, ADMARC would become an important actor in Malawi's financial market. Although in some years it subsidized smallholder maize and rice producers, ADMARC's pricing of industrial and export crops was well below international prices, enabling the organization to amass large profits in each year. Between 1971/72 and 1979/80, ADMARC amassed profits of K 155.9 million, the largest proportion deriving from its purchases and sales of smallholder air-cured and dark-fired tobacco.

Between the early 1970s and the early 1980s, a large proportion of ADMARC's profits was transferred to the estate sector. By 1981, ADMARC had made direct investments worth K 13.25 million in estates and estate-related industries. In that year, the corporation owned and managed approximately 12,350 hectares of tobacco estates. By 1981 ADMARC had also advanced some K 33.5 million in unsecured loans to other corporations to invest in tobacco, sugar, and other estates (ADMARC Annual Report 1980/81).

Having access to land, markets, and concessional finance, the emerging estates still required *large and inexpensive sources of labor.* Several circumstances facilitated meeting this need, including: (1) the heavy implicit taxation of smallholder cash crop production, (2) rapid growth in the labor force owing to a reduction in international migration, (3) increasing land pressures in certain parts of the country, and (4) restrictions on smallholders producing burley tobacco. Such factors increased the supply of laborers for estates, while lowering their opportunity costs. Despite a steady decline in the real wages of estate workers during the 1970s, the supply of labor to the estates increased substantially. Labor on estates increased from only 51,000 in 1968 to 181,000 in 1980 (Kydd and Christiansen 1982:366; Kydd 1983).

Another important factor of production, *management,* became more readily available during the 1970s as hostilities in Rhodesia intensified. Hundreds of expatriate managers were recruited by Malawi's large-scale tobacco-producing companies to manage their estates. Competent management, however, proved to be a major problem for most of the smaller, privately owned estates.

By the late 1970s, many of the newly developed estates began to experience severe difficulties. Most of the estates established during the mid-1970s had been capitalized entirely with commercial bank loans. Facing interest rates of up to 15 percent and achieving low yields because of poor management, such estates were unable to meet their interest payments. When international tobacco prices declined significantly during 1978-1980, many estates were forced into bankruptcy or were placed under the financial and technical management of the commercial banks, which at this time created their own agricultural management units. In contrast, buoyant international prices for beverage crops brought large profits for the long-established tea estates and led some to diversify their operations into coffee.

As indicated earlier, the pace of estate expansion accelerated strongly during the 1980s, with most of the growth taking place during 1981-1983 and 1987-1989. Each of these periods of estate expansion followed major increases in the nominal price of tobacco, with such price increases undoubtedly serving as a major stimulus to register land as estates, thereby obtaining a production and sales license. The price trends for burley tobacco are shown in Table 1.4.

The table shows the large increases in nominal prices that occurred in 1981-1982 and again in 1986-1988. Real tobacco prices were also sharply higher in these periods than in immediately prior years, although with the exception of 1981, the real price of burley tobacco was lower throughout the 1980s than it was in the mid-1970s. Thus, the wealth created by

Table 1.4 Auction Prices for Malawian Burley Tobacco (in tambala per kilogram)

Year	Average Price	Average Real Price[a]
1977	137.36	137.36
1978	115.73	106.56
1979	107.44	89.16
1980	117.74	82.05
1981	231.61	144.40
1982	216.24	122.72
1983	130.71	65.30
1984	172.49	71.87
1985	181.55	68.48
1986	291.40	96.33
1987	396.33	104.84
1988	524.47	105.42
1989	369.97	64.27
1990[b]	517.29	N.A.

[a] Deflated by the Malawi Annual Consumer Price Index.

[b] Through September 20, with one week remaining in the season.

Sources: Tobacco Control Commission; UNDP/World Bank (1989).

increased tobacco prices was partly an illusion because of rapidly increased production and consumer costs in the economy. Still, the higher prices offered estate tobacco producers better revenue prospects than those obtained elsewhere in the economy, and some estate owners did indeed become very wealthy. On the other hand, the low level of real prices during the mid-1980s and again in 1989 meant that many estates obtained little or no profit.

The rapid expansion of the estate subsector during the 1980s, unlike that of the 1970s, has not been built on large increases in commercial bank advances. As a result of their difficulties in recovering loans in the late 1970s and early 1980s, the commercial banks altered their lending policies, reducing the amounts of long-term loans and offering seasonal loans only up to 60 percent of the expected operating costs of their estate clients. The table below provides data on the total advances offered by the commercial banks to the agricultural sector during the 1980s. Table 1.5 indicates that while the nominal level of such advances increased in some years (especially 1983 and 1986), the real value of such loans has declined over the decade (except for 1982-1983), as has the amount of money advanced per hectare of estate land.

This decline in the real value of credit extended by commercial banks to the agricultural sector might have been expected to constrict further estate development during the 1980s. However, most of the expansion of the estate subsector has come from smallholder farmers registering their customary land as estates. Most such farmers established their new estates through savings from prior farm income and from employment. Still, by acquiring licenses to produce and sell burley tobacco, these farmers have gained access to commercial bank credit,

Table 1.5 Commercial Bank Advances to the Agricultural Sector (kwacha)

Year	Total Amount Advanced in Nominal Terms (K 000)	Total Amount Advanced in Real Terms[a] (K 000)	Amount Advanced for Registered Estate Land (K/ha)
1980	92,671	92,671	291
1981	94,272	84,322	258
1982	115,128	93,752	267
1983	138,520	99,369	268
1984	113,463	67,820	225
1985	117,866	63,746	220
1986	133,464	63,284	237
1987[b]	109,037	41,318	172

[a] Deflated by the Malawi Annual Consumer Price Index.

[b] This is the last full year for which published data are available.

Source: Reserve Bank of Malawi 1989, Volume 3.

if only in the form of "bridging loans" to cover the costs of tobacco harvesting, grading, and transport.

The category of smallholders who have converted their lands into registered estates encompasses mainly been progressive farmers who have had some experience with tobacco production--either dark-fired tobacco sold through ADMARC, or burley tobacco produced as tenants or produced illegally on customary land and sold through estates. *Smallholder farmers have been motivated to register their customary land as estates in order to obtain a license and quota to produce burley tobacco (legally), and also by a perceived or real threat of insecurity in view of the large-scale estates that are alienating customary land around them. The registering of estates has thus combined the search for improved market access with a search for more secure land tenure.*

Many of these newly emerging "estates" are not, strictly speaking, private estates. Ownership of such estate lands oscillates between individualistic and communal principals. Many such farm units became estates after the head of an extended family asked his relations to include their land in a registered estate. On numerous estates of this kind, members of the extended family are free to use part of the estate land, while villagers are frequently permitted to graze their animals on it and to fetch firewood and thatch where available. In the context of

In addition to the emergence of "graduated smallholder" estates, another significant development in the late 1980s is the phenomenon of multiple leaseholds for the purpose of increasing one's tobacco quota. Tobacco sales quotas were introduced following the excess production of burley tobacco in 1982/83. These quotas have proved to be a binding constraint on many estate owners in utilizing their land and in generating farm revenues. In response, some new leaseholders have created several estates on adjacent plots in order to receive multiple quotas rather than a single low quota. In other cases, leaseholders have acquired leases in other locations, not intending to develop the land, but merely wanting to obtain an additional quota, which will be met by added production from the existing estate.

1.5 The Economic Role of the Estate Subsector

1.5.1 Contribution to Gross Domestic Product

Agriculture is the backbone of the Malawi economy, accounting for between 35 and 40 percent of the country's gross domestic product (GDP) throughout the 1980s. While the largest contribution to GDP from the agricultural sector comes from smallholder production, over the past 15 years the proportion of agricultural GDP accounted for by the estate subsector has been increasing. In 1989, the estate subsector accounted for nearly one-fourth of Malawi's agricultural GDP. These patterns and trends are indicated in Table 1.6.

Table 1.6 Estate Agriculture and Gross Domestic Product[a] (millions of kwacha)

Year	Total GDP	Agricul-tural GDP	Small-holder GDP	Estate GDP	Estate as % of Total GDP	Estate as % of Agri-tural GDP
1974	586.1	228.2	196.0	32.2	5.5	14.1
1975	618.5	230.3	191.4	38.9	6.3	16.9
1976	657.0	257.6	218.2	39.4	6.0	15.3
1977	685.5	286.5	239.0	47.5	6.9	16.6
1978	742.5	294.9	246.3	48.6	6.5	16.5
1979	767.3	304.1	252.8	51.3	6.7	16.9
1980	764.4	284.2	231.2	53.0	6.9	18.6
1981	724.3	261.0	210.6	50.4	6.9	19.3
1982	744.9	277.6	215.9	61.7	8.3	22.2
1983	771.2	289.9	223.8	66.1	8.6	22.8
1984	805.5	306.5	240.9	65.6	8.1	21.4
1985	841.4	308.0	242.0	66.0	7.8	21.4
1986	850.7	310.0	244.5	65.5	7.7	21.1
1987	868.2	312.5	242.4	70.1	8.1	22.4
1988	896.8	318.7	243.6	75.1	8.4	23.6
1989	930.5	320.6	241.0	79.6	8.6	24.8

[a] GDP at 1978 factor cost.

Source: Primary data from Reserve Bank of Malawi, Quarterly Reports, various issues, Tables 5.1.

The increased share of the estate subsector in agricultural GDP reflects the faster growth of this subsector compared with smallholder agriculture. Indeed, since the mid-1970s, the GDP of the estate subsector has grown at a faster pace than any other sector in the Malawian economy, as evidenced in Table 1.7.

Table 1.7 Average Annual Growth Rates of Real Gross Domestic Product by Sector

Sector	1974-80	1981-83	1984-86	1987-89
Agriculture	3.5%	0.7%	2.2%	2.1%
of which:				
Smallholder	2.5	-1.1	3.0	1.2
Estate	8.6	7.7	-0.3	8.0
Manufacturing	5.4	3.3	2.6	4.0
Electricity and Water	7.6	3.9	3.1	6.8
Construction	5.2	-7.2	-1.8	10.0
Distribution	5.7	-3.4	3.7	0.1
Transport/Communications	4.9	-4.1	4.0	-0.4
Government Services	6.4	5.3	8.6	7.1
Total GDP (factor cost)	4.9	0.4	3.3	3.2

Source: Economist Intelligence Unit 1990.

1.5.2 Export Earnings

Agricultural crops have accounted for the vast majority of Malawi's domestic export earnings, with their share exceeding 85 percent throughout the 1980s. Malawi's agricultural exports are concentrated among three crops: different types of tobacco, tea, and sugar; minor contributions come from coffee, cotton, groundnuts, pulses, and horticultural crops. The estate subsector accounts for a very large share of Malawi's agricultural exports and a majority of its total exports. Table 1.8 indicates the percentage share of total exports accounted for by major estate crops.

Over the period considered, estates accounted for an (unweighted) average of 61.9 percent of Malawi's total domestic exports and for two-thirds or more of total exports in some years. The table indicates major shifts in the distribution of exports within the estate subsector. While the export shares of flue-cured tobacco and tea have declined in recent years and are well below their levels from the mid-to-late 1970s, the export share of burley tobacco has increased greatly since 1975; this crop accounted for nearly one-third of Malawi's total exports at the end of the 1980s.

Table 1.8 Estate Crop Exports as a Share of Total Malawi Exports (percent)

Year	Tobacco		Tea[a]	Sugar	Coffee[a]	Subtotal
	Flue-cured	Burley				
1975	18.1	7.1	19.4	11.6	0.0	56.2
1976	17.0	4.8	17.8	16.5	0.1	56.2
1977	19.7	8.1	23.0	8.7	0.2	59.7
1978	24.1	8.3	18.7	8.2	0.2	59.8
1979	22.5	9.0	16.4	10.1	0.6	58.6
1980	11.8	8.7	12.7	17.0	0.2	50.4
1981	15.2	18.7	12.4	22.7	0.4	69.4
1982	19.2	24.2	17.3	9.7	0.8	71.2
1983	14.3	19.2	20.0	10.2	0.7	64.4
1984	13.0	12.1	24.7	6.7	0.9	57.4
1985	12.7	13.3	20.7	10.6	2.6	59.9
1986	14.2	19.7	14.5	9.0	4.8	62.2
1987	16.1	24.2	9.6	10.5	3.2	63.6
1988	14.9	32.4	10.1	9.8	3.3	70.5
1989	13.7	31.0	13.2	8.6	2.1	68.6

[a] This is based on 95 percent of total tea and coffee exports, which is the approximate share of estates.

Source: Primary Data from Reserve Bank of Malawi, Quarterly Reports, various issues; Tea Association of Malawi.

1.5.3 Employment

The agriculture, forestry, and fishery sector provides the largest share of employment in Malawi. Including employment on smallholder farms, the share of the country's labor force employed in agriculture was 80 percent or more throughout the 1980s. Table 1.9 provides a breakdown of the labor force according to major sectors.

Table 1.9 points up the dominant role of smallholder agriculture in providing employment in Malawi. Outside of smallholder agriculture, the estate subsector is the largest source of employment in Malawi, providing work for about 9 percent of the work force in recent years. Table 1.10 gives the expansion in estate employment since the late 1970s and provides a breakdown of such employment according to crop or type. The data include only permanent workers, as no estimates on employment of casual workers in the subsector are available. The table includes employment only at the farm level, but additional employment for tens of thousands of people is provided in the transport, processing, and marketing of tobacco, tea, coffee, sugar, and other estate crops.

Table 1.10 indicates that over the period considered the (estimated) employment of permanent workers on estates has more than doubled, a rate of growth far higher than that in any other sector of the economy. The table also shows that the composition of estate employment has changed considerably: in the late 1970s permanent workers on tobacco and tea estates accounted for the largest shares of estate employees, but the scale of such employment

Table 1.9 Labor Force by Sector

Sector	Labor Force (15-64 Years Old) 1968	1978	1987	Share 1978	Share 1987
	------in thousands------			-----percent-----	
Agriculture	1561.8	1976.2	2405.0	86.6	81.4
of which:					
Smallholder	1497.3	1768.7	2138.6	77.5	72.4
Estate[a]	64.5	207.5	266.4	9.1	9.0
Government[a]	31.6	36.6	52.6	1.6	1.8
Industry[a]	82.6	133.8	176.4	5.9	6.0
Informal Sector	44.9	87.4	121.0	3.8	4.1
Unemployed	n.a.	48.0	197.0	2.1	6.7
Total	n.a.	2282.0	2952.0	100.0	100.0

[a] Includes wage and nonwage employees.

Source: Based on Sahn and Arulpragasam 1990, Table 5.

Table 1.10 Employment in the Estate Subsector

(thousands of permanent workers; farm-level only)

Year	Tobacco Estates: Permanent Workers	Tobacco Estates: Tenants and Families[a]	Tea Estates	Other Estates	Total
1977	71.7	28.9	37.9	21.5	161.7
1978	87.5	29.8	37.6	21.8	178.1
1979	99.0	40.5	39.4	23.1	201.9
1980	97.2	47.2	38.1	22.7	205.2
1981	52.9	50.0	36.6	22.0	158.5
1982	72.9	61.3	37.0	21.7	218.5
1983	85.3	117.1	37.6	23.3	243.6
1984	80.6	61.0	39.1	25.0	218.6
1985	89.7	67.9	42.8	28.7	241.8
1989[b]	91.0	168.6	42.0	30.0	331.6

[a] Calculated by taking the number of registered tenants and multiplying by 2.5, assuming that the tenant's spouse is fully employed and that an additional adult family member is working at least part-time on the tenant plot.

[b] Data for tea and "other" estates are estimates.

Sources: NSO, Reported Employment and Earnings, Annual Reports, various years; Tobacco Control Commission; Tea Association.

remained quite stable during the 1980s. Almost the entire increase in estate employment was accounted for by increased numbers of tenants and tenant family members on estates producing burley tobacco. As a result, by 1989 approximately half of all estate workers were not wage employees, but were remunerated according to their crop production.

This change in the composition of estate employment has important implications for the analysis of worker remuneration on estates. Most prior analysis has focused on the level and trends in nominal and real agricultural wages, inferring that such wages have remained well below those earned in other industries and that the real value of the agricultural minimum wage had declined steadily through the 1980s. The conclusion from such work has been that estate employment has failed to contribute to the alleviation of poverty in rural areas (Kydd and Christiansen 1982; Sahn and Arulpragasam 1990).

Changes in the major forms of estate labor suggest that closer attention be given to the remuneration of tenants, to the overall conditions of tenancy, and to the uses of tenant incomes. Preliminary research in this area (Nankumba 1990; Nyanda 1989) suggests that while tenants appear to earn incomes substantially higher than those obtained by most smallholder farmers, they have shared little in the substantial profits earned by tobacco growers in some recent years. The extent to which tenant incomes have been channeled into the rural economy and into investments remains unknown, yet this clearly has strong implications for the developmental impact of estate employment. Questions regarding possible profit-sharing mechanisms within the burley tobacco industry may be just as important as standard agricultural wage issues.

Chapter Two: The Structure of the Estate Subsector

This chapter examines current structural features of the Malawian estate subsector, including its overall size, its distribution by ADD and estate-size category, the diversity of estate "types," and the structure of estate cash-crop production.

2.1 Total Size of the Estate Subsector

Considerable uncertainty exists regarding the actual size of the estate subsector in Malawi. Recent (August 1990) leasehold records of the Department of Lands and Valuation indicate that there are 14,153 leaseholds in the country, including 5,112 leaseholds of less than 5 hectares, which are assumed to be nonagricultural (e.g., stores, residential plots, other building sites). The remaining 9,041 agricultural estates have a total area of 511,987 hectares. If one adds to this the approximately 52,000 hectares held under freehold tenure, then the total area of agricultural estates would be about 564,000 hectares.

The World Bank has offered somewhat different estimates of the scale of the estate subsector, although its most recent estimate approximates the data in DLV records. Its *Malawi: Land Policy Study,* (World Bank 1987: Table 1.1) puts the estate area at 691,000 hectares in the mid-1980s, although the manner in which this estimate was reached is not indicated. More recently, the Bank (1990:15) has estimated that the estate subsector comprises some 8,500 estates with a total land area of 605,000 hectares. Again, the basis for these estimate was not indicated.

On the basis of our recording of leasehold and freehold files held in the ADD offices, both the DLV and the World Bank estimates are far below the actual figures for the number of agricultural estates and the total area that they occupy. ADD files for Mzuzu, Salima, Kasungu, Lilongwe, Liwonde, and Blantyre show that at the end of 1989, these ADDs had a total of 14,592 estates, encompassing a total land area of at least 820,161 hectares. When one adds to these figures the number and area of estates in Karonga and Ngabu ADDs from DLV files, the total number of estates at the end of 1989 reaches 14,671, and the total area was 843,327 hectares. Our listing of ADD estate files thus suggests that the actual number of estates is more than 70 percent above the most recent World Bank estimate, while the area registered under estates is nearly 40 percent higher than the estimated level. Preliminary data for 1990 indicate that rapid estate expansion has continued through this year.

Table 2.1 presents the total number, total area, and mean size for estates at the end of 1989 for each ADD.

The margin of error for our estimate of estate numbers and land area is probably about 5 percent. Some 750 to 1,000 files from Kasungu ADD could not be located in the ADD office, but do have a file number. Given the mean size of estates in Kasungu, such estates would account for an additional 37,500 to 50,000 hectares of land. For the total country, an additional 195 estates were recorded, but without their land area. On the basis of the mean size of the total estate population, these estates might be expected to occupy an additional 10,500 hectares. Such

omissions are at least partly compensated for by duplications in the recording of individual estates. We expect that at least a few hundred estates that have changed ownership over time were recorded more than once in our estate listings.

Table 2.1 Number and Area of Agricultural Estates (1989)
(includes both leasehold and freehold estates)

ADD	Number of Estates	Total Estate Area (ha)	Mean Size of Estates (ha)
Kasungu[a]	8379	422,583	50.4
Mzuzu[a]	2031	97,163	47.8
Salima[a]	1621	117,114	72.2
Lilongwe[a]	1398	43,375	31.0
Liwonde[a]	1042	107,933	103.6
Blantyre[a]	121	31,993	264.4
Karonga[b]	53	2,139	40.4
Ngabu[b]	26	21,027	808.7
Total	14,671	843,327	57.5

[a] Based on ADD estate files.

[b] Department of Lands and Valuation computer files, excluding estates of less than 5 hectares.

Source: ADD Estate Files, Department of Lands and Valuation.

As indicated in Table 1.3 as well as in Table 2.1, there has been an important regional dimension to estate expansion. The most substantial development of estates has occurred in the less densely populated central districts and, in recent years, in parts of the northern region. Kasungu ADD alone accounts for some 57 percent of the total number of estates and 50 percent of the total estate area. Many estates have also been developed in Mzuzu, Salima, Liwonde, and Lilongwe ADDs.

2.2 Size Distribution of Estates

The notion of estates in Malawi is a legal concept, not one associated with a particular farm size or structure per se. According to the Land Bill (1965), an "estate" consists of land held under some form of documentary or registered title. As indicated in Chapter One, while the majority of estates were very large in scale during the colonial period and the first decade and a half after independence, most newly established estates have been relatively small throughout the 1980s. The result of this change has been a considerable restructuring of the subsector.

Table 2.2 provides a breakdown of estates in Mzuzu, Kasungu, Salima, Lilongwe, Liwonde, and Blantyre ADDs by farm-size category. The table indicates the number (and proportion) of estates falling into each size category as well as the total land area occupied by estates within each category. The data include a limited number of estates registered during the early part of 1990.

Table 2.2 Breakdown of Estates by Size Category

Size Category (ha)	Number of Estates	Share of Total # Estates (percent)	Total Area (000 ha)	Share of Estate Area (percent)
0 - <10	232	1.6	1.67	0.2
10- <20	6,650	45.8	93.82	11.6
20- <30	3,044	20.9	72.99	8.9
30- <50	2,223	15.3	83.65	10.3
50- <100	1,275	8.8	86.94	10.6
100-<200	559	3.8	75.69	9.2
200-<500	359	2.5	109.22	13.3
500-<1000	130	0.9	88.16	10.8
1000 + Up	60	0.4	207.25	25.3
Cases with no data	195			
Total	14,727			
Total Valid Cases	14,532	100.0	819.39	100.0

Source: Calculated from ADD estate files.

The table indicates that a large majority of "estates" are very small, and that only a small proportion are of a size and have operating characteristics generally associated with the concept of an estate. More than two-thirds of all estates (68.3 percent) have fewer than 30 hectares, and nearly half the estates (47.4 percent) are under 20 hectares. Significant numbers of estates also fall in the medium-scale categories, covering a range of 30 to 100 hectares. Only 1,108 estates in the six ADDs have 100 hectares or more. These large-scale estates comprise only 7.6 percent of the total estate population.

In terms of the distribution of landholdings, however, the structure of the subsector is considerably different. The numerically predominant small-scale estates (under 30 hectares) account for only 20.6 percent of the estate land, while medium-sized estates (of between 30 and 100 hectares) account for an additional 20.9 percent of estate land. The 1,108 estates that have land areas exceeding 100 hectares account for 58.6 percent of total estate land, while the 60 largest estates (1,000 hectares or more), less than half a percent of the total number, have one-fourth of the total estate area. These patterns are illustrated in Figures F and G.

FIGURE F. NUMBER OF ESTATES
by Size Category

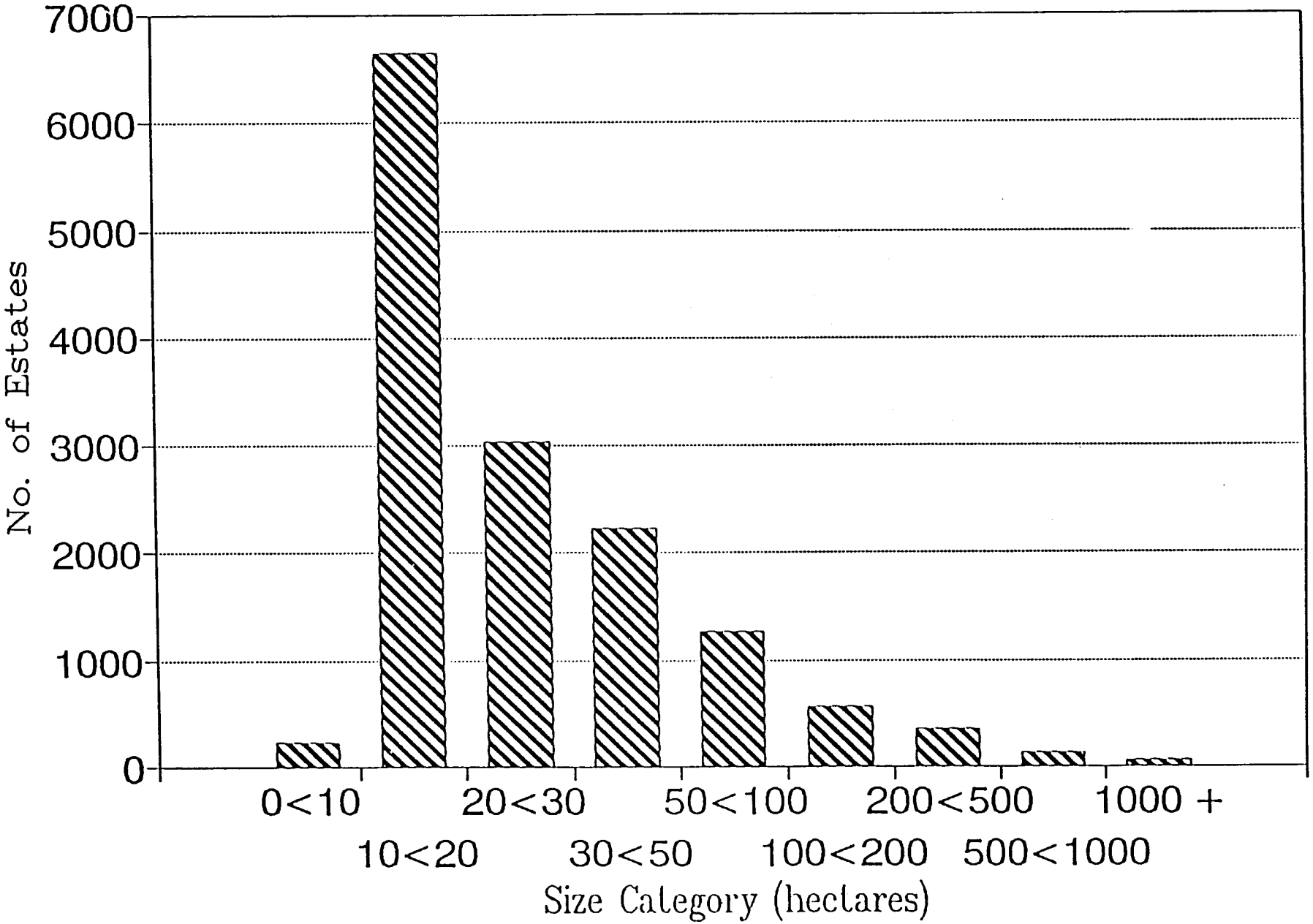
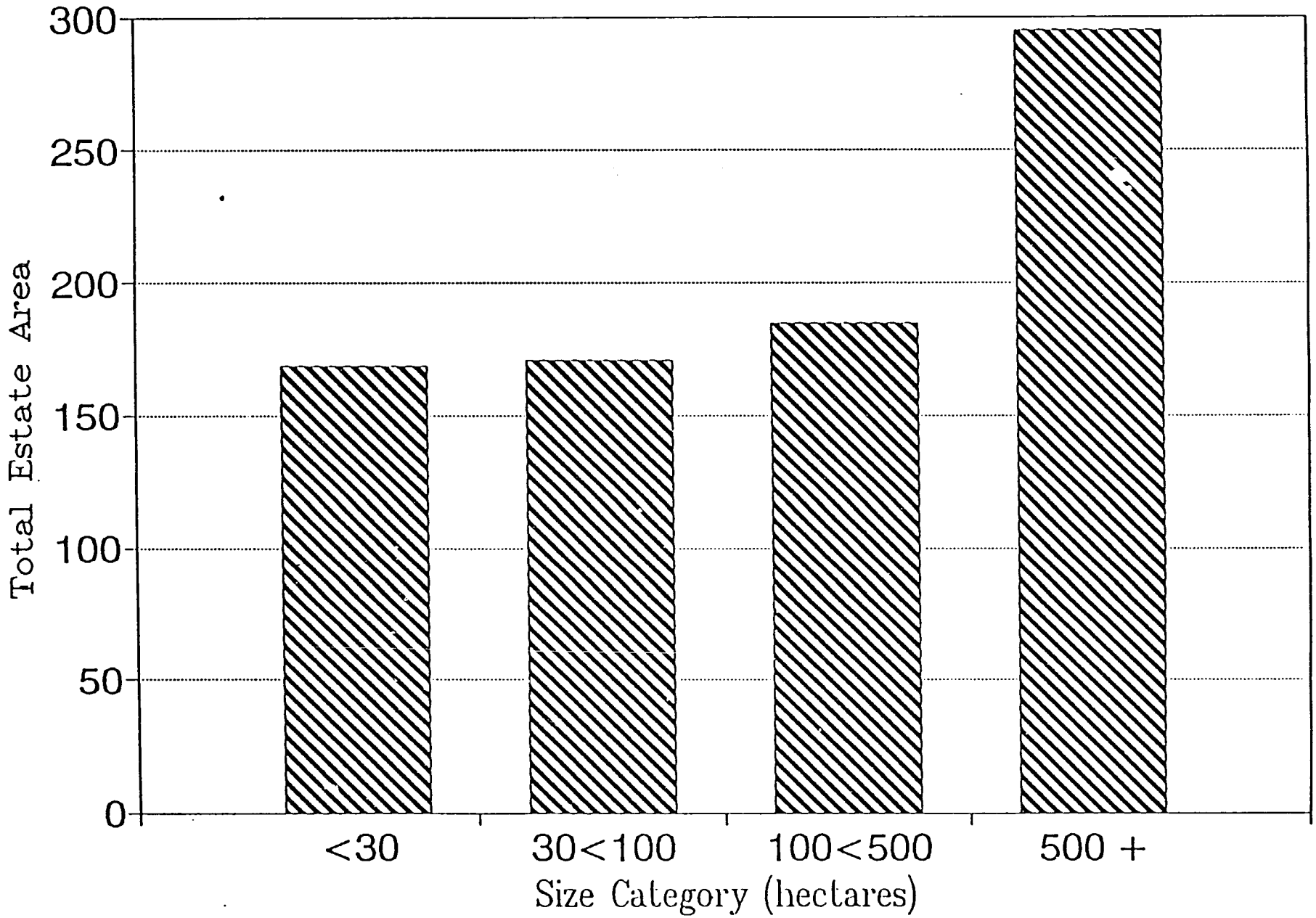


FIGURE G. TOTAL ESTATE AREA
by Estate Size Category



The distribution of estates by size differs considerably among ADDs. This can be seen in Table 2.3.

Table 2.3 ADD-Specific Distributions of Estates by Size
(percent of the number of estates)

ADD	Less than 20 ha	20 < 30 ha	30 < 50 ha	50 - 100 ha	More Than 100 ha	Total
Kasungu	54.0	21.3	13.7	5.9	5.1	100
Lilongwe	57.2	23.7	12.8	3.4	2.9	100
Mzuzu	39.3	21.5	18.0	13.3	7.9	100
Salima	21.1	20.9	24.3	19.9	13.8	100
Liwonde	34.0	14.7	13.9	15.1	22.3	100
Blantyre	34.8	10.4	8.7	8.7	36.5	100

Source: Calculated from ADD estate files.

The table indicates that for Kasungu and Lilongwe ADDs, small-scale estates (i.e., less than 30 hectares) comprise more than 75 percent of the total number of estates. In both ADDs, estates larger than 50 hectares make up a very small percentage, although the absolute number of such estates is still relatively large in the case of Kasungu (nearly 1,000). Mzuzu ADD also features a large number of small estates: these comprise about 60 percent of the total number of estates in Mzuzu. Still, this ADD features a substantial number of medium-scale estates (30 to 100 hectares). Both Salima and Liwonde feature a far greater representation of medium-to-large-scale estates among their estate populations. In part because of the presence of the major tea estate companies, Blantyre ADD also features a high percentage of estates in the large-scale category.

2.3 Typologies of Malawian Estates

Malawi's different estates vary not only in size, but also according to various other structural characteristics, including their origins, patterns of ownership and management, common forms of capital investments, and degree of development. While one can initially subdivide these estates into leaseholds and freeholds, and into categories of (1) small-, (2) medium-, and (3) large-scale estates, once these additional structural characteristics are considered, other classification schemes are required.

Among small-scale estates, the predominant form can be called "graduated smallholders." These are estates established by smallholder farmers, either individually or as part of an extended family. As mentioned earlier, these "estates" are estates in only a legal sense. They are actually large smallholder farms, closely tied in with their local communities. As will be indicated in subsequent chapters, these "graduated smallholders" continue to draw on customary areas for raw materials (e.g., firewood) and continue to obtain their inputs and extension advice

from "smallholder" sources (ADMARC and the ADD extension service). Such estates have generally been established through savings from prior farm income and are managed by the leaseholder or one of his relatives. With the exception of tobacco barns, the only major capital investments typically found on these estates are ox-carts.

Most of the other small-scale estates (less than 30 hectares) established during the 1980s belong to small businessmen (e.g., shopkeepers), middle-level civil servants (e.g., teachers, agricultural officers), or individuals who were formerly employed as clerks or managers on larger estates. This group of estate owners were not formerly farmers, although many have made farming their principal occupation since establishing their estate. These "small entrepreneurial estates" have been established with savings from business and/or employment. Like the "graduated smallholder" estates, these estates also tend to be managed by either the leaseholder or one of his relatives, and their major capital investments also tend to be limited to tobacco barns and ox-carts, although some of them also have a baling jack.

Among medium-sized estates, major differences have been discerned between estates established during the period from the late 1970s to the early 1980s and those established in the latter half of the 1980s. Most of the medium-scale estates established earlier were set up in fertile and accessible areas, and preceded the introduction of the tobacco quota system. Owners of these estates benefited from the major price rise of the early 1980s and were able to make investments in ploughs, baling jacks, tractors, and trucks. Such estates are now typically managed by owners who have retired from prior business or public service activities.

In contrast, many of the medium-scale estates established during the latter half of the 1980s are in less accessible, less arable areas. Such estates have been greatly constrained by the tobacco quota system, which has allocated to them sales quotas of only 2,500 to 5,000 kilograms, enabling them to grow tobacco on only a few hectares. Because of their low quotas, these estates have had only limited access to commercial bank credit. Moreover, as their estates have generated little or no profit, the owners have felt compelled to remain in their former jobs and to hire managers, usually rather poorly trained, to look after their estates. Shortages of capital have limited their investments on the estate. Some of these "undeveloped medium-scale estates," however, were established not for the primary purpose of agricultural production, but in order to obtain an additional tobacco quota for the leaseholder, who has then expanded production at his other estate(s).

Among large-scale estates, the primary distinction can be made between estates owned by private individuals (such as businessmen, or current or retired civil servants) and those owned by large corporate entities. The privately owned estates are managed either by the leaseholder or by a salaried manager; the corporate estates are run by salaried managers, some of whom are expatriates. In both cases, decision making tends to be centralized, with the lease owner or corporate headquarters making most major production and investment decisions. While the privately owned estates were generally established with savings from prior employment and from bank credit, the corporate estates relied more on banks and other sources of credit to establish themselves. For most large-scale estates, investments in tractors, trucks, ploughs, grading

sheds, and baling jacks are common, although some of this equipment is shared among estates owned by the same company or individual.

This preliminary breakdown of estates into different categories indicates that the agrarian structure in Malawi should be viewed as a continuum of types of agricultural enterprises rather than in more conventional terms as a "dualistic" agricultural structure. The graduated smallholders, with one foot in the smallholder subsector and the other in the estate subsector, represent an area of transition between these two subsectors.

Table 2.4 summarizes the main features of our estate typologies.

Table 2.4 Malawian Estate Typologies

Estate Type	Main Period of Establ.	Source of Initial Finance	Main Occupation of Owner	Type of Manager	Major Capital Investments
Small-Scale					
"Graduated Smallholders"	Late 1980s	Prior farm income	Farmer	Estate owner or relative	Ox-cart
"Small Entrepreneurial" Estates"	Mid-to late 1980s	Business or employment	Farmer or shopkeeper	Estate owner or relative	Ox-cart baling jack
Medium-Scale (MS)					
MS Commercial Estate	Early to mid-1980s	Salary or business	Farmer or civil servant	Owner or hired employee	Baling jack tractor truck
MS Undeveloped Estate	Mid- to late 1980s	Salary or business	Civil servant or businessman	Hired employee	Baling jack
Large-Scale (LS)					
LS Private Estate	Mid- to late 1970s	Bank credit & salary	Farmer, civil servant, or businessman	Owner or hired employee	Tractor truck ploughs
LS Corporate Estate	Mid- to late 1970s	Bank credit + ADMARC	N.A.	Hired employee	Tractor truck ploughs

2.4 Estate Crop Mix

Most prior studies have emphasized the dominant role of tobacco, tea, and sugar in the cropping patterns and production of Malawi's estates. For example, the World Bank says that "tobacco is the main estate crop, occupying about 60 percent of the cropped area, while tea occupies about 20 percent and sugar cane 18 percent; the balance is taken up by coffee and macadamia nuts" (1990:15). The high concentration of estate production on a few crops exposes Malawi to considerable risk in the face of fluctuating international commodity prices. In the future development of the estate subsector, considerable attention should be given to crop (and livestock) diversification. Table 2.5 gives a breakdown of estate plantings and production of major and minor crops for 1989.

The table confirms the importance of tobacco, in terms of number of estates, area planted, and value of exports. Both tea and sugar are important in terms of land area and output, yet there are very few estate producers of such crops. Coffee, cotton, and macadamia nuts are relatively minor estate crops. A very important finding from our sample survey and from discussions with the major corporate estate companies is the significance of maize production on estates, both to provide food to estate workers and for commercial purposes. It is likely that maize occupies more than twice the combined area planted under tea and sugar on Malawian estates. Estates produce a range of other crops, albeit on very limited scales.

With the exception of tobacco, estate production of major cash crops is concentrated in very few areas, both for ecological and institutional reasons. Estate sugar production takes place at two sites, at Sucoma (9,300 ha) in the Lower Shire Valley, and at Dwangwa (5,900 ha) in Nkotakota District on the shore of Lake Malawi. Estate tea production is concentrated in the Thyolo and Mulanje Districts of Blantyre ADD. While there are several coffee estates in Mzuzu, most of the recent expansion of coffee production has been in the Thyolo area, and has occurred on tea estates. The same pattern exists for macadamia nuts. Estate production of cotton and cashew nuts is concentrated in Salima District.

Only for tobacco is estate production spread throughout the country. The regional distribution of tobacco growers and production is summarized Table 2.6.

The table indicates the prominence of Kasungu ADD within the estate tobacco industry. Approximately 50 percent of estate burley and flue-cured tobacco growers (combined) are based in Kasungu, and about half of estate production of these crops is licensed for this ADD. In terms of total burley and flue-cured licensed production, Liwonde ADD is next in importance. The older, well-established estates in this ADD account for more than one-third of the licensed production of flue-cured tobacco. For the 1988/89 season, Mzuzu, Salima, and Lilongwe ADDs each had about 1,000 licensed estate tobacco growers, accounting for 11-14 percent of licensed burley production and much smaller shares of flue-cured production. Blantyre ADD contains a small number of estate tobacco producers, with significant production only of flue-cured tobacco.

The structure of estate tobacco production has changed considerably over the past decade. Particularly important changes have taken place during the 1980s with the emergence of large numbers of small-scale estates, most of which have gained licenses to grow and sell burley tobacco. The major changes in the structure of production for burley tobacco can be seen in Table 2.7.

Table 2.5 Estate Crop Production (1989)

Crop	Number of Estates	Estate Area for Crops (000 ha)	Estate Production (000 tons)	Export Value (million K)
Burley	7846[a]	54.7	61.2	226.5
Tea	27	16.1	37.2	95.4
Sugar	2	15.2	162.2	65.3
Flue-Cured	800	14.6	19.8	99.8
Coffee	72	4.9	6.5	15.5
Macadamia Nut	35	1.9	0.2	5.4
Cotton[b]	36	1.0	N.A.	N.A.
Maize[c]	N.A.	60.0 (est.)	N.A.	N.A.
Other Crops[d]	N.A.	7.5 (est.)	N.A.	N.A.
Subtotals	8,803[e]	175.9	287.1	507.9

est. = estimate

[a] Licensed growers only. Probably an additional 500-750 *estates* were producing burley without a license during the 1988/89 season.

[b] These data are for cotton-growing estates in Salima ADD only. A limited number of estates in other ADDs also grow cotton.

[c] This a very tentative estimate of maize plantings on estates. It was derived from results of our sample survey. For our sample, a ratio was taken between the area under tobacco and the area under maize (including smallholder encroachment cultivation). This ratio, 0.94 hectares maize per 1.0 hectares tobacco, was then generalized to the national level for burley tobacco estates. A much lower ratio of maize to tobacco is expected on estates growing flue-cured tobacco, because of lack of tenants. Based on reported cropping patterns for one corporate flue-cured producer, a ratio of 0.6 hectares maize per 1.0 hectares flue-cured was used for our calculation.

[d] Includes groundnuts, fruits and vegetables, cashew nuts, tung oil, soybeans, and beans and other legumes.

[e] Includes some double counting since most coffee and macadamia nut producers are also tea producers. Does not include estates producing tobacco without a license or estates producing only maize or "other crops."

Sources: Tobacco Control Commission; Tea Association; Tree Nut Authority; Salima ADD Cotton Registry; Field Survey.

Table 2.6 Regional Distribution of Estate Tobacco Production (1988/89 Season)

ADD	Burley Tobacco Growers No.[a]	(%)	Burley Tobacco Licensed Production[b] (000 T)	(%)	Flue-cured Tobacco Growers No.	(%)	Flue-cured Tobacco Licensed Production (000 T)	(%)
Kasungu	3793	(52)	33.0	(51)	166	(27)	16.5	(50)
Liwonde	664	(9)	5.6	(8)	184	(30)	11.9	(36)
Mzuzu	821	(11)	8.9	(14)	212	(35)	2.3	(6)
Salima	1063	(14)	8.8	(14)	16	(2)	0.2	(1)
Lilongwe	914	(13)	7.4	(12)	10	(2)	0.4	(1)
Blantyre	48	(1)	0.5	(1)	23	(4)	2.0	(6)
Total	7,293	(100)	64.3	(100)	611	(100)	33.3	(100)

[a] This is the number of licensed growers, not the number of individual estates. Several growers have multiple estates.

[b] This is the licensed quota for growers in each ADD, not actual production levels.

Source: Data from the Ministry of Agriculture as reported in Deloitte, Haskins and Sells 1986.

Table 2.7 Changes in the Structure of Estate Burley Tobacco Production

Year	# of Growers	Total Area Cropped (000 ha)	Total Production (000 T)	Hectares Per Grower (ave.)	Production Per Grower (ave. T)
1970	70	5.7	5.7	81.4	81.1
1975	161	7.1	8.0	44.4	40.7
1980	723	13.8	16.7	19.1	27.5
1983	3,854	39.4	41.5	10.1	10.8
1986	3,198	28.2	30.2	8.8	9.4
1989	7,504	66.7	61.2	8.9	8.2

Source: Tobacco Control Commission.

The table indicates the dramatic expansion of estate burley tobacco plantings, production, and participation since the mid-1970s. Especially rapid growth occurred during the early 1980s, and again in the late 1980s. Most of the new entrants into the industry have been relatively small-scale estates. As a result, average burley tobacco plantings and output of estates have declined considerably. Since 1980, the average number of planted hectares per grower has more than halved, while the average production per licensed grower has declined by 70 percent.

While the production of burley tobacco has spread to a large number of small-scale estates, the available evidence suggests that it is still a few hundred large-scale estates and estate companies that account for the bulk of total production. This can be seen in Table 2.8, which shows the distribution of tobacco sales quotas for the 1987/88 season.

Table 2.8 Distribution of Tobacco Sales Quotas (1987/88 Season)

Burley Tobacco

Quota Group (Tons)	Number of Growers	Percentage of Total Growers	Percentage of Licensed Weight
2.00 - 10.00	5,077	82.4	28.6
10.01 - 25.00	627	10.2	14.8
25.01 - 40.00	170	2.8	7.9
40.01 - 77.50	127	2.1	10.1
77.51 - 100.00	79	1.3	10.7
100.01 - 200.00	59	1.0	12.6
200.01 and Higher	26	0.4	15.2
	6,165	100	100

Flue-cured Tobacco

Quota Group (Tons)	Number of Growers	Percentage of Total Growers	Percentage of Licensed Weight
2.00 - 10.00	441	49.2	6.1
10.01 - 25.00	118	13.2	5.0
25.01 - 40.00	57	6.4	4.7
40.01 - 77.50	79	8.8	11.8
77.51 - 100.00	91	10.2	22.0
100.01 - 200.00	90	10.0	31.5
200.01 and Higher	20	2.2	18.5
	896	100	100

Source: Primary data from the Tobacco Control Commission.

The table indicates that overall estate tobacco production remains quite concentrated despite the entry of many new estates. For burley tobacco, only 291 growers (4.7 percent of the total) accounted for 48.6 percent of licensed weight. In recent years, the vast majority of individual burley-growing estates have been issued the minimum quotas of 2,500 - 3,000 kg per season. As a result, the many graduated smallholders still account for only a small proportion of total production, probably no more than 15 percent. The production of flue-cured tobacco is even more concentrated with only 110 growers accounting for 50 percent of the total licensed weight, and only 201 growers accounted for 72 percent. As many of the largest burley growers are also among the largest flue-cured growers, we estimate that only 300 growers (4.1 percent of the total) account for half of the subsector's sales.

With the continued registration of relatively small-scale leasehold estates and the entry (beginning in 1990/91) of an additional 5,000 - 10,000 licensed smallholders into the burley tobacco industry, the overall structure of production will continue to change. Such changes will require modifications in the existing institutional arrangements for production support and for marketing burley tobacco.

We turn now to examine the results of our sample survey of estates.

Chapter Three: Land Acquisition, Land Use and Conservation

This chapter draws on results from our sample survey to examine the means of land acquisition, patterns of land use, cropping patterns, and the types of resource conservation measures and problems faced by leasehold estates. We also examine the issue of smallholder encroachment on estates.

3.1 Land Acquisition for Estates

Previous studies have outlined the series of procedures that individuals go through in the process of obtaining a leasehold (e.g., Dickerman and Bloch 1989; Aymmark 1989). Though complicated and involving multiple stages and institutions, this process is said to be more or less standardized. The two main cases described are those:

- where an outsider wishes to acquire virgin customary land and seeks approval from the local traditional authority before approaching the Department of Lands and Valuation and other pertinent institutions for leasehold application approval, and

- where a local farmer seeks to convert his customary holding into a leasehold and receives the chief's approval to do so before submitting his lease application to the appropriate institutions.

In the process of applying for a leasehold, an applicant is supposed to complete certain procedures, including: (1) have a staff member of the Survey Department do a sketch plan of the proposed estate site; (2) create a four-year estate development plan indicating expected cash-flow patterns as well as intended planting and cropping rotation patterns; and (3) demonstrate that the applicant has sufficient financing to develop the estate, and that he has a qualified and experienced manager. In circumstances where the applicant intends to grow tobacco, approval must be given by the Tobacco Officer of the relevant ADD that the estate is on land suitable for tobacco production.

In our examination of ADD estate files and in our fieldwork, however, we observed common irregularities in the documentation and in the procedures of acquiring leaseholds and licenses to produce certain crops. Among these irregularities were:

(1) the absence of official sketch plans from the files of many leasehold estates;

(2) deviations (sometimes large) between the officially recorded area and the actual size of many individual estates;

(3) the seemingly "fictional" quality of cash-flow plans;

(4) the allocation of tobacco-growing licenses to estates that sit on marginal land including *dambo* (swampy lowland) areas and steeply sloped and rocky areas; and

(5) the apparent emergence of covert land sales, with some traditional authorities issuing land to individuals from outside the local community without due consideration of the future land needs of their constituents.

In a large majority of our sampled estates, the current leaseholder *originally* acquired land that was classified customary. This held true in 93 of our cases (78 percent). In 41 of these cases, however, the current owner was cultivating on at least part of the estate for an extended period prior to his registration of the estate. Seventeen such estates (or parts of estates) had been cultivated by the current owner for 3 to 9 years before the lease registration, while 24 such estates had been cultivated by the current owner for 10 years or more before registration. Such a finding calls into question the prevailing assumption that most of the existing estates have opened up entirely virgin areas when established.

Table 3.1 examines, for our entire sample, the incidence of estate owner cultivation on the leased estate prior to the actual registration of the leasehold.

Table 3.1 Estate Owner Cultivation Prior to Lease Registration (Number of Cases from Sample)

Years Cultivated Prior to Lease	Estate Size Category (hectares) 0-15	15.01-30	30.01-100	100.01+	Total
3 to 5	4	4	5	1	14
6 to 9	1	4	2	0	7
10 to 19	4	4	7	5	20
20 +	2	5	2	0	9
Total	11	17	16	6	50
Total Cases	27	33	31	38	119
Proportion	41%	52%	52%	16%	42%

Source: Field survey.

The table indicates that in 42 percent of the cases in our sample, the current leaseholder cultivated at least part of his existing estate for at least three years prior to registering the estate. For nearly a quarter of our sample (i.e., 29 of 119 cases) the leaseholder cultivated at least part of the registered estate land for 10 years or more prior to taking out the lease. Half of such cases come from among the medium (30-100 ha) and large-scale (100+ha) size categories. Thus current estate owners have had an extended involvement in local agriculture not only in the smallest estate-size categories, but in larger categories as well.

For smaller estates, a common practice has been for members of an extended family to join their landholdings to lease an estate under the name of a family head. For larger estates,

the common practice has been for a farmer/businessman to ask a chief to allocate to him virgin customary land surrounding his smaller customary farm.

In contrast to the assumed absence of a land market (e.g., World Bank 1990:33), 15 of our sampled estates (13 percent) were acquired by the current owner by purchasing an existing estate. One-third of our sampled estates of 100 hectares or more (9 of 28) were acquired by the current owner in this way. Large estate purchases have been made both by diversified corporations and by private individuals, but very few estate purchases were reported among the smaller size categories, in part because, traditionally, no one is permitted to sell village land to outsiders. Thus, local leaders frequently disapprove sales of such land. Estate sales were reported in all districts in which the survey was conducted (see Annex A, Table A2).

The study also found that a significant number of estates have been acquired by the current owner through inheritance. In ten of our cases (over 8 percent), the current owner inherited a previously registered estate, while in one other instance, it was reported that the current owner inherited "his father's land." In that case, the inherited land may or may not have been already registered as an estate. The inheritance of estates was reported most frequently in Lilongwe, where one-third of the respondents (8 of 24 cases) indicated that the current owner inherited the estate land.

As virgin land becomes increasingly scarce, and as current estate owners grow older, we would expect inheritance to become a major--if not **the** major--means of estate land acquisition in the future. With the emergence of this pattern, one issue of major significance will be who will inherit estates that include multiple members of extended families. Will only the children of the family head under whose name the estate is leased have control rights over the estate, or will the estate remain informally subdivided? The increased security about land tenure presently felt by members of estate-holding extended families may not survive intergenerational transitions.

3.2 Land Use and Cropping Patterns

Table 3.2 summarizes the patterns of land use on our sampled estates.

The table shows 27.9 percent of the total leasehold area reported as being cultivated under crops, by direct labor, by tenants, by relatives of the leaseholder, or by encroachers operating on estate land. This high a cropping intensity is far greater than previous estimates or claims. For example, Kydd (1988) refers to earlier research that allegedly demonstrated that only 10 percent of estate land is used for cultivation. More recently, the World Bank (1990:15) suggests that "most of the estates regularly use only about 14 percent of the land available to them." Such estimates have presumably been based on only the area under major cash crops, and have ignored the production of maize and other food crops on estates whether by the estates themselves (with direct labor) or by tenants.

Table 3.2 Estate Land Use (Entire Sample)

Total Leasehold Area			10,391.33 Hectares
Area planted under crops by the estate, its laborers, or relatives of the leaseholder		2,763.02 ha	(26.6%)
Of which:			
Tobacco Production	1,386.69 ha	(13.3%)	
Maize Production	1,169.17 ha	(11.3%)	
Other Crops	207.16 ha	(2.0%)	
Area cultivated by encroaching smallholders or estates[a]		131.92 ha	(1.3%)
Area under woodlot or natural woodland		1,918.32 ha	(18.5%)
Grazing area		267.12 ha	(2.6%)
Fallow area		1,227.87 ha	(11.8%)
Area for buildings and roads[b]		779.35 ha	(7.5%)
Other area[c]		3,303.73 ha	(31.8%)

[a] There may be a small degree of duplication (i.e., less than 10 hectares) between this category and the area planted by relatives of the leaseholder.

[b] Estimated. Based on 7.5 percent of the total area. Buildings include houses, tobacco barns, equipment sheds, and grading/storage buildings.

[c] Includes waterways, wasteland and other nonarable areas, additional wooded or encroached areas not recorded, and additional arable, yet undeveloped areas.

Source: Field survey.

The next most important use of land on estates is for woodlots and natural woodlands. Such wooded areas comprise 18.5 percent of the total area of our sampled estates. Areas allocated for grazing and for fallow account for an additional 14.4 percent of the total land area, while it is estimated that buildings and roads account for 7.5 percent of the total leasehold area.

Slightly more than 30 percent of the total leasehold area was not accounted for from the categories listed in Table 3.2. This area includes waterways, wasteland (e.g., *dambo*), steeply sloped land, and arable land not presently cultivated or under forest cover. We estimate that only about half of this undeveloped or unused land is arable. That is, on our sampled estates approximately 1,500 hectares is arable, but not presently being put to use. As we will note below, most of this arable, yet undeveloped, land exists on the very large estates in our sample.

3.2.1 Land Use Variations between Districts

Results from this survey found that estate land use patterns differ considerably across different districts. This can be seen in Table 3.3.

Table 3.3 Land Use by District for Sampled Estates
(in hectares; percent of total area in parentheses)

	Rumphi	Kasungu	Salima	Lilongwe	Machinga
Total leased area of sample	3424.66	1176.44	1665.20	2065.00	2060.03
Area under crops[a]	704.82 (20.6%)	411.45 (35.0%)	475.49 (28.6%)	867.43 (42.0%)	400.25 (19.4%)
Wooded area	781.38 (22.8%)	194.67 (16.6%)	399.64 (24.0%)	134.81 (6.5%)	407.82 (19.8%)
Grazing area	18.00 (0.5%)	37.88 (3.2%)	17.85 (1.1%)	186.31 (9.0%)	7.08 (0.4%)
Fallow area	252.78 (7.4%)	197.56 (16.8%)	337.82 (20.3%)	348.81 (16.9%)	90.90 (4.4%)
Buildings/roads	256.85 (7.5%)	88.23 (7.5%)	124.89 (7.5%)	154.88 (7.5%)	154.50 (7.5%)
Other	1410.83 (41.2%)	246.65 (21.0%)	785.00 (47.1%)	342.76 (16.6%)	999.48 (48.5%)

[a] Includes area cultivated by smallholder encroachers.

Source: Field survey.

The table indicates relatively high cropping intensities for our sampled estates in Lilongwe and Kasungu, with more than one-third of the total leasehold area for the sample being cultivated in both districts. On our sampled estates in Lilongwe, more than 40 percent of the total land was reported to be under cultivation this past season. Such findings are consistent with observations in these areas of intensive agricultural production and a virtual absence of virgin land. Overall land pressures in these districts have come to be reflected in land usage by estates, as seemingly unused land would frequently be encroached on by neighboring smallholders or estates. Considerably lower cropping densities were recorded for the sampled estates in Machinga and Rumphi, partly a reflection of the lower land pressures in these areas, the continued presence of virgin lands, and the nonarable quality of some estate lands. The cropping intensity for the sampled estates in Salima was similar to the mean for our entire sample.

Another major difference in the land use patterns is the proportion of land covered by trees, including woodlots and natural woodlands on the estates. In Rumphi, Machinga, and Salima Districts, a fifth or more of the total area of our sampled estates was under woodlots/woodlands. In the first two districts, more land was reported to be under tree cover than under crops. In contrast, in Lilongwe District there has been extensive depletion of natural woodlands and inadequate development of woodlots to compensate. (See section 3.7.1 below.)

3.2.2 Land Use and Cropping Intensities by Estate Size Category

Major differences in land use patterns were also observed between estates of different size categories. This can be seen in Table 3.4.

Table 3.4 Land Use Patterns for Estates of Different Size Groups

	Estate Size Category (hectares)			
	0-15	15.01-30	30.01-100	100.01+
Total land area of sampled estates	342.34	692.75	1583.53	7772.71
Area under crops[a]	179.72 (52.5%)	316.01 (45.6%)	598.08 (37.8%)	1801.13 (23.2%)
Wooded area	39.91 (11.7%)	111.38 (16.8%)	262.61 (16.6%)	1504.42 (19.4%)
Grazing area	3.81 (1.1%)	47.00 (6.8%)	22.96 (1.5%)	193.35 (2.5%)
Fallow area	48.98 (14.3%)	83.09 (12.0%)	314.81 (19.9%)	780.99 (10.0%)
Buildings/roads[b]	25.67 (7.5%)	51.96 (7.5%)	118.76 (7.5%)	582.95 (7.5%)
Other	44.25 (12.9%)	83.31 (12.0%)	266.31 (16.8%)	2909.87 (37.4%)

[a] Includes reported area cultivated by smallholder encroachers.

[b] Estimated to be 7.5 percent of total leasehold land.

Source: Field survey.

The data suggest an inverse relationship between estate size and the proportion of estate land used for crop production. The so-called "graduated smallholders" make very intensive use of their land, as indicated by the figures for estates of 15 hectares or less and estates between 15 and 30 hectares. Estates in the smallest size category report crop plantings that exceed half of their total land area. For estates in the next smallest size category (15-30 ha) the proportion

is over 45 percent. Even estates in the 30-100 hectare category report a high cropping intensity: more than 37 percent for the sampled estates. Only for the largest size group is cropping intensity relatively low, averaging slightly below one-fourth of the total leasehold area. However, even this level of cropping intensity far exceeds previous claims for the entire estate subsector.

For area under woodlots and natural woodlands, the pattern is just the opposite. While estates in the smallest size category have wooded areas covering an average of less than 12 percent of their total leasehold area, estates in the largest size category have woodlots/woodlands covering an average of more than 19 percent of total area. For none of the size categories is the area devoted to grazing significant. Limited areas for fallow were reported for all size categories other than estates 30 to 100 hectares. While the area under fallow may have been underestimated by the managers, the recorded results are consistent with our findings (reported below, section 3.5) regarded crop rotations. The category of "other" land use or non-use captures substantial land areas only for estates in the largest size category.

These aggregated data for estate size categories mask considerable variability in the cropping intensities of individual estates. Within all size categories are some estates that cultivate their land intensively and others that use only small proportions of their land for cultivation. An indication of this can be seen in Table 3.5.

Table 3.5 Variations in Cropping Intensities (number of sampled estates)

Estate Size Category (hectares)	Cropping Intensity[a] Less Than 15%	15 but <25 %	25 but <33 %	33 but <50 %	50% or More	Total
0 - 15	1	4	3	5	14	27
15.01- 30	5	4	3	11	10	33
30.01- 100	7	5	2	9	8	31
100.01 and over	10	8	5	2	3	28
Total	23	21	13	27	35	119

[a] Proportion of total leasehold area planted under crops during the 1989/90 season. These calculations do not include the land area cultivated by smallholder encroachers.

Source: Field survey.

The table indicates that among smaller estate size categories (less than 15, and 15-30 hectares), the majority of estates use at least a third of their land for cultivation. In fact, the

majority of the smallest estates report cultivating crops on 50 percent or more of their area. Still, a limited number of small-scale estates have very low cropping intensities. Estates in the middle size category (>30-100 hectares) evidence considerable variation in cropping intensities. While a majority of these estates cultivate more than one-third of their total land, more than one-fifth of such estates have cropping intensities below 15 percent. Within the largest size category, we find that a majority of estates cultivate less than 25 percent of their land, with only a few of the sampled estates cultivating large parts of their area. It would appear that within this category of very large estates, considerable underutilization of land occurs.

3.3 Factors Contributing to Nonutilization of Estate Land

Several factors account for underutilization of land on some estates, and for the availability of arable areas on the more intensively cultivated estates that have yet to be used for crop production. Among estates that presently utilize only a small proportion of their total land area for crops (i.e., less than 15 percent), we found several cases where a significant proportion of the land is not arable because of its steep slope or the rockiness of the soils. For example, the largest estate in our sample includes a mountain, occupying several hundred hectares, with slopes that cannot be cultivated. Several other estates face major environmental problems, including large-scale waterlogging or the absence of a nearby water source. A few other instances are estates that were recently established on virgin land and have not yet reached their intended state of development. A very small number of cases appear to involve estate owners' attempts to obtain additional quotas, but only minimally developing the particular estate that fell within our sample.

Estate managers were asked whether there is additional land on their estates that could be cultivated but is not currently being used. Ninety-eight managers (82.4 percent) gave a positive reply. The primary reasons given for not cultivating this arable land appear in Table 3.6.

The most commonly reported constraint to expanded cultivation of crops is insufficient capital. This problem was reported by estates in all size categories. While larger farms are most affected by the lack of (or stringent conditions tied to) medium-term financing, smaller estates are most constrained by the limited size and the timing of short-term seasonal credits. The problem of credit is discussed further in Chapter Four. The response "lack of farm inputs" is actually another indicator of an insufficient availability of capital, in this case for financing purchases of fertilizer, agrochemicals, and seeds.

The small size or absence of a tobacco quota is reported to be a major constraint on many estates, effectively limiting their plantings of tobacco to very small areas. While this factor has inhibited land use on estates of all size categories, most constrained have been those of medium size that were established in recent years (not shown separately in table). They, like other new estates, have been allocated the minimum quotas of 2,500 or 3,000 kg/year, despite their having 50 hectares or more of land. With such quotas, only about 2 hectares can be devoted to tobacco, unless illegal sales are to be made via other growers.

Table 3.6 Reported Reasons for Noncultivation of Arable Land[a]

Reason	Estate Size Category (hectares) 0-15	15.01-30	30.01-100	100.01+	Total
Insufficient capital	10 (50%)	10 (37%)	16 (62%)	13 (52%)	49 (50%)
Small or no quota	6 (30%)	12 (44%)	9 (35%)	12 (48%)	39 (40%)
Insufficient labor	5 (25%)	7 (26%)	6 (23%)	4 (16%)	22 (22%)
Lack of farm inputs	3 (15%)	5 (19%)	3 (12%)	4 (16%)	15 (15%)
Woodland preservation	2 (10%)	3 (11%)	5 (19%)	0	10 (10%)
Other[b]	1 (5%)	2 (7%)	2 (8%)	2 (8%)	7 (7%)
Total reporting having additional arable land	20	27	26	25	98

[a] Percentage totals add up to more than 100 percent because of multiple responses.

[b] Includes retaining land for grazing, for fallowing, and for intended future use.

Source: Field survey.

Shortage of labor is another important constraint, especially in the north of the country where estates cannot find tenants or laborers from among the local population and must therefore search for workers as far as Mangochi in the south. Labor shortages were also reported to be a severe problem in the more remote parts of Salima District. Other reasons why estates do not use arable land are the desire to preserve natural woodland areas, and to retain areas for grazing, fallowing, and future use.

Another major problem brought up by many managers in more general discussions about production and marketing constraints is that of transport. The remoteness and inaccessibility of estates to central storage or transport areas has restricted further development of many of the newly established estates, especially in parts of Salima and Rumphi Districts. For numerous "graduated smallholders," investment in ox-carts has proved to be the only means by which they have been able to carry their tobacco to centralized locations for subsequent transport to the auction floors.

3.4 Crop Mix on Sampled Estates

As noted in Chapter Two, Malawi's most important estate crops are tobacco, maize, tea, sugar, and coffee. As our sample did not include the major tea and coffee-growing area (Blantyre ADD), and as it did not include the sugar estates, crop production of our sampled estates is dominated by tobacco and maize. This can be seen in Table 3.7.

Table 3.7 Cropping Mix of Sampled Estates[a]

Total Cropped Area of Sampled Estates		2,763.02 hectares
of which:		
Burley tobacco	1,332.10	(100.0%)
Flue-cured tobacco	48.98	
Dark-fired tobacco	5.61	
Total tobacco	1,386.69	(50.2%)
Hybrid maize	660.87	
Local maize	498.30	
Seed maize	10.00	
Total maize	1,169.17	(42.3%)
Groundnuts	67.64	(2.4%)
Fruit/vegetables/legumes	65.21	(2.4%)
Coffee	35.50	(1.3%)
Soyabean	28.00	(1.0%)
Other[b]	10.81	(0.4%)

[a] Does not include area cultivated by encroachers, for which crops were not specified. Most of this encroachment is assumed to be for the purpose of cultivating maize.

[b] Includes sugarcane, sunflower, millet, sorghum, rice, cotton, and cashew nuts.

Source: Field survey.

The table indicates that for our sample as a whole, tobacco (primarily burley) covered 50 percent of the cropped area while different varieties of maize covered another 42 percent. While many individual estates have also planted one or more other crops, the total planted areas for such other crops is relatively insignificant. For our sampled estates, only very small areas are planted with groundnuts, bananas, potatoes, green vegetables, dry and soya beans, coffee, and other crops. For only a few of the larger estates has there occurred a substantial degree of diversification away from a tobacco/maize regime.

The mix or relative importance of different crops varies among the different districts sampled as well as among estates of different size categories. Table 3.8 compares the cropping mix of our sampled estates in different locations, indicating the proportion of the cropped area under individual crops.

Table 3.8 Cropping Mix by District
(percent of cropped area, sampled estates only)

Crop	Rumphi	Kasungu	Lilongwe	Salima	Machinga	Total
Burley Tobacco	54.1	50.4	38.0	58.4	46.3	48.2
Flue-cured Tobacco	2.4	0.0	2.3	0.0	3.2	1.8
Hybrid maize	15.4	26.1	30.8	29.4	15.2	23.7
Local maize	24.3	18.1	18.2	8.6	17.3	18.0
Groundnuts	0.9	3.0	5.0	1.3	0.3	2.5
Fruit/vegetables	2.2	1.0	0.9	1.0	8.8	2.4
Other crops	0.5	1.4	4.8	1.3	9.0	3.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Field survey.

The table suggests a major difference between the sampled estates in Lilongwe District and those in the other districts. Among our sampled estates in Lilongwe, maize covers a far greater area than tobacco: in this district, hybrid and local maize covered nearly half of the total cropped area, while tobacco covered about 40 percent. In the other districts, tobacco plantings typically covered 50 percent or more of the total cropped area, with maize covering 44 percent in Kasungu and less than 40 percent in the other districts. Only in Lilongwe and Machinga were plantings of crops other than tobacco and maize of any significance among our sampled estates.

Another interesting finding from our survey is the different importance of hybrid and local maize. In Kasungu, Lilongwe, and Salima Districts, hybrid maize plantings far exceeded those for local maize. In the other two districts sampled, the pattern was the reverse: local maize covered a larger area. This pattern reflects the impact of the Lilongwe Land Development Programme and the Lake Shore Rural Development Project on the adoption of improved maize varieties. Both projects originated in the late 1960s.

Cropping patterns also vary among estates of different sizes. One indication of this is shown in Table 3.9. The major difference among the size categories is that the smaller estates (i.e., less than 30 hectares) feature a larger land area planted under maize than under tobacco (47 percent maize and 43 percent tobacco), while estates of medium-to-large-scale have a larger area under tobacco than under maize (51 percent tobacco and 40 percent maize). In all estate-size categories other than 15.01-30 hectares, the area under hybrid maize is considerably larger than the area under local maize. While many of the smaller estates have plantings of fruit and vegetables, legumes, and/or other crops, such crops still constitute less than 10 percent of the

cropped area for such estates. Crop diversification appears to be especially unimportant among medium-scale estates.

Table 3.9 Cropping Mix by Estate Size Categories
(percent of cropped area for individual crops)

Crop	Estate Size Categories (hectares) 0-15	15.01-30	30.01-100	100.01+	Total Sample
Burley tobacco	40.7	42.5	50.5	49.2	48.2
Flue-cured tobacco	2.4	0.0	0.7	2.4	1.8
Hybrid maize	29.4	20.9	26.8	22.9	23.9
Local maize	18.2	29.9	17.0	16.3	18.0
Groundnuts	4.0	2.2	2.7	2.3	2.5
Fruit/veg./legume	4.6	3.1	1.5	2.3	2.4
Other	0.8	1.3	0.9	4.7	3.3
Totals	100.0	100.0	100.0	100.0	100.0

Source: Field survey data.

Another important difference between estates of different sizes is the relative significance of direct estate production versus production undertaken by tenants or by the relatives of the leaseholder/manager. This can be seen in the Table 3.10, which examines proportions of the area under burley tobacco, hybrid maize, and local maize cropped by direct labor, by tenants, and by relatives of the leaseholder.

The table indicates that estates from all size categories rely primarily on tenants to produce burley tobacco. Even so, for estates up to 100 hectares, more than 30 percent of the area under burley is cropped by the estate (i.e., direct labor) or by relatives of the leaseholder. On the largest estates, tenant-based production is more dominant. The cropping pattern for hybrid maize is similar across all estate-size categories. Approximately three-fourths of the area planted under hybrid maize is grown by direct labor, with only one-fourth of the area cropped by tenants or relatives.

For local maize, the production pattern differs among size categories. For estates of less than 100 hectares, most local maize is produced by direct labor or by relatives of the leaseholder. In contrast, for large estates, it is predominantly tenants who produce local maize. Taking the three crops together, we find that for the smallest estates, the majority of the area under crops is cultivated by direct labor, with less than 40 percent of the cropped area cultivated by tenants. For estates between 15 and 30 hectares and between 30 and 100 hectares, less than half of the cropped area is cultivated by tenants. In sharp contrast, tenant-based production dominates the largest estates.

Table 3.10 Form of Production for Burley Tobacco and Maize

(percent of land area cultivated by the estate [direct labor], tenants, and relatives for the main crops)

	Estate Size Categories			
	0-15	15.01-30	30.01-100	100.01+
Burley Tobacco				
Estate	30.2	31.4	27.3	14.7
Tenant	64.7	58.7	68.7	83.0
Relatives	5.1	9.9	4.0	2.3
Hybrid Maize				
Estate	73.0	74.2	70.8	64.9
Tenant	18.7	14.0	24.1	33.5
Relatives	8.3	11.8	5.1	1.6
Local Maize				
Estate	62.3	45.8	54.9	7.3
Tenant	8.5	15.2	25.7	86.1
Relatives	29.2	39.0	19.4	6.6
Combined for Three Crops				
Estate	51.1	45.7	44.6	26.4
Tenant	37.8	34.7	48.2	70.7
Relatives	11.1	19.6	7.2	2.9

Source: Calculated from survey data.

Another interesting finding is that for our sample as a whole, more than 6 percent of the area planted under burley tobacco and maize is cultivated by relatives of the leaseholder or manager. When one factors in the land cultivated by smallholder encroachers, more than 10 percent of the cropped area on our sampled estates is reported as being cultivated by smallholders other than the leaseholder.

3.5 Crop Rotations on Sampled Estates

The maintenance of the fertility and stability of agricultural soils, and hence the maintenance or improvement of yields for cash and food crops, depends upon the practice of proper crop rotations and the adoption of soil conservation measures. Here, we examine crop rotational patterns. A discussion of soil and other resource conservation measures follows below.

The practice of growing a single crop on the same piece of land, year after year, causes a rapid depletion of soil nutrients, resulting in declining crop yields. In the case of tobacco, continuous planting of this crop on the same plot also results in the development of nematodes.

The Ministry of Agriculture therefore recommends that tobacco-producing estates follow a four-year rotation of the following type:

tobacco - maize - fallow - fallow

With such a rotation, the maize crop benefits from the residual nutrients, while the two-year fallow period serves to restore the soil structure and thus reduce the quantity of chemical fertilizers required.

Results from our survey indicate that very few tobacco-producing estates follow the recommended crop rotation pattern. Table 3.11 summarizes the main types of crop rotations used by estates of different size categories.

Table 3.11 Types of Crop Rotations on Sampled Estates (numbers and percentages of estates)

Rotation Type	Size of Estate (hectares) 0-15	15.01-30	30.01-100	100.01+	Total
Monoculture[a]	2 (7%)	3 (9%)	3 (10%)	7 (25%)	15 (13%)
Two-Year[b]	13 (48%)	15 (47%)	13 (42%)	9 (32%)	50 (43%)
Three-Year[c]	4 (15%)	8 (25%)	9 (29%)	5 (16%)	26 (22%)
Four-Year[d]	0 (0%)	1 (3%)	3 (10%)	3 (11%)	7 (6%)
Other[e]	8 (30%)	5 (16%)	3 (10%)	2 (7%)	18 (16%)
Total Reporting	27	32	31	26	116

[a] Continuous cropping, year after year, of one crop for three years or more.

[b] Alternating crops of different kinds (e.g., tobacco-maize-tobacco-maize).

[c] Three years of planting different crops plus one year fallow.

[d] Two years cropping followed by two years fallow.

[e] No definite rotational pattern either because the estate was recently opened up or the reported cropping pattern does not signify a proper rotation (e.g., tobacco-tobacco-fallow-fallow).

Source: Field survey.

For the sample as a whole, only 7 estates (6 percent) reported following the recommended rotational pattern. The predominant rotational patterns are of two and three years, with the most common individual rotations being:

(1) Tobacco - maize - tobacco - maize 30 estates (25 percent of sample)

(2) Tobacco - maize - fallow - maize 11 estates (9 percent of sample)

(3) Tobacco - maize - groundnuts - maize 9 estates (8 percent of sample)

Maize appears centrally in each of the most common rotations. In fact, of the 116 estates growing tobacco this year, 83 of them (72 percent) will plant maize on the tobacco-growing land next season (1990-91). The most common type of rotation [(1) above] can be sustained over time only through heavy use of chemical fertilizers. The second most common type of rotation (2) is much better, since the one-year fallow period allows for some recovery of soil nutrients. The introduction of a legume into an otherwise tobacco-maize rotation (3) helps to fix nitrogen in the soil.

Table 3.11 indicates that estates of different size categories evidence considerable differences in the crop rotation patterns. For the smallest estates (less than 15 ha), a two-year rotation is most common, with few or no estates practicing a three- or four-year rotation. Limitations on the availability of land may account for such patterns. The importance of maize production for such estates limits the practice of monocropping tobacco. For some of these smaller estates, estate managers report an arrangement whereby neighboring villagers cultivate maize on the estate as part of a rotation, while the estate plants tobacco on customary land.

Rotational patterns for estates of 15-30 ha and 30-100 ha follow similar lines, with two- and three-year rotations dominant and a limited incidence of monocropping. Not quite 10 percent of the estates in the 30-100-hectare category follow the recommended four-year crop rotation.

For the largest size category (100 + ha), one-fourth of the sampled estates practice monoculture, planting tobacco in the same plots for three or four consecutive years. The practice of such estates is to grow tobacco continuously on the estates' most fertile areas, using heavy dosages of chemical fertilizers, before clearing other parts of the estate and moving tobacco production to such areas. This practice enables the estates to keep their large number of tenants living in the same locations and houses. A lower proportion of larger estates practices three-year rotations than is the case for estates in the medium-size categories.

3.6 Land Use Patterns on Tea Estates

Although they are not included in our sample, some comment should be made about land use patterns among tea estates, most of which are under freehold tenure. Historically, major conflicts have arisen from the actual or perceived underutilization of tea estate lands, but since

the 1950s tea estates have encountered strong pressures to utilize their arable land in the face of high population densities and land shortages within the main tea-growing areas.

The most recent data on land use patterns on Malawi's tea estates are for 1984/85 and come from a survey carried out by Price Waterhouse (1987). That survey revealed the patterns summarized in Table 3.12.

Table 3.12 Land Use Patterns among Tea Estates

Total Tea Estate Area	43,908 hectares	
of which:		
Freehold Tenure	38,858 ha	
Leasehold Tenure	5,050 ha	
Land Use	**Hectares**	**Percent**
Planted with tea	15,846	36.1
Planted with other permanent crops	2,854	6.5
Fuelwood plantations	7,318	16.7
Other forest development	1,823	4.2
Planted with tea seed bearers	80	0.2
		63.6
Other Uses[a] or Undeveloped[b]	15,987	36.4
	43,908	100.0

[a] Including buildings, roads, houses, and factories.

[b] Of which 2,685 hectares is suitable for future tea planting.

Source: Price Waterhouse 1987.

According to the table, in 1984/85 42.6 percent of tea estate area was planted under tea or other permanent crops with an additional 21.1 percent of land under woodlot, woodlands, or nursery production. Only a very small proportion of tea estate land (6.1 percent) that is suitable for tea production is not actually used for such production. Since the mid-1980s, the area under crops on tea estates has increased, with tea plantings reaching 16,111 hectares by 1989. Several tea estates have diversified into tobacco production, and several have developed macadamia nut plantations.

3.7 Soil and Other Resource Conservation Measures and Problems

With the increased transfer of land from customary to leasehold tenure, and the steady depletion of land and forestry resources within the customary subsector, the need for soil and other resource conservation measures within the estate subsector grows in importance. Unless soil conservation measures are widely adopted, the recent development of many estates in marginal, steeply sloped areas is likely to result in extensive soil degradation through erosion. Without concerted afforestation measures, the increased demand for poles and fuelwood created

by estate expansion will likely result in a more rapid depletion of natural woodlands, both on the estates and in surrounding areas. The results from this survey do not provide an encouraging picture.

The need for soil conservation structures depends, of course, on types of soils, the slope of the land, patterns of rainfall, the presence of natural waterways, and other factors. In relatively flat areas, it is frequently advisable to plant trees to protect against wind erosion, to construct contour ridges to prevent the washout of crops, and to construct box ridges so as to retain moisture. In areas with steeper slopes, it may be necessary to construct storm drains, waterways, and contour bunds to limit water runoff and the development of gully erosion.

As Table 3.13 indicates, only a minority of our sampled estates have adopted such soil conservation measures.

Table 3.13 Soil Conservation Measures on Sampled Estates (number and percent of estates adopting measures)

	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
Box Ridges	9	15	13	14	51
	(33%)	(46%)	(42%)	(50%)	(43%)
Contour Bunds	5	13	16	13	47
	(19%)	(39%)	(52%)	(46%)	(40%)
Contour Ridges	7	15	10	12	44
	(26%)	(46%)	(32%)	(43%)	(37%)
Waterways	5	7	5	13	30
	(19%)	(21%)	(16%)	(46%)	(25%)
Trees: Wind Breaks	5	8	6	8	27
	(19%)	(24%)	(19%)	(29%)	(23%)
Storm Drains	1	5	3	7	16
	(4%)	(15%)	(10%)	(25%)	(13%)
No Structures	7	2	4	2	15
	(26%)	(6%)	(13%)	(7%)	(13%)
Total Cases	27	33	31	28	119

Source: Field survey.

The table shows that the most common structures adopted are box ridges, followed closely by contour bunds and contour ridges. Each of these structures has been developed on more than a third of our sampled estates. Windbreaks and waterways are less commonly developed, being present on about one-fourth of the estates. Storm drains were developed on 13 percent of the estates, while the development of terraces is very rare, being reported in only two cases.

One pattern evident from the table is that estates in the smallest size category have developed soil conservation structures far less frequently than have larger estates. Whether this is because of a lack of knowledge regarding the benefits of such structures or to a lower degree of need for such structures on these estates is not entirely clear, although evidence from our survey (reported below) suggests that the latter factor may be more important. Very few of the sampled smaller estates have been developed in hilly areas on formerly virgin land.

Few significant differences exist in the soil conservation adoption patterns of estates of other size categories. One surprising pattern is that estates of 30-100 ha adopt most conservation structures less frequently than do estates of 15-30 ha. Perhaps the greater availability of land on these medium-scale estates has reduced the perceived need for conserving soil. The adoption of storm drains and waterways is most common among the largest estates (100+ ha), as building these structures requires a great deal of labor.

Table 3.14 displays the main types of environmental problems reported by estate managers, by size of estate.

Table 3.14 Major Reported Environment Problems
(number and percent of cases)

Problem	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
Brushfires	11 (41%)	20 (61%)	18 (58%)	21 (75%)	70 (59%)
Waterlogging	9 (33%)	9 (27%)	10 (32%)	15 (54%)	43 (36%)
Erosion	6 (22%)	11 (33%)	12 (39%)	10 (36%)	39 (33%)
Excessive rain	9 (33%)	11 (33%)	8 (26%)	9 (32%)	37 (31%)
Flooding	3 (11%)	7 (21%)	2 (7%)	5 (18%)	17 (14%)
Overgrazing	2 (7%)	6 (18%)	6 (19%)	2 (7%)	16 (13%)
No problems	3 (11%)	6 (18%)	4 (13%)	3 (11%)	16 (13%)
Total cases	27	33	31	28	119

Source: Field survey.

The table indicates that brushfires are the most commonly reported environmental problem, affecting estates in all size categories, but especially medium-to-large estates. More than one-half of the sample reported problems with brushfires. The next most commonly reported problem is waterlogging, mentioned by 36 percent of our sampled managers. This problem (and flooding) is especially common on the largest estates as these estates frequently

include some *dambo* land or are traversed by rivers or streams. Waterlogging and flooding were more commonly reported in Lilongwe, Kasungu, and Salima than in the other districts surveyed (see Annex A, Table A9). Nearly one-third of the sample reported having periodic problems with excessive rain.

Problems of erosion were also reported by about one-third of our sample. Very severe erosion problems (including the development of large gullies) were observed on estates in hilly areas, especially in Salima, Rumphi, and Machinga. In the areas of relatively flat plains, soil erosion problems were rarely reported and infrequently observed. Despite their less frequent development of soil conservation structures, the smallest estates reported less common and less severe erosion problems. The concentration of such estates on flat areas and their more intensive cultivation patterns may account for this. Overgrazing was not reported to be a widespread problem.

3.7.1 Woodlots, Woodlands, and Other Sources of Poles and Fuelwood

Written into the leasehold covenants is the provision that the leaseholder plant a woodlot on at least 10 percent of his land in order to provide poles for barn construction and firewood for curing and/or domestic use. Most prior studies on the estate subsector have claimed that this woodlot provision is rarely followed and that estates are generally depleting natural woodlands. Results from the present survey are generally consistent with this view.

Estate managers were asked whether a woodlot has been established on their estates. A positive reply was given in 81 of 119 cases (68 percent), with the majority of estates in each size category issuing a positive response. However, on the basis of our observations as well as the reported sources of poles and fuelwood for the estates, it appears that farm managers gave a positive reply if either a woodlot or a natural woodland exists on the estate. We observed that very few of the sampled estates have planted a woodlot of any considerable size, and that very few woodlots cover as much as 10 percent of the estate area.

Many of the sampled estates do feature natural woodlands, however, sometimes covering major parts of the total leasehold. Table 3.15 shows numbers of the sampled estates in different districts for which woodlands/woodlots cover 5 percent, 10 percent, and 20 percent or more of their total leasehold land.

The table reaffirms statements made earlier regarding different patterns of forest cover across different districts. Only a few of the sampled estates in Lilongwe have woodlots/ woodlands covering even 5 percent or more of their total leased area. In Kasungu, Salima, and Rumphi, approximately half of the sampled estates have forest cover of 10 percent or more of their total area. For our sample as a whole, only 42 percent of estates (50 out of 119) have woodland/woodlots covering 10 percent or more of their total leasehold area.

Table 3.15 Woodland/Woodlot Area as Percent of Total Estate Area (number of sampled estates)

District	# of Estates with 5% or More Wooded*	# of Estates with 10% or More Wooded*	# of Estates with 20% or More Wooded*
Lilongwe	5	3	1
Kasungu	14	12	4
Salima	16	14	9
Machinga	12	8	6
Rumphi	15	13	11
Total	63	50	31

* Number of individual estates in the sample whose reported area for woodlots/woodlands comprises 5, 10, or 20 percent or more of the total leasehold area. In Salima 23 estates were sampled; in each of the other districts, 24.

Source: Field survey.

3.7.2 Sources of Poles/Fuelwood

Table 3.16 presents the sources of poles and fuelwood reported by our sample estates.

Within our sample, the largest individual sources of poles and fuelwood are the woodlots and natural woodlands of the estates themselves. However, only about one-third of the sampled estates said that they obtain wood from their own woodlots. Less than one-fourth of the smallest sampled estates (under 15 hectares) obtain poles/fuelwood from their own woodlot. Both customary woodlands and government forest reserves serve as important sources of wood. In our sample, this was particularly true for smaller estates and for estates located in Lilongwe and Machinga Districts. Hence, not only are estates depleting their own natural woodlands, they are also depleting woodlands in surrounding areas. Other estates and commercial wood dealers are generally not important sources of poles/fuelwood for the estates, with the major exception of Lilongwe, where a fifth of the respondents said that they obtain at least part of their wood needs from private dealers and an eighth from other estates (see Annex A, Table A13).

3.8 Problems of Smallholder Encroachment

Various forms of encroachment were reported in a large majority of our sampled estates. As Table 3.17 indicates, such encroachment takes many forms, including the fetching of poles, firewood, thatch, or small animals by smallholders; smallholders grazing animals; and smallholders or other estates actually cultivating on estate land.

Table 3.16 Sources of Poles/Fuelwood[a]
(number and percent of estates)

Source	Size of Estate (hectares) 0-15	15-30	30-100	100.01+	Total
Own woodlot	6 (22%)	10 (30%)	13 (42%)	12 (43%)	41 (35%)
Own natural woodland	6 (22%)	10 (30%)	11 (36%)	13 (46%)	40 (34%)
Customary woodland	12 (44%)	10 (30%)	7 (23%)	3 (11%)	32 (27%)
Gov't forest reserve	4 (15%)	9 (27%)	4 (13%)	9 (32%)	26 (22%)
Other estates	4 (15%)	2 (6%)	2 (7%)	3 (11%)	11 (9%)
Private wood dealers	1 (4%)	4 (12%)	3 (10%)	0	8 (7%)
Total cases	27	33	31	28	119

[a] Percentage figures add up to more than 100 percent because of multiple responses.

Source: Field survey.

Except for cultivation of part of the estate's land by smallholders or other estates, these forms of encroachment are not, under certain conditions, actually considered encroachment. Under customary law, any member of a given community is free to fetch firewood, thatch, or small animals in any wooded area or grassland of someone else's land. Smallholders are also traditionally permitted to graze their animals on any part of someone else's land not under cultivation or on land that has already been harvested. With the emergence of leasehold land, however, many estate owners have come to regard their land as "private" and thus do not allow smallholder farmers access to their estates. Nevertheless, as noted earlier, these same estates frequently obtain firewood, thatch, and other materials from neighboring customary areas or from government forest reserves.

Smallholder or other-estate cultivation of estate land was reported by one-third of our sampled estates. This form of encroachment is commonly experienced by large-scale farms. In fact, half of the estates larger than 100 hectares reported smallholder cultivation, and 18 percent encountered cultivation by other estates. This is not surprising, given the underutilization of arable land on many such estates. In most cases, the extent of smallholder

or neighboring estate cultivation is limited to a few hectares, but some cases of encroachment cultivation on ten hectares or more of land were reported.

Table 3.17 Encroachment Problems on Estates
(number and percent of estates)

	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
No encroachment	12 (44%)	8 (24%)	6 (19%)	7 (25%)	33 (28%)
Smallholders fetching firewood	9 (33%)	13 (39%)	16 (52%)	12 (43%)	50 (42%)
Smallholders fetching thatch	8 (30%)	12 (36%)	12 (39%)	6 (21%)	38 (32%)
Smallholders grazing animals	7 (26%)	11 (33%)	13 (42%)	5 (18%)	36 (30%)
Smallholders fetching poles	6 (22%)	10 (30%)	11 (36%)	7 (25%)	34 (29%)
Smallholders cultivating land	4 (15%)	6 (18%)	7 (23%)	14 (50%)	31 (26%)
Smallholders fetching mice	5 (19%)	3 (9%)	3 (10%)	0	11 (9%)
Other estates cultivating land	2 (7%)	2 (6%)	1 (3%)	5 (18%)	10 (8%)
Total cases	27	33	31	28	119

Source: Field survey.

In several cases such encroachment cultivation was said to have been done with the tacit support of the village headman or chief in response to a perceived or actual situation where the targeted estate has poorly utilized its land. In one case, the local chief encouraged refugees to cultivate maize on an estate. Other instances were reported in which informal agreements are made between the estate and smallholders from surrounding villages permitting the latter to cultivate specified areas on a temporary or more permanent basis. One large estate company indicated that nearly 1,200 hectares of its leasehold land countrywide is effectively controlled and cultivated by smallholder farmers. The frequency and extent of such land reallocation or subleasing arrangements is a matter requiring further study.

Where an estate owner wants to prevent encroachment, various measures are available. The first and most frequently adopted approach has been to talk directly with the smallholders, seeking to persuade them to stop their encroachment. When this approach fails, estate owners usually take up the matter with the local chief or, in more serious cases, with the district commissioner. Only in extreme cases is legal action taken, with the encroachers being evicted or fined.

The frequency with which smallholder encroachment occurs suggests that while the development of estates may not have resulted in the eviction of smallholders from formerly cultivated customary land, it has restricted smallholders' access to forest and other resources, as well as their access to arable land presently needed to meet smallholder food requirements. Encroachment problems may also be viewed as the primary manifestation of both tension points and interdependencies between the smallholder and estate subsectors.

Chapter Four: Management, Labor, and Other Production Inputs

This chapter analyzes our survey findings regarding the characteristics, qualifications, and remuneration of estate managers; the characteristics and remuneration of estate workers; and the procurement and use of production inputs, including credit.

4.1 Management

A widely held view regarding the estate subsector is that estates are managed by poorly qualified, motivated, and remunerated individuals, and that the overall management of estates is undermined by owner absenteeism (e.g., Deloitte, Haskins and Sells 1986; Agmmark 1989). Results from this study generally confirm most such claims, although owner absenteeism was found to be far less common than generally assumed.

In the course of applying for a lease, the would-be leaseholder must certify that he will be hiring or using a qualified manager who has experience in the field of agricultural production to be undertaken on the new estate. Our results indicate that only a small number of estates are managed by salaried employees. In our entire sample, 20 estates (16.8 percent) were managed by employees who were not relatives of the leaseholder. Only among large-scale estates is the hiring of salaried managers common.

In contrast to the assumption about widespread absentee ownership, this study found that nearly 50 percent of the sampled estates are directly managed by the leaseholder, who is resident on the estate (see Table 4.1). While not surprising for the small "graduated smallholder" estates, even for medium-scale estates of 30 to 100 hectares, some two-thirds of estate managers were the leaseholders themselves. In the majority of cases where leasehold owners are not resident on the estate, owners visit the estate on either a daily or weekly basis, and they exercise a strong degree of control over basic production decisions. In only 19 cases (16 percent), was it reported that the leaseholder visits the estate only monthly, seldom, or never. The only district where absentee ownership was found to be common was Salima, which has a large number of leaseholders who work and reside in Lilongwe or other districts.

After the leasehold owner-manager, the next most common manager group consists of relatives of the owner, typically his son, wife, or brother. Unpaid relatives outnumber salaried relatives almost 2:1 (Table 4.1). The use of unpaid relatives as "managers" is especially common among estates of less than 30 hectares, such estates generally being unable to afford a salaried manager. Still, the problem of inadequate motivation does not arise, since the current and future welfare of these relatives is normally tied closely to the performance of the estate.

Regarding the qualifications of estate managers, results from this study generally confirm earlier anecdotal evidence. As Table 4.2 shows, nearly a quarter of the sampled estate managers had no experience with tobacco production prior to taking on their current position, while even fewer had prior managerial experience. Even on the large-scale estates, only one-fourth of the managers had prior managerial experience.

Table 4.1 Identity of Estate Managers
(number and percent of sampled managers)

	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
Owner/manager	14	16	21	8	59
	(52%)	(49%)	(68%)	(29%)	(49%)
Unpaid relative of owner	8	11	3	4	26
	(30%)	(33%)	(10%)	(14%)	(22%)
Salaried relative of owner	1	5	3	5	14
	(4%)	(15%)	(10%)	(18%)	(12%)
Salaried employee	4	1	4	11	20
	(15%)	(3%)	(13%)	(39%)	(17%)

Source: Field survey.

Table 4.2 Prior Experience of Managers with Tobacco Production
(number and percent of managers)

	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
No prior experience	7	6	7	7	27
	(26%)	(18%)	(23%)	(25%)	(23%)
Management experience	5	2	7	7	21
	(19%)	(6%)	(23%)	(25%)	(18%)
Tenant on estate	6	8	4	4	22
	(22%)	(24%)	(13%)	(14%)	(19%)
Laborer on estate	7	7	0	3	17
	(26%)	(21%)		(11%)	(14%)
Grew tobacco on smallholding	2	6	8	0	16
	(7%)	(18%)	(26%)		(13%)
Other experience[a]	1	2	4	7	14
	(4%)	(6%)	(13%)	(25%)	(12%)
Total cases	27	33	31	28	119

[a] Including *kapitao (field supervisor)*, nurseryman, clerk, and grader on other estates.

Source: Field survey.

The table indicates that most of the prior experience of managers has been as laborers or tenants on estates. This is especially true for the managers of estates less than 30 hectares, reinforcing the notion that smaller estates have provided a way for former smallholder tobacco

growers and laborers to "graduate" into higher positions of ownership and management within the estate subsector.

This study also finds that the vast majority of estate managers have relatively little formal education or other training relevant to their current tasks. As Table 4.3 indicates, 15 percent of the managers in our sample have received no formal education at all, while 73 percent of managers have attained less than nine years of formal education. Only 5 percent of the managers in our sample have had some form of university education. For each estate size category, the majority of managers have had no secondary education.

Table 4.3 Educational Attainment of Estate Managers
(number and percent of managers)

	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
No Formal Education	5 (19%)	6 (18%)	4 (13%)	3 (11%)	18 (15%)
Standard 1 - 5	4 (15%)	8 (24%)	11 (36%)	3 (11%)	26 (22%)
Standard 6 - 8	12 (44%)	15 (46%)	6 (19%)	10 (36%)	43 (36%)
Form 1 - 2	1 (4%)	1 (3%)	8 (26%)	4 (14%)	14 (12%)
Form 3 - 4	4 (15%)	3 (9%)	2 (7%)	3 (11%)	12 (10%)
Diploma (University/College)	0	0	0	4 (14%)	4 (3%)
Degree (University/College)	1 (4%)	0	0	1 (4%)	2 (2%)
Total Cases	27	33	31	28	119

Source: Field survey.

A large majority of estate managers also reported that they have received no additional training related to their current work. Of those who have had some additional training, most have had a course dealing with tobacco management. Only a small proportion of managers report attending either a farm management course or a course dealing with land husbandry or a crop other than tobacco (see Annex A, Table A18).

Given the background, education, and (lack of) prior training of estate managers, most such managers can be described as simply "tobacco technicians". These managers are quite familiar with the basic routine practices associated with tobacco culture, but they lack adequate knowledge in such other important areas as land husbandry, forestry, bookkeeping, crop

planning, cost accounting, and labor relations. Their ability to manage properly the natural as well as the human resources on their estates is thereby limited.

This tendency for estate managers to be little more than tobacco technicians is generally reinforced by their extension contacts. Their primary source of technical information was reported to be field days organized by the Tobacco Research Institute and the Tobacco Association (see Annex A, Table A39). Such field days center around particular dimensions of tobacco production and do not train managers in other areas or expose them to alternative crops. A majority of managers of the smaller estates report that they continue to receive technical information from farmers' clubs and ADD-linked extension workers, however. Thus, many of the graduated smallholders have not in fact been divorced from the ADD support structures.

In our sample, over 70 percent of estate managers are not paid a salary, either because the managers are the estate owners or because they are unpaid relatives (Table 4.1). Unpaid relatives are provided with clothes, food, and housing. In some cases, relatives are allocated part of the owner's tobacco quota and are permitted to grow tobacco on a small piece of land.

Payments for salaried managers vary considerably. Data on the basic salaries of managers in our survey are summarized in Table 4.4.

Table 4.4 Basic Salaries of Hired Managers

	Estate Size Categories			
	0-15	15.01-30	30.01-100	100.01+
No. of estates with salaried manager	5	4	6	18
	Kwacha per month			
Mean salary	63.1	53.3	103.3	444.7
Standard deviation	40.4	21.9	64.9	694.8
Lowest salary	20.8	30.0	45.0	40.0
Highest salary	130.0	83.0	200.0	2800.0

Source: Field survey.

The table indicates that only among the large-scale estates is a substantial proportion of managers paid a basic salary. Within this size category managerial salaries vary enormously, as indicated by the large standard deviation. The majority of managers of such farms earn between K 100 and K 500 per month, sums that are quite high compared with typical agricultural wages, yet seemingly low given the responsibilities that such managers bear. The economizing on costs for management appears to be a major reason why some private owners of large estates have hired poorly educated and qualified managers. The large-scale corporate

estate companies generally pay their managers more than K 300 per month, and in some cases considerably more.

For estates under 30 hectares, the majority of salaried managers are paid only slightly more than the agricultural minimum wage at K 50-60 per month. Half of the salaried managers for estates of 30-100 hectares also earned K 50 or less, while the other half earned more than K 100 per month.

On many of the larger estates, managers are given additional payments in the form of bonuses linked to the profitability of the estate. Bonus arrangements differ among estates, but may involve payments equal to 5 to 10 percent of profits. As many of the cost accounting records are retained by the owner, however, it is possible that the actual share of profits received by the manager is considerably less. Bonuses are also offered on some smaller estates, with the amount of payment at the discretion of the estate owner.

4.2 Composition and Remuneration of the Estate Labor Force

The subject of labor on estates formed only a small component of this study. As a result, the analysis provided here is preliminary. Given the importance of estates in the off-farm employment of smallholder family members, and given the enormous problems of labor relations and labor remuneration observed in this and several prior studies, it seems clear that a detailed study examining the estate labor force is required.

Four main types of laborers are employed on leasehold estates in Malawi. These are:

(1) unpaid family members of the leasehold owner and/or manager;

(2) "permanent laborers" hired for a period lasting from a few months to year-round;

(3) tenants and (unpaid) tenant family members, and

(4) "casual laborers" hired on a daily or weekly basis during the peak land preparation, weeding, harvesting and grading periods.

In our survey, estate owners or managers were asked to report on the number of laborers they had employed during the past cropping season (1989/90) from each of these categories. As some managers could not estimate the number of tenant family members working on the estate, we will consider only tenants and their spouses in our calculations. Estate owners/managers were asked to report on the peak number of casual workers employed at any one time, since the number of such workers varies considerably over the course of the agricultural season. A more detailed assessment of estate employment would require attention to such seasonal variations in the employment of casual laborers.

Table 4.5 gives the composition of the labor force on our sampled estates according to the type of worker.

Table 4.5 Reported Labor Force on Sampled Estates (119 estates)

Family members of leaseholder &/or manager	327
Permanent laborers	1,938
Tenants and their spouses[a]	3,244
Total permanent workers	5,509
Casual laborers (peak levels)	3,342
Total	8,851

[a] Assumed to be an average of one spouse per tenant.

Source: Field survey.

Among permanent workers, tenants and their spouses are numerically the most important, accounting for nearly 60 percent of the recorded permanent workers. The prominence of tenant households in the estate labor force would be shown to be even greater if data on the agricultural activities of tenants' children were available. For our sample as a whole, family members of the leaseholder and/or manager do not comprise a major proportion of the permanent work force. As we will indicate below, however, such family members are an important part of the work force of the smaller estates. Hired permanent laborers comprise about one-third of the reported permanent work force.

An analysis of the gender composition of the sampled estates' work force and of the division of the work force between adults and children revealed some interesting findings. Table 4.6 examines the composition of the permanent and the casual laborer work forces. Data on the composition of leaseholder and tenant household labor work forces were not collected.

One of the most significant results of this analysis is the prominence participation of children (i.e., individuals less than 15 years of age) in both the permanent and casual estate work forces. Children comprise more than 22 percent of the hired wage labor force. While the proportion of children among casual laborers is similar across all estate size categories, they make up a somewhat larger share of permanent laborers on estates in the smallest and largest size categories than on mid-sized estates.

Adult males are the leading component of both the permanent and casual labor force, comprising 70 percent of the former and about 42 percent of the latter. This result differs markedly from those reported by Nyanda (1989), who found that on a sample of 23 estates, adult males comprised 93 percent of the work force. Adult females are only a very small proportion

of the permanent laborer force on our sampled estates (7.6 percent) but are quite important as casual laborers (35.3 percent), as they have primary responsibility for tying the harvested tobacco. This explains the very high share of females in the casual labor force of the largest estates.

Table 4.6 Permanent and Casual Laborer Work Force Composition (sampled estates)

	Estate Size Categories (Hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
Permanent Laborers					
Adult males	68.9%	68.2%	76.1%	68.6%	70.0%
Adult females	3.3	10.2	13.4	5.9	7.6
Children[a]	27.8	21.6	10.5	25.4	22.4
	100.0	100.0	100.0	100.0[b]	100.0
Casual Laborers					
Adult males	48.4%	51.4%	49.1%	37.8%	41.8%
Adult females	26.8	26.6	29.8	38.9	35.3
Children[a]	24.8	22.0	21.1	23.3	22.9
	100.0	100.0	100.0	100.0	100.0

[a] Less than 15 years of age. These are not children of tenants.

[b] Total does not add exactly because of rounding.

Source: Field survey.

4.2.1 Labor Intensiveness of Estates of Different Size Categories

This survey revealed notable differences in the intensity of labor use across estates of different size categories. Because of the uncertainty as to the reliability of our data on numbers of casual laborers employed, our analysis focuses on the permanent work force, comprising leaseholder family members, tenants and spouses, and permanent laborers. Table 4.7 presents the mean values for such types of laborers for different estate-size categories, and relates them to the mean values for total leasehold area and total cropped area for the size categories.

Across the entire sample, 0.57 permanent workers were reported to be employed per hectare of total leasehold land, and 2.15 per hectare of cropped land (Table 4.7). An inverse relationship between farm size and the number of permanent workers per leasehold area may be inferred by the size-group data. In terms of actual crop production, however, the largest estates appear to be more intensive in their use of permanent laborers than are medium-scale estates. Such differences would be even more significant if data were available on the number of tenant household members (other than spouses) participating in agricultural activities on the estates. The smallest estates are the most labor intensive on average. For estates 30 hectares or less,

family members of the leaseholder or manager comprise about 20 percent of the reported permanent work force, but less than 10 percent for the next category and less than 1 percent for the largest estate-size group.

Table 4.7 Intensity of Permanent Worker Employment (number of workers per estate and per hectare)

Mean Values	Estate Size Category (hectares) 0-15	15.01-30	30.01-100	100.01+	Sample Mean
Permanent laborers	6.59	6.48	10.65	43.43	16.29
Tenants & spouses	6.58	7.68	18.08	99.08	30.90
Family members[a]	3.37	3.48	2.97	1.04	2.75
Total # of permanent workers	16.54	17.64	31.70	143.55	49.94
Mean leasehold area (ha)	12.68	20.99	51.08	277.60	87.32
Mean cropped area (ha)[b]	6.42	9.12	18.77	60.95	23.24
No. of permanent workers per ha of leasehold land	1.30	0.84	0.62	0.52	0.57
No. of permanent workers per ha of cropped land	2.58	1.93	1.69	2.36	2.15

[a] Family members of leaseholders and/or managers.

[b] Does not include area cultivated by smallholder encroachers.

Source: Calculated from field survey data.

4.2.2 Tenants and Tenancy Relations

The system of tenancy forms the backbone of the burley tobacco industry. Most of what is presently known about tenants and tenancy relations is based on either nonrandom samples that have concentrated on better established, large-scale estates (e.g., Mkandawire and Phiri 1987; Nankumba 1990) or random samples including a relatively small number of estates (e.g., Nyanda 1989). An important limitation of much of this work is that distinctions are not made among different types of estates in analyzing the backgrounds of tenants, their relationships with estate owners/managers, the overall conditions of tenancy, and their remuneration. In addition, most prior studies have focused almost exclusively on the economic incentives of tenancy, ignoring tenants' living and working conditions.

According to prior studies, the primary motivations for smallholders for becoming tenants on estates are:

(1) **Improved access to land.** Nyanda (1989) found that more than one-third of sampled tenants were landless, while a large majority of the remainder owned plots smaller than 1.5 hectares. Tenancy is said to provide a means of relieving the land constraints faced by many smallholders, especially those from the Southern Region.

(2) **Improved access to production inputs and credit.** A small proportion of tenants surveyed by Nankumba (1990) cited better access to production inputs and credit as the main attraction of tenancy. Nankumba reports that tenants are provided with a wide range of inputs on credit, sometimes at subsidized prices.

(3) **Expected earnings higher than those available to wage laborers or to smallholders cropping their own plots.** Studies by Vaughan and Chipande (1986), Nyanda and Shively (1989), and Nankumba (1990) all report mean tenant profits well in excess of the agricultural minimum wage (about K 543/year in 1990) and the cash incomes of most smallholder farmers.

The tenancy system offers several advantages to estate owners/managers over the use of direct labor. First, tenants bear a large part of the yield risk associated with tobacco production. Even if yields are low, the tenant is responsible for covering the costs of all inputs used in producing the crop. If the crop fails completely, however, the estate owner is generally unable to recover tenant debts.

Second, the tenancy system induces tenants to work much harder and be more attentive to quality than is the case with hired laborers, since the tenant's remuneration is directly linked to his output. This feature lessens management's need to supervise tenants.

Third, tenancy provides the estate with access to additional unpaid laborers, since, typically, the tenant is a male accompanied by a wife and children who ordinarily play an active role in the production and postharvest activities of burley tobacco.

Fourth, the nature of tenancy contracts provides estate managers with a large measure of discretion in the level of payments to tenants. Although tobacco price and input-cost guidelines are issued by the Tobacco Association, estate managers have considerable discretion in their actual costings of inputs, services, and food rations provided to tenants.

According to a study by Nyanda (1989), a large majority of tenants working on estates in the northern and central areas of Malawi are from the Southern Region. The origin of tenants was not directly addressed in our questionnaire, but informal discussions with estate managers and tenants confirms that finding in the case of large estates. However, for many of the smaller estates (especially those of less than 15 hectares), tenants are relatives of the leaseholder or smallholders from villages surrounding the estate. In the latter cases, the tenants do not generally live on the estate, but commute each day. Only during the harvesting period do such

tenants live (in temporary shelters) on the estate, in order to guard their crops. Through tenancy arrangements, many "graduated smallholders" have provided fellow villagers with access to additional land and (most likely) a more remunerative outlet than ADMARC for their tobacco sales. Informal discussions with tenants also revealed that there may be a large number of refugees working as tenants (and permanent laborers) on tobacco estates. Their availability has probably put downward pressures on agricultural wages.

Considerable variation appears to prevail in the terms of tenancy arrangements. One of the central provisions of the tenancy relationship is allocation of land to the tenants, with a plot to be used for burley tobacco production and another plot made available for maize or other food crop production. In our sample of estates, the mean area allocated to tenants was 1.31 hectares, with 0.86 hectares of it allocated for tobacco production and 0.45 hectares for maize (Table 4.8). The areas allocated to tenants for tobacco ranged from 0.4 hectares to 2.0 hectares. The three most common land allocations for tobacco were 0.60 hectares (reported by 26 percent of estates having tenants), 1.00 hectares (21 percent), and 0.40 hectares (13 percent). Areas allocated to tenants for maize (and/or other food crops) ranged from 0.10 hectares to 2.00 hectares. The most common land allocations for maize production were 0.40 hectares (19 percent), 0.20 hectares (16 percent), 0.60 hectares (15 percent), and 1.00 hectares (15 percent).

As indicated in Table 4.8, the size of land allocations to tenants in our sample differed across estate-size categories. While for estates of less than 30 hectares, tenants were allocated an average of 1.05 hectares for tobacco and food crop production, on the largest estates average land allocation per tenant was 1.37 hectares. Large-scale estates allocated more land for both tobacco and maize production.

Table 4.8 Land Allocations to Tenants

	Estate Size Category (Hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
Hectares allocated for tobacco production	0.66	0.76	0.84	0.88	0.86
Hectares allocated for maize production	0.39	0.29	0.33	0.49	0.45
Total average area allocated to tenants	1.05	1.05	1.17	1.37	1.31

Source: Field survey.

Differences were also observed in the package and value of inputs provided by estates to their tenants. In virtually all cases, tenants are provided with hoes, tobacco seedlings, and some type and quantity of fertilizer; in a large majority of cases, they also receive watering

cans. Quantities of fertilizers provided differ greatly, however, with larger estates providing larger quantities. While only about one-third of the sampled estates 30 hectares or less provided tenants with maize seeds, a majority of estates of size categories 30-100 and 100+ hectares did so. The only estates providing tenants with chemical sprayers are the larger estates and only a small proportion of them do so. Nearly all estates reported that they provide tenants with food rations, generally for seven or eight months a year.

Table 4.9 displays the differences our survey found in the value of inputs and food rations provided by estates to tenants.

Table 4.9 Differential Values of Inputs/Food Ration Credits (in kwacha)

	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
Mean credit value	449.3	521.3	564.6	758.5	704.7
Standard deviation	265.1	221.6	250.0	264.1	255.1
Minimum value	47.9	201.0	128.5	300.0	47.9
Maximum value	1000.0	1045.0	1200.0	1346.0	1346.0
Total # of tenants	79.0	119.0	235.0	1189.0	1622.0

Source: Field survey.

The table indicates that large-scale estates generally provide higher values of credit to their tenants. These higher values usually reflect larger supplies of fertilizer, and sometimes include the costs of such services as mechanical plowing and "management."

Consistent with previous studies, this study has found that mean values of reported tenant earnings are considerably above the wages of individual agricultural laborers and the farm incomes of most smallholder farm households. Estate managers were asked to report on the average value of the cash payments made to their tenants during the 1988/89 season. For our entire sample, the mean value of tenant payments was K 621. However, as Table 4.10 indicates, there are wide variations in such average payment levels, both within and between estate-size categories.

On average, larger estates in our sample issue higher cash payments to tenants than do the smaller estates. Average tenant payments on estates of less than 15 hectares were only moderately above the 1988 minimum agricultural wage for a single worker. While the average reported values of payments to tenants are indeed higher than the level of income available to most smallholder farmers, variations among estates and among tenants on individual estates are substantial.

Table 4.10 Cash Payments To Tenants

	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
Mean value (kwacha)	372.9	565.3	617.2	643.2	621.3
Standard deviation	230.1	291.7	253.1	305.9	281.6
Total # of tenants	79.0	119.0	235.0	1189.0	1622.0

Source: Field survey.

This variability among estates in terms of their average payments to tenants is apparent in the distribution shown in Table 4.11. About 21 percent of the responding estates (18 of 84) reported making average cash payments of K 300 or less. Within the smallest estate-size category, however, 41 percent report that level of average cash payments; only 5 percent of the largest estates (more than 100 hectares) average that low a payment. In contrast, 40 percent of the largest estates report issuing payments averaging over K 700.

Table 4.11 Average Cash Payments to Tenants
(number and proportion of responding estates)

	Estate Size Category (hectares)				
Average payment	0-15	15.01-30	30.01-100	100.01+	Total Responses
K 300 or less	9 (41%)	5 (22%)	3 (16%)	1 (5%)	18 (21%)
K 301 to 500	5 (23%)	8 (35%)	4 (21%)	5 (25%)	22 (26%)
K 501 to 700	4 (18%)	6 (26%)	6 (32%)	6 (30%)	22 (26%)
K 701 and higher	4 (18%)	4 (17%)	6 (32%)	8 (40%)	22 (26%)
Total	22 (100%)	23 (100%)	19 (100%)[a]	20 (100%)	84 (100%)[a]

[a] Totals do not add to 100 percent because of rounding.

Source: Field survey.

Although cash payments to tenants working on large-scale estates appear to be quite high in comparison with most feasible alternative work opportunities, an analysis of the tenant accounts for several such large-scale estates reveals wide variations in the payments received by

individual tenants and a skewed distribution, with high payments going to relatively few tenants. The following examples are illustrative.

> Estate A had 56 tenants this past cropping season. The estate's average tobacco yield was very high by national standards, at 1,891 kg/ha. Average cash payment to tenants was K 403.60, with a range from K 0 to K 2,046.83. Thirteen tenants (23 percent) received no cash payment at all because their yields were too low to cover their debts for inputs and food rations. An additional 19 tenants (34 percent) received cash payments of between K 1 and K 300. Ten tenants (18 percent), each with payments exceeding K 700, accounted for over 55 percent of this estate's total payment to tenants.

> Estate B had 45 tenants during the past cropping season. The estate's average tobacco yield was 1,270 kg/ha, slightly above the national average. Its average cash payment to tenants was only K 195.45, with a range from K 0 to K 668.94. Fifteen tenants (33 percent) received no cash payment; another 12 tenants (27 percent) received less than K 200. Only three tenants received payments exceeding K 500. On this estate, the yield required for a tenant just to cover his debts to the estate was 1,100 kg/ha, a yield similar to the national average.

Hence, on these two large estates, 28 percent of tenants received no cash payment at all at the end of the past season, a season that, in terms of average auction floor prices, was one of the best ever recorded. Both of these case study estates are physically isolated; thus it is unlikely that the tenants who received no cash payment from the estate of their tenancy sold some of their harvested tobacco to other estates. If such results are at all representative of wider patterns within the industry, then considerable caution must be given to the notion that tenancy offers a major vehicle for alleviating rural poverty in Malawi at the present time.

The failure of many tenants to earn any net return is probably the main cause of a growing number of conflicts between tenants and estate managers. Such conflicts have included thefts of tobacco and production inputs, the burning down of houses and tobacco barns, and even physical threats being made against managers.

Estate managers cited a number of concerns and problems with respect to their tenants. Chief among them are the following:

(1) The practice of tenants' selling their tobacco to other estates. This enables the tenants to obtain higher prices and/or to bypass repaying their estate owner for inputs and other services provided on credit.

(2) The practice of tenants' overconditioning their tobacco. This involves adding water to tobacco prior to delivering it to the grading shed in order to increase its weight and hence the total revenue obtained. The watered tobacco is likely to become moldy, causing the estate owner to have his deliveries rejected at the auction or to realize a very low price.

(3) The practice of tenants' selling inputs (e.g., fertilizers, farm tools) either to smallholders around the estate or to neighboring estates.

(4) The practice of tenants' abandoning the estate before harvesting when they do not anticipate obtaining a yield sufficient to repay their debts and earn a profit.

(5) The high mobility of tenants, which makes for high recruitment costs to estate owners. Owners and managers of the smallest estates did not complain about this problem, reflecting the fact that many tenants of such estates come from the surrounding communities.

Tenant mobility is indeed quite high, with tenants moving between estates and in and out of the tenancy system. For our full sample, a tenant turnover rate of 31.1 percent was reported between the 1988/89 and the 1989/90 seasons. As Table 4.12 indicates, however, the turnover rate was slightly lower among larger estates than among smaller estates. The generally better income-earning prospects on the larger estates, as well as better living conditions on some of these estates, probably explain this lower turnover.

Table 4.12 Tenant Turnover Rates[a]

	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
No. of tenants 1989/90	79	119	235	1,189	1,622
No. of tenants who left between the 1988/89 and 1989/90 seasons	28	51	76	350	505
Turnover Rates	35.4%	42.9%	32.3%	29.4%	31.1%

[a] Technically, one would want to calculate tenant turnover by taking the number of tenants leaving estates after a given season and dividing by the number of tenants resident during that season. The data in this table thus represent only a close proxy for tenant turnover.

Source: Field survey.

In analyzing tenancy relationships, attention must also be given to the living conditions of tenants. In the vast majority of estates included in our sample, tenant "houses" are simply temporary structures made of grass and sticks and having bare mud floors. In a few instances, tenants have semipermanent structures, featuring rammed earth walls and grass thatch. Only in exceptional cases are tenants' houses made of solid materials, such as mudbrick. Tenant houses are typically between five and nine square meters in size--this to accommodate an entire

family. Most tenant houses do not have a latrine or any other sanitary facility, such as rubbish pits or bathing facilities.

It is the general policy on most estates to have the tenants build their own houses, the estate providing them with thatch (and in some cases with poles) to do so. Tenants are reluctant to build permanent structures because of the costs involved, and because they may be resident of this estate for only a season or two. The costs of thatch and poles provided to tenants for house and tobacco barn construction are generally charged against the tenants' tobacco income.

The provision of basic amenities varies among estates, although the vast majority of estates provide few, if any, amenities. While one of the provisions in the lease covenants is that there should be a source of clean water on the estate, only 76 percent of the estates in our sample claimed the availability of this essential service. Only ten of our sampled estates--eight of them large-scale--have a water tap. Only four estates offer medical services of any kind. Hence, while the larger estates do provide a somewhat wider set of social amenities, the overall picture in terms of housing conditions and social amenities is very poor and requires immediate attention.

4.2.3 Permanent Laborers

Permanent laborers are taken on by many estates for work lasting from a few months to year-round. The three main functions served by permanent workers appear to be:

(1) performing general, especially strenuous, tasks around the estate including land preparation, nursery preparation and maintenance, building and barn construction, and baling and loading of tobacco;

(2) assisting tenants during peak work periods; and

(3) directly cultivating flue-cured tobacco, maize, and other crops for the estate.

Estate managers report several advantages of employing permanent workers. First, such workers are said to be "easier to command" than either tenants or casual workers, as they are under the direct supervision of the estate manager or field supervisor *(kapitao)*. Second, some of the permanent workers are not paid until the end of the season, which reduces the estate's cash-flow problems during the main part of the season and prevents those workers from leaving the estate prior to the final sale of the tobacco. Third, permanent workers are generally unmarried and are not from nearby communities so that (compared to casual workers) they are less likely to become involved in the social activities of the surrounding communities. This is reported to reduce the extent of absenteeism.

Estate managers listed very few problems associated with permanent workers. The only commonly mentioned problems are social problems (especially drunkenness), and conflicts that arise when worker payments are delayed at the end of the season.

An analysis of the reported remuneration of permanent laborers reveals that a large number of such workers receive less than the agricultural minimum wage of K 45.24 per month.[1] In fact, payments in the range of K 18.00 to K 25.00 are most common. Table 4.13 provides a breakdown of the wage payments issued to adult male permanent laborers as reported in our sample.

Table 4.13 Reported Payments to Adult Male Permanent Laborers (numbers and percentages of laborers obtaining specified wages)

	Estate Size Category (hectares)				
Monthly Payment	0-15	15.01-30	30.01-100	100.01+	Total
Less than K 15	7 (6%)	13 (10%)	27 (12%)	0	47 (4.8%)
K 15 to 30	82 (66%)	81 (64%)	84 (39%)	24 (5%)	271 (27.4%)
K 30.01 - 44.99	8 (6%)	5 (4%)	3 (1%)	156 (30%)	172 (17.4%)
K 45.00 - 48.00	24 (19%)	19 (15%)	73 (34%)	325 (62%)	441 (44.6%)
More than 48.00	3 (2%)	9 (7%)	30 (14%)	16 (3%)	58 (5.9%)
Totals	124	127	217	521	989

Source: Field survey.

The table indicates that for our sample as a whole, half (49.5 percent) of adult male permanent laborers are paid less than the minimum agricultural wage, and nearly one-third of such laborers (32 percent) are paid K 30 or less. Only a small number of laborers (5.9 percent) are paid significantly more than the minimum wage. The payment patterns differ across estate-size categories. For estates smaller than 30 hectares, 78 percent of adult male permanent laborers are paid less than the minimum wage and 73 percent are paid K 30 or less. Such findings have important implications for the prospects of remunerative off-farm employment in Malawi, as it is precisely estates in these smaller size categories that are growing fastest within the estate subsector.

[1] Because the minimum wage depends in part on the number of days worked in a month, for some estates it varies between K 45 and K 48. Payments over K 48/month may be considered to be above the minimum wage.

In contrast, nearly half the adult male permanent workers employed on estates of 30 to 100 hectares receive wages equal to or exceeding the minimum wage. Large-scale estates adhere best to minimum wage regulations. Some 65 percent of the adult male permanent laborers on such estates are paid wages equal to or above the minimum wage, while only 5 percent of such workers are paid K 30/month or less.

Wages paid to children working as permanent laborers are considerably lower than those reported above for adult males. The results from this study are shown in Table 4.14.

Table 4.14 Payments to Children Working as Permanent Laborers (numbers and percentages of laborers receiving specified wages)

	Estate Size Category (hectares)				
Monthly Wage	0-15	15.01-30	30.01-100	100.01+	Total
Less than K 10	0	0	4	81	85 (26%)
K 10 to 20	43	12	15	18	88 (26%)
K 21 to 30	0	10	1	98	109 (33%)
More than K 30	7	18	8	18	51 (15%)
Totals	50	40	28	215	333

Source: Field survey.

The majority of children employed as permanent laborers on our sampled estates are paid ess than K 20 per month, and only a small proportion are paid more than K 30. Only 2 of 333 child laborers were paid the minimum wage this past cropping season.

4.2.4 Casual Laborers

Casual laborers are taken on during peak periods of work to reduce the work pressures felt by tenants and permanent workers and to compensate for sickness or absenteeism among the latter. Casual laborers are hired in the periods of land preparation, weeding, and harvesting, and in order to grade and tie tobacco. On many estates, casual laborers are assigned to individual tenants to undertake specified tasks, and the cost of such labor is deducted from the final payments to tenants.

Estate managers report that casual laborers are far less expensive than tenants or permanent workers because they do not have to be maintained with housing, food rations, or periodic medical treatment; because payment is frequently linked to output; and because more extensive use can be made of labor input from children and women. Casual laborers are paid either in cash or in kind. When cash is used, it is common for women and children to be paid

considerably less than adult males. On many estates, women receive payments equivalent to 2/3 those received by adult males, while children receive 1/2 or less of the adult male payment. Adult males generally receive between K 1.50 and K 2.00 per day, but adult females generally receive K 0.85 to K 1.40 per day, and children between K 0.45 and K 1.00 per day. Payment in kind may include maize, maize flour, salt, meat, and occasionally clothes.

Estate managers report that casual laborers come largely from villages near the estate. Prior studies have indicated that most of those undertaking casual work are from very poor smallholder households whose food stocks run short before their own harvest, and who must thus hire out their labor in order to obtain food or cash to buy food. One of the peak labor periods on the estates is from December through February, when weeding and fertilizer application is done. This period corresponds with the "hunger months" within smallholder communities (see Mkandawire and Ferguson 1990).

Estate managers report that the main problems associated with hiring casual workers are quality control, supervision, and the need to make immediate payments. Managers contend that casual laborers are not quality conscious in their performance of weeding, removing suckers, and other tasks, since payment is typically linked to the quantity of their output (e.g., how many ridges were prepared or weeded). Supervision of their work is said to be a major problem, especially when casual workers are assigned to individual tenants who themselves are very busy and unable to monitor the activities of laborers. Casual laborers require immediate payment because of their dire food situation. This creates cash-flow problems for the estate, as many casual laborers are employed before earnings from tobacco sales are realized.

4.3 Credit and Fertilizer Procurement

After serious problems of labor relations, the lack of sufficient capital appears to be the most binding constraint on the further development of existing estates, particularly newly established, small-scale estates. The availability of credit, both medium-term and short-term, was reported by a majority of estates to be a problem (see Annex A, Table A21).

As a result of their difficult experiences during the mid-to-late-1970s, the commercial banks have been reluctant to extend medium-term farm development credits to agricultural estates. A pilot scheme under the Industry and Agricultural Credit Project (1986-1988) did extend loans for estate development, but such loans benefited only a few corporate estate companies (Deloitte, Haskins and Sells 1986). While funds from the World Bank have been made available to the commercial banks for financing medium-term investments, the real value of the loans extended has been lower during the past few years than it was during the late 1970s (interview with loan officer at the National Bank of Malawi). The banks have been reluctant to finance any agricultural ventures for which they cannot guarantee repayment. Only with tobacco production are the banks reasonably secure, as loan repayments are made directly from Auction Holdings Ltd., out of the sales receipts of individual growers. This selective credit constraint has helped constrain estate crop diversification.

Approximately two-thirds of our sampled estates report that they have applied for commercial bank credit, while one-half report actually obtaining credit to help finance their seasonal production costs. Among estates smaller than 15 hectares, however, both loan applications and loan approvals are less common. Only 46 percent of such estates report having applied for bank credit, while only 37 percent report obtaining such credit. The majority of the smaller estates that have applied for credit report experiencing difficulties, either being issued funds well below their requested level, or not receiving funds on a timely basis.

The commercial banks have applied different lending policies to different types of estates. For the larger estates, that plant at least ten hectares of tobacco and have sizable tobacco quotas, the banks provide up to 60 percent of budgeted production costs, dispersing credit on a monthly basis beginning during the months of land preparation. Cost and revenue estimates are laid out in an annual cash-flow plan. Such estates, which number approximately 300, are visited every month by an agricultural officer of the banks.

In contrast, for smaller estates, with small quotas and limited past experience with the banks, only "bridging loans" are provided. These are loans issued in January or February, after the tobacco crop is already well developed. These loans are designed to cover the labor and other costs associated with reaping, grading, baling, and transporting the tobacco, but not the earlier production costs. By waiting until January or February, the banks are able to assess how well developed a farmer's crop is and the likelihood that he will obtain a yield sufficient to repay the loan. Given this policy, smaller estate owners must finance the early production activities (land preparation, nursery development, planting, weeding, and fertilizer application) out of savings from prior seasons. Should the prior season generate no profits, such estate owners must resort to selling cattle or borrowing from friends in order to finance these activities. These shortages of capital are a major reason why such estates are unable to pay their permanent workers until the end of the season, and why they encounter problems in paying their casual laborers.

Evidence from this survey suggests that the dispersement of bank credit is highly skewed in favor of the largest estates. This can be seen in Table 4.15, which includes only estates that reported the level of credit provided during the past cropping season.

The table indicates that the "bridging loans" extended to small estates average around K 4,000. Only five estates of 30 hectares or less reported receiving credit exceeding K 5,000 for the past cropping season. Even within the 30-100 hectare size category, the vast majority of estates (75 percent) report obtaining credit of less than K 10,000. Only within the largest size category do estates generally receive seasonal credits exceeding K 50,000 or 100,000. For our sample as a whole, estates of less than 30 hectares received only 4.7 percent of the total credit extended. Such a finding differs considerably from the claim made by Deloitte, Haskins and Sells (1986:17) that small-scale estates obtain about one-fourth of the total bank advances for tobacco.

Table 4.15 Distribution of Commercial Bank Credit (sampled estates)

	Estate Size Categories (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
Number of reported cases	8	14	20	13	55
Total credit (K 000)	35.9	53.1	398.9	1392.9	1880.8
Average credit per estate (K)	4488	3792	19948	107144	34197
Lowest amount loaned (K)	1200	1000	2000	2000	1200
Highest amount loaned (K)	8000	10000	200060	470000	470000
Share of total credit given	1.9%	2.8%	21.2%	74.1%	100.0%

Source: Field survey.

4.3.1 Fertilizers and Other Inputs

Estates do not qualify for subsidized fertilizer from ADMARC (through the Smallholder Farmer Revolving Fund for Malawi--SFRFFM), but are supposed to pay the full costs for all fertilizers from Optichem, the Agricultural Trading Company, or Shell Chemicals. The difference in costs between these sources are considerable. For example, in October 1989, the Blantyre prices for Compound C and CAN were the following:

	SFRFFM	Optichem	% Difference
Compound C	K860/ton	K1,054/ton	22.6
C.A.N	680/ton	897/ton	31.9

The divergence in prices increases as one moves away from Blantyre, since transport costs are added to Optichem but not to SFRFFM supplies. Prior studies have noted that these cost differentials have led to a large leakage of subsidized fertilizers into the estate subsector. One study estimated that 25 to 35 percent of fertilizer directed to the smallholder subsector is used by estates (Robert Nathan Associates 1987). As Table 4.16 indicates, a majority of estates in our sample report obtaining subsidized fertilizer either directly from ADMARC or through farmers' clubs. While such sources are the predominant sources for the smaller estates, over a third of even the largest estates sampled also obtain fertilizer from ADMARC.

The intensity of fertilizer use differs considerably across estates of different size categories. This was measured by taking the total amounts of fertilizers purchased and dividing by the cropped area for estates of given sizes. The results are presented in Table 4.17. The

table indicates that estates in the largest size category make considerably more intensive use of fertilizers than other estates in our sample. Such estates purchased nearly twice the amount purchased by other estates per hectare of cropped land. Estates from the smallest size category, however, use fertilizers at least as intensively as do estates in the medium-scale range.

Table 4.16 Sources of Fertilizer
(number and percentages of sampled estates)[a]

	Estate Size Category (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
ADMARC	20 (74%)	20 (61%)	20 (65%)	10 (36%)	70 (59%)
Farmers' Clubs	8 (30%)	6 (18%)	6 (19%)	1 (4%)	21 (18%)
ATC	8 (30%)	10 (30%)	13 (42%)	10 (36%)	41 (35%)
OPTICHEM	0	4 (12%)	4 (13%)	7 (25%)	15 (13%)
Other[b]	0	0	1 (3%)	4 (14%)	5 (4%)
No Information	0	4	2	1	7
Total Cases	27	33	31	28	119

[a] Percentages add up to more than 100 percent because some estates procure fertilizer from more than one source.

[b] Includes: (1) other estates and (2) imports directly.

Source: Field survey.

Table 4.17 Intensity of Fertilizer Use

	Estate Size Categories (hectares)				
	0-15	15.01-30	30.01-100	100.01+	Total
Fertilizer[a] Purchases (tons)	46.2	63.9	150.0	796.7	1056.8
Cropped area (ha)	173.5	300.3	582.1	1680.1	2763.0
Fertilizer intensity (kgs/ha)	266.1	212.7	257.7	474.2	382.5

[a] Includes C.A.N., Compounds "C" and "D", and Compound 23-21-0.

Source: Field survey.

Summary

In a series of recent publications and policy documents written by government bodies, consulting organizations, donor agencies, and academics, a large number of claims have been made about the structure, operations, and performance of the estate subsector in Malawi. Such claims, relating to aspects of the use of land and other resources--including labor and management on estates--as well as to the structure of the subsector, have provided the basis for ongoing policy discussions within the Malawian government and between the government and donor agencies regarding future support and regulatory systems for the subsector. Some of these claims, however, are based on only anecdotal evidence or on information that is now outdated. Detailed empirical studies on selected aspects of the estate subsector have been exceedingly rare.

Through an analysis of Agricultural Development Division (ADD) estate file data and a multi-district sample survey of estates, this exploratory study has tried to provide a more comprehensive body of empirical evidence on which to ground these ongoing policy discussions. The study has also sought to provide the basis for designing a series of subsequent studies to examine critical elements of estate operations in greater detail, including the interface between the estate and the customary smallholder subsectors.

The major findings of this study have been the following:

The Size and Structure of the Estate Subsector

1. The number of estates and the total estate area in Malawi is considerably higher than that estimated or reported in prior studies. On the basis of a listing of estate files in the major ADDS, we estimate that at the end of 1989 there were 14,671 estates (leasehold and freehold combined), occupying an area of 843,327 hectares.

2. The estate subsector expanded dramatically during the 1980s, with rapid growth occurring during two main periods: 1981-1983 and 1987-1989. Each of these periods of rapid growth accompanied and followed upon a large increase in the nominal and real prices of tobacco sold over the auction floors in Malawi.

3. The expansion of the subsector during the 1980s had structural characteristics quite different from the pattern of estate expansion during the 1970s. In the earlier period, many of the newly established leaseholds and most of the expanding estate land was on large-scale estates belonging to corporations, prominent businessmen, and civil servants. In contrast, during the 1980s, the vast majority of new "estates" were very small in scale. Some 71 percent of the estates registered in the 1980s were less than 30 hectares in size, and many are considerably smaller.

4. Most estates of less than 30 hectares have been established by progressive smallholder farmers, registering customary land which they, and frequently their relatives, had been cultivating--often for many years. In some cases these farmers registered estates individually;

in others, extended families joined together to form an estate from their customary land, registering the estate in the name of one or two family heads. Most of these smaller estates are basically enlarged smallholder farms, as they lack all or most of the characteristics usually associated with the idea of an agricultural estate (e.g., salaried managers, a high degree of cash-crop specialization, and large permanent work forces).

5. An appropriate term for the owners of these small-scale estates is "graduated smallholders." Such farmers have indeed graduated from their status as smallholders, a status that restricted the crops they could legally grow and the marketing channels through which they could sell. As smallholders, they also had poor access to credit. As leaseholders, however, they are now permitted to grow burley tobacco, to sell such tobacco directly across the auction floors, and to approach commercial banks directly in search of seasonal credit. Nevertheless, such leaseholders retain one foot in the smallholder ("customary") subsector. As our sample survey shows, such farmers still obtain (subsidized) fertilizers, predominantly from the Agricultural Development and Marketing Corporation (ADMARC) or from farmers' clubs, still have contacts with the ADD extension system, and remain active users of the resources (e.g., land and firewood) of the customary subsector. The widespread entry of such "graduated smallholders" into the estate subsector suggests that the long-standing description of Malawian agriculture as "dualistic" may not be realistic. What has emerged is a more varied continuum of agricultural enterprises. In addition, the long-held position that smallholders have totally failed to benefit from the development of export-oriented agriculture in Malawi is now called into question.

6. The movement of such progressive smallholders to register leaseholds has been prompted not only by the positive incentive of growing burley tobacco and making direct auction sales, but also by the perceived or actual threat of land insecurity in many locations, given that large areas around them have been registered as estates, sometimes by people from outside the local communities. In some areas, traditional authorities have actually encouraged their subjects individually or jointly to lease a plot in order to acquire greater security of tenure.

7. With the widespread entry of smallholder farmers into the estate subsector, the structure of this subsector has been transformed. While in 1979 the average size of estates was 207 hectares, by 1989 it was reduced to 53 hectares. In the latter year, some 68 percent of estates had less than 30 hectares and some 47 percent less than 20. Still, large-scale estates continue to account for slightly more than half of the total leasehold area.

8. The pace and extent of estate development has differed considerably among regions and districts. Estate development has been most extensive in the Central Region, this region accounting for 77 percent of the total number of estates and 67 percent of the total estate area. As a result of poorer infrastructure, low population density, and transport constraints, estate development has been far less extensive in the Northern Region. In the Southern Region, most estate development took place during the colonial period and up through the 1970s, with relatively little new estate development since then.

9. Land for estate development has been acquired by a variety of different means. In contrast to past views, it was found that there is an active land market, both covert and overt. In our sample, one-third of estates above 100 hectares were purchased by the then-current owner. The study found that inheritance is another important form of estate acquisition. In contrast to the previous view that the vast majority of estates were established on virgin land, this survey found that for many estates, the current owner had been cultivating at least part of the estate land for several years prior to registering the estate. For one-fourth of our sample, the leasehold owner had been cultivating at least part of the estate for 10 years or more prior to registering it.

Land Use and Crop Mix

10. While past estimates of the proportion of estate land under cultivation ranged from 8 to 14 percent, this study found a far higher rate of land utilization. For our entire sample, 27.9 percent of leasehold land was reported to be under cultivation during the 1989-90 season. Significant differences were found among districts and among estates of different size categories. In Kasungu and Lilongwe cropping intensities were found to be very high, with the proportion of land under crops 35 percent and 42 percent, respectively, for our sampled estates. In contrast, in Rumphi and Machinga cropping intensity was much lower--at 20.6 percent and 19.4 percent, respectively. Cropping intensities were found to be extremely high in the case of estates of less than 30 ha, approaching nearly 50 percent. Among medium-scale estates (30-100 hectares), the intensity of land use varied considerably, although it averaged 37.8 percent for our sample. For large-scale estates, average cropping intensity was considerably lower, at 23.2 percent, with more than a third of the estates cultivating less than 15 percent of their total land. Only among these larger estates did we find considerable areas of land not currently under use that could be potentially cultivated.

11. The factors contributing to the apparent underutilization of land on some estates are varied. On some of the larger estates, much of the unutilized land is not arable, being steeply sloped, waterlogged, under forest cover, etc. Where arable land has remained uncultivated, the primary factors appear to be shortages of capital, limits set by the allocated tobacco quota, and transport difficulties. We found some instances where estates were registered simply to obtain an additional market quota, with no immediate intention of developing the estate.

12. It is assumed that prior estimates of very low land utilization were based strictly on the area under major cash crops, such as tobacco, tea, and sugar. Such estimates seemingly ignore the planting of maize and other food crops on estates. This study found that maize and other crops (groundnuts, beans, fruits, and other vegetables) took up as much area as burley tobacco, and that for the relatively small "tobacco estates" maize plantings exceeded those of tobacco. Maize is produced on estates both for feeding workers and for commercial sale.

13. Among the sampled estates, plantings of hybrid maize far exceeded those of local maize. This dominance of improved varieties over local varieties occurred in Lilongwe,

Kasungu, and Salima Districts, reflecting the impact of long-established integrated rural development projects.

14. Little diversification was found in the crop mix of the sampled estates, although many of the smaller estates did report limited plantings of groundnuts, other legumes, and fruit and vegetables. Only a few of the larger estates reported any substantial diversification away from a tobacco/maize regime. While more than a third of the estates reported an interest in diversifying their crops (or livestock), such diversification has been constrained by lack of access to medium-term credit and by the fact that the core of their extension contacts are tobacco-related.

Smallholder Encroachment onto Estates

15. Smallholder encroachment was very common on our sampled estates. Such encroachment has been either in the form of fetching thatch, firewood, or small animals, or in the form of actual cultivation of estate land. While such cultivation is generally on a limited scale (2 hectares or less), some estates reported cultivation encroachment of 10 hectares or more. For our entire sample, some 5 percent of the total cultivated land on estates was reported to be cultivated by encroachers. The common incidence of encroachment is a reflection of the growing scarcity of land and other resources within the smallholder customary sector and is a manifestation of an apparent growth in tension in some areas between estates and surrounding communities.

Estate Management

16. The study found absentee ownership of estates to be an uncommon phenomenon, a divergence from previous claims. Some 60 percent of the sampled estates are actually managed by a resident owner, while in most other cases, the owner visits daily. For the districts included in our sample, only in Salima was absentee ownership found to be at all common.

17. The vast majority of estates in our sample do not feature a salaried manager. Most of the managers were the owners themselves, and in most other cases the managers were paid or unpaid relatives, typically sons, spouses, or brothers of the owner. There were virtually no salaried managers among estates of less than 30 hectares. Only for large-scale estates are salaried managers commonly found.

18. It was found that educational qualifications of estate managers are generally low, that few estate managers have attended any training course pertinent to their current work, and that few managers have had any managerial experience prior to their current job.

19. As a result of their prior education and experience, most estate managers can be regarded as "tobacco technicians," well versed in the basic cultural practices required to grow a tobacco crop, but not well equipped to handle more general farm management problems, including those related to land husbandry and labor relations. This "tobacco technician"

syndrome has been reinforced by the managers' extension experiences. The most common extension contact reported is that of field days organized by TAMA. Such field days deal with particular features of tobacco production and postharvest care, but do not address the introduction of new crops or broader management issues.

Estate Labor

20. The labor force of leasehold estates consists of: (a) unpaid family members of the leaseholder and/or manager; (b) permanent laborers (hired for periods ranging from a few months to year-round); (c) tenants and their unpaid family members; and (d) casual laborers hired at peak work periods. Among permanent workers (i.e., the first three categories), tenants and their family members are numerically most important, especially on larger estates.

21. An analysis of the permanent worker force for our sampled estates found that the number of permanent workers per hectare of leasehold area decreases for larger estate-size groups. In terms of crop production, however, large-scale estates were found to be more intensive in their use of permanent workers than medium-scale estates. Nevertheless, overall, the smallest estates (i.e., less than 15 hectares) are the most intensive in their use of permanent laborers.

22. Wide variations were found in the terms and remuneration of tenants on estates of different size categories as well as within individual categories. On average, tenants were reported to have received payments considerably higher than the minimum agricultural wage and higher than the income obtained by most smallholders. For our sample, the mean reported tenant cash payment was K 621. However, small estates reported paying cash sums considerably less, at a mean level of K 373. In addition, an analysis of the tenant records of individual estates indicates that tenant incomes are quite skewed, with a large number of tenants receiving no income at all while relatively few tenants account for a large share of receipts. Tenant turnover rates were found to be very high: 31 percent for the whole sample. Such findings raise questions about the possibility, under prevailing price arrangements and cost conditions, for tenancy arrangements to alleviate poverty on any significant scale.

23. On the sampled estates housing conditions are frequently poor and few, if any, social amenities are available. On a large majority of estates, tenants' houses consist only of small grass structures with no nearby latrine or other sanitary facility. Despite the covenant provision that all estates must have a source of clean water, some one-fourth of the sampled estates did not have such a facility. The conditions of tenants' houses and the overall provision of social amenities was found to be better on larger estates than on smaller estates.

Credit and Inputs

24. A large majority of the sampled estates reported insufficient capital as a problem. While the larger estates have had difficulty obtaining medium-term credit, many of the smaller estates reported that either they did not apply for credit or they faced difficulties obtaining

seasonal credit on a timely basis. Among our sampled estates, credit allocations were heavily skewed in favor of the large-scale estates.

25. Consistent with earlier assumptions, it was found that "leakage" of subsidized fertilizers into the estate subsector is common. Fifty-nine percent of the sampled estates reported obtaining fertilizer from ADMARC; 18 percent reported buying fertilizer from farmers' clubs. These were the predominant sources of fertilizer for estates smaller than 30 hectares, but 36 percent of large-scale estates also reported obtaining fertilizer from ADMARC.

Further Research

While most prior attention and policy discussion has focused around the issue of land utilization on estates, the results of this study suggest that issues regarding the use of human resources (including work conditions and remuneration, the participation of women and children in the labor force, the terms of tenancy, the training of managers) are at least as important in understanding the development potential of, and the problems faced by, the estate subsector. In addition, our results suggest that greater attention must be given to the interface between the estate and smallholder subsectors, both the tension points and the interdependencies among these subsectors. In this latter area, attention should focus on (1) the flows of labor, crops, finance, and other resources between estates and smallholders; (2) areas of formal and informal cooperation; and (3) conflicts over land and other natural resources.

Additional areas for policy-relevant research include:

- Examine the overall distribution of short- and medium-term commercial bank credit to the estate subsector, analyzing allocations to different estate-size categories and for different crops or other purposes.

- Examine the environmental dimensions of estate development and management, including forest depletion, soil degradation, and conflicts over the use of resources from the "commons."

- Examine the scope and constraints for diversification of economic activities on estates, both agricultural and nonagricultural (e.g., industry, tourism).

- Examine existing formal and informal land subleasing arrangements, and explore the problems and means of encouraging such arrangements.

- Undertake a census of the leasehold estate population, incorporating a land-use capability component. This could be used as the basis for a better land rent system.

- Undertake case studies of "progressive estates" that provide good-to-excellent social amenities (including nutrition programs, improved housing) and remuneration to tenants. Assess means of supporting such programs.

- Examine and compare the performance of tobacco estates from different regions and of different sizes using price and quality data from Auction Holdings.

Working Bibliography

ADMARC (Agricultural Development and Marketing Corporation)
1980/81 Annual Report. Lilongwe.

Agmmark Services Ltd.
1989 Study of Smallholder and Estate Tobacco Growing and Marketing. Second draft report. Submitted to the Ministry of Agriculture.

Cargill Technical Services
1989 Study of the Tobacco Control Commission. Submitted to the Government of Malawi.

Christiansen, R.
1987 Malawi's Agricultural Export Strategy and Implications for Income Distribution. Washington, DC: United States Department of Agriculture, Economic Research Service.

Christiansen, R., and J. Kydd
1987 The Political Economy of Agricultural Policy Formation in Malawi, 1964-1985. Mimeo.

Deloitte, Haskins and Sells
1986 Appraisal of an Extension and Training Service for the Estate Subsector of Malawi. Lilongwe.

Dickerman, C., and P. Bloch
1989 Land Tenure and Agricultural Productivity in Malawi. Madison, WI: Land Tenure Center, University of Wisconsin.

Duncan, A.
1990 The Impact of Pricing Policy on Tobacco Tenancy in Malawi. Oxford: Food Studies Group.

Economist Intelligence Unit
1990 Malawi Country Study 1990-91. London: Economist Intelligence Unit.

Government of Malawi
1968 Economic Report. Lilongwe.

1971 Agricultural Development and Marketing Corporation Act of 1971. Lilongwe.

1987 Office of the President and Cabinet. Statement of Development Policies, 1987-1996. Lilongwe: Department of Economic Planning and Development.

Previous Page Blank

Gulhati, R.
1989 Malawi Promising Reforms, Bad Luck. Development Policy Case Studies, No. 3. Economic Development Institute, The World Bank. Washington, D.C.: The World Bank.

Kydd, J.
1983 The Return of Malawian Labor from South Africa and Zimbabwe. Journal of Modern African Studies 2(2).

1985 Malawi in the 1970s: Development Policies and Economic Change. Seminar Proceedings of "Malawi: An Alternative Pattern of Development." Pp. 293-381. Seminar Proceedings 25. Edinburgh: Center of African Studies, University of Edinburgh.

1988 Policy Reform and Adjustment in an Economy under Siege: Malawi 1980-87. IDS Bulletin 19(1):31-41. Sussex: Institute of Development Studies.

Kydd, J., and R. Christiansen
1982 Structural Change in Malawi Since Independence: Consequences of a Development Strategy Based on Large-scale Agriculture. World Development 10(5):355-375.

Landell Mills Associates
1988 Crop Industry Economic Studies. Volume One, Main Report; Volume Two, Data Base. Submitted to the Government of Malawi. Lilongwe.

McCracken, J.
1983 Planters, Peasants and the Colonial State: The Impact of the Native Tobacco Board in the Central Province of Malawi. Journal of Southern African Studies 9 (2):172-192.

Ministry of Agriculture, Planning Division
1989 An Evaluation of Implications of Allowing Broad-based Production of Burley and Flue Cured Tobacco by Smallholder Farmers. Lilongwe. Draft.

Minster Agriculture Ltd.
1983 Tobacco Sector Survey. Report of the Government of Malawi. Lilongwe.

Mkandawire, R.
1983 Customary Land, the State, and Agrarian Change in Malawi. Journal of Contemporary African Studies 3(1/2).

Mkandawire, R., and C. Phiri
1987 Land Policy Study: Assessment of Land Transfers from Smallholders to Estates. Bunda. Unpublished manuscript.

Mkandawire, R., and A. Ferguson
1990 Smallholder Agriculture Food Security and Estate Expansion in Malawi: A Case Study of the Salima Agricultural Development Division. Bunda. Unpublished manuscript.

Mtawali, K.
1989 An Analysis of Characteristics of Household Food Insecurity in Malawi. Kellogg International Programme in Food Systems. Paper presented at a conference on Food Security Research in Southern Africa, November 1989, at Harare, Zimbabwe.

Nankumba, J.
1990 A Case Study of Tenancy Arrangements on Private Burley Tobacco Estates in Malawi. African Rural Social Science Series, Research Report #4. Winrock International Institute for Agricultural Development. Morrilton, AR: Winrock International.

Ng'ong'ola, C.
1986 Malawi's Agricultural Economy and the Evolution of Legislation on the Production and Marketing of Peasant Economic Crops. Journal of Southern African Studies. 12(2).

NSO (National Statistical Office)
Various years Reported Employment and Earnings. Annual Reports. Zomba: NSO.

Nyanda, M.
1989 The Labour Market in Malawi's Estate Subsector. Report of the Findings of the Estate Household Survey. University of Malawi, Centre for Social Research.

Nyanda, M., and G. Shively
1989 Sources of and Factors Influencing the Incomes of Tenants on Agricultural Estates: The Case of Malawi. Cornell University Food and Nutrition Policy Program. Washington, D.C.

Nyasaland Protectorate
1939 Report of a Commission Appointed to Enquire into the Tobacco Industry of Nyasaland. Zomba.

Nyasaland
1962 1962-1965 Development Plan. Zomba.

Office of the President and Cabinet
1987 Statement of Development Policies, 1987-1996. Lilongwe: Department of Economic Planning and Development.

Pachai, B.
1978 Land Politics in Malawi, 1875-1975. Halifax: Limestone Press.

Price Waterhouse
1987 The Tea Industry of Malawi. Statistical and Financial Survey, 1976 to 1985. The Tea Association of Malawi. Lilongwe.

Pryor, F.
1988 Income Distribution and Economic Development in Malawi: Some Historical Statistics. World Bank Discussion Paper #36. Washington D.C.: The World Bank.

Reserve Bank of Malawi
1989 Financial and Economic Review. Volume 3. Lilongwe.

Various dates Quarterly Report.

Robert R. Nathan Associates
1987 The Impact of the Fertilizer Subsidy Removal Program on Smallholder Agriculture in Malawi. Presented to the Ministry of Agriculture and to USAID. Washington, D.C.: Robert R. Nathan Associates, Inc.

Sahn, D.
1990 Development through Dualism? Land Tenure Policy and Poverty in Malawi. Washington, D.C.: Cornell Food and Nutrition Policy Program.

Sahn, D., and J. Arulpragasam
1990 Land Policy and Poverty in Malawi. Washington, D.C.: Cornell University Food and Nutrition Policy Program. Draft manuscript.

Sahn, D., and L. Merid
1990 Policy Reform and Poverty in Malawi: A Survey of a Decade of Experience. Washington, D.C. Cornell University Food and Nutrition Policy Program. Draft manuscript.

UNDP/World Bank
1989 Financial and Economic Data. Washington, DC: UNDP/World Bank.

Vaughan, M., and G. Chipande
1986 Women in the Estate Sector in Malawi: The Tea and Tobacco Industries. World Employment Programme Research Working Paper. Geneva: International Labor Organization.

Watson, T.
1964 Malawi. Report on the Burley Tobacco Industry. Special Commonwealth African Assistance Plan. London: HMSO.

World Bank
1987 Malawi: Land Policy Study. Washington D.C.: The World Bank.

1990 Malawi: Agricultural Sector Adjustment Program. Washington D.C.: The World Bank.

Annex A

Statistical Tables

Previous Page Blank

Annex A: List of Tables

Table A1. Means of Estate Acquisition by Estate Size

Table A2. Means of Estate Acquisition by ADD

Table A3. Estate Crop Mix by ADD

Table A4. Estate Crop Mix by Estate Size

Table A5. Constraints Faced by Estates by Estate Size

Table A6. Reasons for Not Cultivating Arable Land--All Cases

Table A7. Reasons for Not Cultivating Arable Land--Estates with More Arable Land

Table A8. Environment Problems by Estate Size

Table A9. Environment Problems by ADD

Table A10. Soil Conservation Structures by Estate Size

Table A11. Soil Conservation Structures by ADD

Table A12. Sources of Poles and Firewood by Estate Size

Table A13. Sources of Poles and Firewood by ADD

Table A14. Principal Occupation of Estate Owners by Estate Size

Table A15. Principal Occupation of Estate Owners by ADD

Table A16. Educational Attainment of Farm Manager by Estate Size

Table A17. Prior Experience with Tobacco Production

Table A18. Additional Training of Farm Manager by Estate Size

Table A19. Sources of Initial Finance By Estate Size

Table A20. Sources of Financing for Seasonal Production Costs

Table A21. Seasonal Credit from Commercial Banks

Previous Page Blank

Table A22. Estate Decision Making When Owner Not the Manager: Crops, Planting Area Input Sources

Table A23. Estate Decision Making When Owner Not the Manager: Fertilizer

Table A24. Estate Decision Making When Owner Not the Manager: Labor, Infrastructure

Table A25. Estate Decision Making When Owner Not the Manager: Investment in Soc Services

Table A26. Capital Investments by Estate Size

Table A27. Basic Amenities Available on Estates

Table A28. Encroachment on Estates by Estate Size

Table A29. Encroachment on Estates by ADD

Table A30. Employment of Tenants by Estate Size

Table A31. Employment of Permanent Laborers by Estate Size

Table A32. Employment of Casual Laborers by Estate Size

Table A33. Land and Credit Provided to Tenants, 1988/89

Table A34. Land and Credit Provided to Tenants, Survey

Table A35. Types of Inputs Proved to Tenants

Table A36. Problems with Tenants

Table A37. Problems with Permanent Workers

Table A38. Problems with Casual Workers

Table A39. Most Important Sources of Technical Information

Table A40. Sources of Fertilizer

Table A41. Sources of Agro-chemicals other than Fertilizer

Table A42. Plans to Introduce New Crops Next Season

Table A43. Estates Raising Livestock and Poultry by Estate Size

Table A44. Number of Livestock and Poultry by Estate Size

Table A1. Means of Estate Acquisition by Estate Size

	Estate Size Category				Total Cases
	15 Ha.& Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Land from chief's undeveloped customary land	18 66.7%	17 51.5%	24 77.4%	17 60.7%	76 63.9%
Smallholder customary land registered as estate	5 18.5%	10 30.3%	4 12.9%	1 3.6%	20 16.8%
Purchased from other owner/leaseholder	2 7.4%	3 9.1%	1 3.2%	9 32.1%	15 12.6%
Inherited an existing estate	3 11.1%	4 12.1%	3 9.7%	1 3.6%	11 9.2%
Total Cases	27	33	31	28	119

These data are preliminary. Some responses refer to land acquisition, while others refer
means of registering an estate. Further analysis may alter the results.

Table A2. Means of Estate Acquisition by ADD

Means of Estate Aquisition

	Agricultural Development Division					Total Cases
	LILONGWE	SALIMA	LIWONDE	MZUZU	KASUNGU	
Land from chief's undeveloped customary land	3 12.5%	18 78.3%	20 83.3%	22 91.7%	13 54.2%	76 63.9%
Smallholder customary land registered as estate	11 45.8%				9 37.5%	20 16.8%
Purchased from other owner/leaseholder	5 20.8%	4 17.4%	3 12.5%	1 4.2%	2 8.3%	15 12.6%
Inherited an existing estate	8 33.3%	1 4.3%	1 4.2%	1 4.2%		11 9.2%
Total Cases	24	23	24	24	24	119

These data are preliminary. Some responses refer to land acquisition, while others refer to means of registering an estate. Further analysis may alter the results.

Table A3. Estate Crop Mix by ADD

	Agricultural Development Division				
	LILONGWE	SALIMA	LIWONDE	MZUZU	KASUNGU
Total land area of leasehold in Hectares	2065.00	1665.20	2060.03	3424.66	1176.44
Area under Crops	864.53	451.77	379.95	697.32	369.45
Burley Tobacco	328.47	263.81	175.94	377.56	186.32
Flue-cured Tobacco	20.00		12.04	16.94	
Hybrid Maize	266.28	132.74	57.69	107.68	96.48
Local Maize	157.53	38.77	65.57	169.60	66.83
Groundnuts	42.92	6.00	1.10	6.42	11.20
Fruits and Vegetables	8.12	4.45	33.41	15.62	3.61
Coffee	2.50		33.00		
Other Crops	38.71	6.00	1.20	3.50	5.01
Hectares cultivated by encroaching smallholders	5.40	23.72	53.30	7.50	42.00
Grazing Area	186.31	17.85	7.00	18.00	37.80
Wooded area	134.81	399.64	407.82	781.38	194.67
Fallow	348.81	337.82	90.90	252.78	197.56
Other	525.14	434.40	1120.98	1667.68	334.88

Table A4. Estate Crop Mix by Estate Size

	Estate Size Category			
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.
Total land area of leasehold in Hectares	342.34	692.75	1583.53	7772.71
Area under Crops	173.52	300.31	582.08	1707.11
Burley Tobacco	70.55	127.66	293.68	840.21
Flue-cured Tobacco	4.25		4.00	40.73
Hybrid Maize	51.07	63.03	156.07	390.70
Local Maize	31.60	89.82	98.83	278.05
Groundnuts	6.92	6.51	15.59	38.62
Fruits and Vegetables	7.92	9.38	8.71	39.20
Coffee				35.50
Other Crops	1.21	3.91	5.20	44.10
Hectares cultivated by encroaching smallholders	6.20	15.70	16.00	94.02
Grazing Area	3.81	47.00	22.96	193.35
Wooded area	39.91	111.38	262.61	1504.42
Fallow	48.98	83.09	314.81	780.99
Other	69.92	135.27	385.07	3492.62

Table A5. Constraints Faced by Estates by Estate Size

	Estate Size Category				Total Cases
	15 Ha.& Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Labour	2 8.0%	4 12.9%	4 14.8%	3 11.5%	13 11.9%
Capital	19 76.0%	18 58.1%	16 59.3%	10 38.5%	63 57.8%
Land				2 7.7%	2 1.8%
Management	3 12.0%		3 11.1%	4 15.4%	10 9.2%
Transport	5 20.0%	5 16.1%	5 18.5%	7 26.9%	22 20.2%
Tobacco Quota	8 32.0%	12 38.7%	8 29.6%	6 23.1%	34 31.2%
Price Fluctuations	1 4.0%		3 11.1%	2 7.7%	6 5.5%
Excess water	1 4.0%		2 7.4%	2 7.7%	5 4.6%
Dearth of water	5 20.0%	10 32.3%	5 18.5%	2 7.7%	22 20.2%
Fires	1 4.0%			3 11.5%	4 3.7%
Wild Animals	3 12.0%	1 3.2%	1 3.7%		5 4.6%
Construction Resources	1 4.0%		1 3.7%	1 3.8%	3 2.8%
Labour social problems				2 7.7%	2 1.8%
Pilferage/opportunism			1 3.7%	4 15.4%	5 4.6%
Food Security	2 8.0%	1 3.2%	2 7.4%	1 3.8%	6 5.5%
Labour overhead	2 8.0%		1 3.7%	2 7.7%	5 4.6%
Total Cases	25	31	27	26	109

Table A6. Reasons for Not Cultivating Arable Land--All Cases

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
No additional arable land	7 25.9%	6 18.2%	5 16.1%	3 10.7%	21 17.6%
Because of small tobacco quota	6 22.2%	11 33.3%	9 29.0%	12 42.9%	38 31.9%
Lack of sufficient labour	5 18.5%	7 21.2%	6 19.4%	4 14.3%	22 18.5%
Lack of farm inputs	2 7.4%	3 9.1%	2 6.5%	4 14.3%	11 9.2%
Lack of sufficient capital	10 37.0%	10 30.3%	16 51.6%	13 46.4%	49 41.2%
Other	6 22.2%	11 33.3%	11 35.5%	6 21.4%	34 28.6%
No Information	7 25.9%	4 12.1%	5 16.1%	2 7.1%	18 15.1%
Total Cases	27	33	31	28	119

Table A7. Reasons for Not Cultivating Arable Land--Estates with More Arable Land

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
#-Reporting Additional Land	20 100.0%	27 100.0%	26 100.0%	25 100.0%	98 100.0%
Because of small tobacco quota	6 30.0%	12 44.4%	9 34.6%	12 48.0%	39 39.8%
Lack of sufficient labour	5 25.0%	7 25.9%	6 23.1%	4 16.0%	22 22.4%
Lack of farm inputs	3 15.0%	5 18.5%	3 11.5%	4 16.0%	15 15.3%
Lack of sufficient capital	10 50.0%	10 37.0%	16 61.5%	13 52.0%	49 50.0%
Forest Reserve	2 10.0%	3 11.1%	5 19.2%		10 10.2%
Other	1 5.0%	2 7.4%	2 7.7%	2 8.0%	7 7.1%

Table A8. Environment Problems by Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Waterlogging	9 33.3%	9 27.3%	10 32.3%	15 53.6%	43 36.1%
Flooding	3 11.1%	7 21.2%	2 6.5%	5 17.9%	17 14.3%
Too much rain	9 33.3%	11 33.3%	8 25.8%	9 32.1%	37 31.1%
Brush Fires	11 40.7%	20 60.6%	18 58.1%	21 75.0%	70 58.8%
Overgrazing	2 7.4%	6 18.2%	6 19.4%	2 7.1%	16 13.4%
Erosion	6 22.2%	11 33.3%	12 38.7%	10 35.7%	39 32.8%
No problems	3 11.1%	6 18.2%	4 12.9%	3 10.7%	16 13.4%
Total Cases	27	33	31	28	119

Table A9. Environment Problems by ADD

	Agricultural Development Division					Total Cases
	LILONGWE	SALIMA	LIWONDE	MZUZU	KASUNGU	
Waterlogging	10	14	4	5	10	43
	41.7%	60.9%	16.7%	20.8%	41.7%	36.1%
Flooding	3	7	3	1	3	17
	12.5%	30.4%	12.5%	4.2%	12.5%	14.3%
Too much rain	9	10	4	6	8	37
	37.5%	43.5%	16.7%	25.0%	33.3%	31.1%
Brush Fires	11	17	14	16	12	70
	45.8%	73.9%	58.3%	66.7%	50.0%	58.8%
Overgrazing	3	7	1	1	4	16
	12.5%	30.4%	4.2%	4.2%	16.7%	13.4%
Erosion	3	9	12	9	6	39
	12.5%	39.1%	50.0%	37.5%	25.0%	32.8%
No problems	4		4	4	4	16
	16.7%		16.7%	16.7%	16.7%	13.4%
Total Cases	24	23	24	24	24	119

Table A10. Soil Conservation Structures by Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Terraces		2			2
		6.1%			1.7%
Contour bunds	5	13	16	13	47
	18.5%	39.4%	51.6%	46.4%	39.5%
Contour ridges	7	15	10	12	44
	25.9%	45.5%	32.3%	42.9%	37.0%
Trees for wind breaks	5	8	6	8	27
	18.5%	24.2%	19.4%	28.6%	22.7%
Box ridges	9	15	13	14	51
	33.3%	45.5%	41.9%	50.0%	42.9%
Storm drains	1	5	3	7	16
	3.7%	15.2%	9.7%	25.0%	13.4%
Waterways	5	7	5	13	30
	18.5%	21.2%	16.1%	46.4%	25.2%
Other	1	3	2	1	7
	3.7%	9.1%	6.5%	3.6%	5.9%
No Structures	7	2	4	2	15
	25.9%	6.1%	12.9%	7.1%	12.6%
Total Cases	27	33	31	28	119

Table A11. Soil Conservation Structures by ADD

	Agricultural Development Division					Total Cases
	LILONGWE	SALIMA	LIWONDE	MZUZU	KASUNGU	
Terraces			1	1		2
			4.2%	4.2%		1.7%
Contour bunds	13	7	13	5	9	47
	54.2%	30.4%	54.2%	20.8%	37.5%	39.5%
Contour ridges	9	11	5	11	8	44
	37.5%	47.8%	20.8%	45.8%	33.3%	37.0%
Trees for wind breaks	9	10	2	5	1	27
	37.5%	43.5%	8.3%	20.8%	4.2%	22.7%
Box ridges	13	15	1	14	8	51
	54.2%	65.2%	4.2%	58.3%	33.3%	42.9%
Storm drains	4	6		5	1	16
	16.7%	26.1%		20.8%	4.2%	13.4%
Waterways	10	5	7	6	2	30
	41.7%	21.7%	29.2%	25.0%	8.3%	25.2%
Other	2	2	2	1		7
	8.3%	8.7%	8.3%	4.2%		5.9%
No Structures	2	1	4	4	4	15
	8.3%	4.3%	16.7%	16.7%	16.7%	12.6%
Total Cases	24	23	24	24	24	119

Table A12. Sources of Poles and Firewood by Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Poles & firewood from own woodlot	6 22.2%	10 30.3%	13 41.9%	12 42.9%	41 34.5%
Poles & firewood from customary woodlot	12 44.4%	10 30.3%	7 22.6%	3 10.7%	32 26.9%
Poles & firewood from government forest reserve	4 14.8%	9 27.3%	4 12.9%	9 32.1%	26 21.8%
Poles & firewood from other estates	4 14.8%	2 6.1%	2 6.5%	3 10.7%	11 9.2%
Poles & firewood from private wood dealers	1 3.7%	4 12.1%	3 9.7%		8 6.7%
Estate Woodland	6 22.2%	10 30.3%	11 35.5%	13 46.4%	40 33.6%
Other		2 6.1%	1 3.2%	2 7.1%	5 4.2%
Total Cases	27	33	31	28	119

Table A13. Sources of Poles and Firewood by ADD

	Agricultural Development Division					Total Cases
	LILONGWE	SALIMA	LIWONDE	MZUZU	KASUNGU	
Poles & firewood from own woodlot	14 58.3%	7 30.4%	8 33.3%	5 20.8%	7 29.2%	41 34.5%
Poles & firewood from customary woodlot	4 16.7%	7 30.4%	10 41.7%	6 25.0%	5 20.8%	32 26.9%
Poles & firewood from government forest reserve	11 45.8%	2 8.7%	7 29.2%	5 20.8%	1 4.2%	26 21.8%
Poles & firewood from other estates	3 12.5%		3 12.5%		5 20.8%	11 9.2%
Poles & firewood from private wood dealers	5 20.8%	1 4.3%	1 4.2%	1 4.2%		8 6.7%
Estate Woodland		10 43.5%	4 16.7%	13 54.2%	13 54.2%	40 33.6%
Other	3 12.5%	1 4.3%			1 4.2%	5 4.2%
Total Cases	24	23	24	24	24	119

Table A14. Principal Occupation of Estate Owners by Estate Size

	Estate Size Category				Total
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Farmer	21	25	26	16	88
	77.8%	75.8%	83.9%	57.1%	73.9%
Businessman	2	2	3	5	12
	7.4%	6.1%	9.7%	17.9%	10.1%
Civil Servant	4	3	1	2	10
	14.8%	9.1%	3.2%	7.1%	8.4%
Corporation				5	5
				17.9%	4.2%
Other		3	1		4
		9.1%	3.2%		3.4%
Total	27	33	31	28	119

Table A15. Principal Occupation of Estate Owners by ADD

	Agricultural Development Division					Total
	LILONGWE	SALIMA	LIWONDE	MZUZU	KASUNGU	
Farmer	15	11	19	20	23	88
	62.5%	47.8%	79.2%	83.3%	95.8%	73.9%
Businessman	5	2	3	1	1	12
	20.8%	8.7%	12.5%	4.2%	4.2%	10.1%
Civil Servant		7		3		10
		30.4%		12.5%		8.4%
Corporation	3	1	1			5
	12.5%	4.3%	4.2%			4.2%
Other	1	2	1			4
	4.2%	8.7%	4.2%			3.4%
Total	24	23	24	24	24	119

Table A16. Educational Attainment of Farm Manager by Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Educational attainment of farm manager					
None	5	6	4	3	18
	18.5%	18.2%	12.9%	10.7%	15.1%
Standard 1-5	4	8	11	3	26
	14.8%	24.2%	35.5%	10.7%	21.8%
Standard 6-8	12	15	6	10	43
	44.4%	45.5%	19.4%	35.7%	36.1%
Form 1-2	1	1	8	4	14
	3.7%	3.0%	25.8%	14.3%	11.8%
Form 3-4	4	3	2	3	12
	14.8%	9.1%	6.5%	10.7%	10.1%
Diploma (University/College)				4	4
				14.3%	3.4%
Degree (University/College)	1			1	2
	3.7%			3.6%	1.7%
Total Cases	27	33	31	28	119

Table A17. Prior Experience with Tobacco Production

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
No prior experience	7 25.9%	6 18.2%	7 22.6%	7 25.0%	27 22.7%
Management experience	5 18.5%	2 6.1%	7 22.6%	7 25.0%	21 17.6%
Labourer on estate	7 25.9%	7 21.2%		3 10.7%	17 14.3%
Grew tobacco on smallholding	2 7.4%	6 18.2%	8 25.8%		16 13.4%
Tenant on estate	6 22.2%	8 24.2%	4 12.9%	4 14.3%	22 18.5%
Other experience	1 3.7%	2 6.1%	4 12.9%	7 25.0%	14 11.8%
No Information		2 6.1%	1 3.2%	1 3.6%	4 3.4%
Total Cases	27	33	31	28	119

Table A18. Additional Training of Farm Manager by Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Years Managing this estate	3	4	6	5	5
No training	15 55.6%	23 69.7%	17 54.8%	17 60.7%	72 60.5%
Tobacco Management Course	9 33.3%	6 18.2%	11 35.5%	8 28.6%	34 28.6%
Crop or Land Husbandry Course other than tobacco	1 3.7%	3 9.1%	3 9.7%	2 7.1%	9 7.6%
Farm Machinery Course				1 3.6%	1 .8%
Animal Husbandry Course		1 3.0%	1 3.2%	1 3.6%	3 2.5%
Tree Planting Course	1 3.7%		2 6.5%		3 2.5%
Farm Management Course	1 3.7%		3 9.7%	1 3.6%	5 4.2%
Total Cases	27	33	31	28	119

Table A19. Sources of Initial Finance By Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Owner's Previous farm income	12 44.4%	14 42.4%	21 67.7%	6 21.4%	53 44.5%
Bank loans	2 7.4%	1 3.0%	1 3.2%	5 17.9%	9 7.6%
Employment Income	12 44.4%	12 36.4%	8 25.8%	13 46.4%	45 37.8%
Income from business	2 7.4%	10 30.3%	5 16.1%	11 39.3%	28 23.5%
Other	4 14.8%	3 9.1%	3 9.7%	4 14.3%	14 11.8%
No information		1 3.0%			1 .8%
Total Cases	27	33	31	28	119

Table A20. Sources of Financing for Seasonal Production Costs

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Seasonal credit from banks	10 37.0%	15 45.5%	17 54.8%	17 60.7%	59 49.6%
Income from other businesses	2 7.4%	5 15.2%	3 9.7%		10 8.4%
Profits saved from other seasons	19 70.4%	27 81.8%	26 83.9%	21 75.0%	93 78.2%
Salary Savings	7 25.9%	3 9.1%	2 6.5%	3 10.7%	15 12.6%
Other	1 3.7%	2 6.1%	1 3.2%	3 10.7%	7 5.9%
No information		2 6.1%	1 3.2%	2 7.1%	5 4.2%
Total Cases	27	33	31	28	119

Table A21. Seasonal Credit from Commercial Banks

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Not Applied for Credit	14	10	7	7	38
	53.8%	33.3%	23.3%	28.0%	34.2%
No Credit Difficulties	1	8	8	6	23
	3.8%	26.7%	26.7%	24.0%	20.7%
Credit Difficulties	11	11	15	11	48
	42.3%	36.7%	50.0%	44.0%	43.2%
Credit less than requested	4	6	6	6	22
	15.4%	20.0%	20.0%	24.0%	19.8%
Funds arrived late	5	3	8	3	19
	19.2%	10.0%	26.7%	12.0%	17.1%
High Interest Rates		1	1	1	3
		3.3%	3.3%	4.0%	2.7%
Average Credit Received	4487.50	3792.86	19948.00	107143.69	34196.87
Total Cases	27	33	31	28	119

Table A22. Estate Decision Making When Owner Not the Manager: Crops, Planting A
Input Sources

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
The crops to be planted					
Owner	7 53.8%	11 64.7%	4 40.0%	10 50.0%	32 53.3%
Manager	5 38.5%	3 17.6%	3 30.0%	2 10.0%	13 21.7%
Owner & Manager	1 7.7%	2 11.8%	2 20.0%	1 5.0%	6 10.0%
Corporate Headquarters				5 25.0%	5 8.3%
Owner & Spouse		1 5.9%	1 10.0%	2 10.0%	4 6.7%
Areas (hectarage) to be planted					
Owner	5 38.5%	10 58.8%	3 30.0%	10 50.0%	28 46.7%
Manager	7 53.8%	3 17.6%	4 40.0%	4 20.0%	18 30.0%
Owner & Manager	1 7.7%	3 17.6%	2 20.0%	1 5.0%	7 11.7%
Corporate Headquarters				5 25.0%	5 8.3%
Owner & Spouse		1 5.9%	1 10.0%		2 3.3%
Sources of production inputs					
Owner	8 61.5%	9 52.9%	3 30.0%	10 50.0%	30 50.0%
Manager	3 23.1%	5 29.4%	4 40.0%	6 30.0%	18 30.0%
Owner & Manager	2 15.4%	2 11.8%	2 20.0%	1 5.0%	7 11.7%
Corporate Headquarters				3 15.0%	3 5.0%
Owner & Spouse		1	1		2

Table A23. Estate Decision Making When Owner Not the Manager: Fertilizer

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
		5.9%	10.0%		3.3%
Amounts of fertilizer to be used					
Owner	7	11	3	8	29
	53.8%	64.7%	30.0%	40.0%	48.3%
Manager	4	4	4	8	20
	30.8%	23.5%	40.0%	40.0%	33.3%
Owner & Manager	2	2	2	2	8
	15.4%	11.8%	20.0%	10.0%	13.3%
Corporate Headquarters				2	2
				10.0%	3.3%
Owner & Spouse			1		1
			10.0%		1.7%
Total Cases	13	17	10	20	60

Table A24. Estate Decision Making When Owner Not the Manager: Labor, Infrastructure

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Types of labour to be used					
Owner	7 53.8%	10 58.8%	3 30.0%	7 35.0%	27 45.0%
Manager	5 38.5%	4 23.5%	4 40.0%	11 55.0%	24 40.0%
Owner & Manager	1 7.7%	2 11.8%	2 20.0%	1 5.0%	6 10.0%
Corporate Headquarters				1 5.0%	1 1.7%
Owner & Spouse		1 5.9%	1 10.0%		2 3.3%
Level of payments made to labourers/tenants					
Owner	8 61.5%	10 58.8%	4 40.0%	12 60.0%	34 56.7%
Manager	4 30.8%	4 23.5%	3 30.0%	4 20.0%	15 25.0%
Owner & Manager	1 7.7%	2 11.8%	2 20.0%	1 5.0%	6 10.0%
Corporate Headquarters				1 5.0%	1 1.7%
Owner & Spouse		1 5.9%	1 10.0%	2 10.0%	4 6.7%
Making investments in production infrastructure					
Owner	8 61.5%	9 52.9%	3 30.0%	11 55.0%	31 51.7%
Manager	3 23.1%	5 29.4%	4 40.0%	6 30.0%	18 30.0%
Owner & Manager	2 15.4%	2 11.8%	2 20.0%	1 5.0%	7 11.7%
Corporate Headquarters				2 10.0%	2 3.3%
Owner & Spouse		1 5.9%	1 10.0%		2 3.3%

Table A25. Estate Decision Making When Owner Not the Manager: Investment in Social Services

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Making investaents in social services					
Owner	8 61.5%	9 52.9%	2 20.0%	12 60.0%	31 51.7%
Manager	3 23.1%	5 29.4%	5 50.0%	5 25.0%	18 30.0%
Owner & Manager	2 15.4%	2 11.8%	2 20.0%	1 5.0%	7 11.7%
Corporate Headquarters				2 10.0%	2 3.3%
Owner & Spouse		1 5.9%	1 10.0%		2 3.3%
Total Cases	13	17	10	20	60

Table A26. Capital Investments by Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
NO EQUIPMENT	13 48.1%	14 42.4%	5 16.1%	2 7.1%	34 28.6%
TRACTOR			3 9.7%	10 35.7%	13 10.9%
TRUCK	1 3.7%	4 12.1%	5 16.1%	15 53.6%	25 21.0%
BALING JACK	7 25.9%	6 18.2%	22 71.0%	22 78.6%	57 47.9%
PLOUGH	3 11.1%	4 12.1%	8 25.8%	17 60.7%	32 26.9%
OXCART	9 33.3%	11 33.3%	15 48.4%	11 39.3%	46 38.7%
Total Cases	27	33	31	28	119

Table A27. Basic Amenities Available on Estates

	Estate Size Category				Total Cases
	15 Ha.& Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Functional Water Tap	1 3.7%		1 3.2%	8 28.6%	10 8.4%
Functional Water Well	10 37.0%	19 57.6%	17 54.8%	13 46.4%	59 49.6%
Functional Bore Hole	3 11.1%	1 3.0%	7 22.6%	11 39.3%	22 18.5%
Latrines	23 85.2%	23 69.7%	24 77.4%	19 67.9%	89 74.8%
Medical Services	2 7.4%		1 3.2%	1 3.6%	4 3.4%
No amenities	3 11.1%	6 18.2%	2 6.5%	3 10.7%	14 11.8%
Total Cases	27	33	31	28	119

Table A28. Encroachment on Estates by Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
No encroachment	12 44.4%	8 24.2%	6 19.4%	7 25.0%	33 27.7%
Smallholder cultivation encroachment	4 14.8%	6 18.2%	7 22.6%	14 50.0%	31 26.1%
Smallholders fetching firewood	9 33.3%	13 39.4%	16 51.6%	12 42.9%	50 42.0%
Smallholders fetching poles	6 22.2%	10 30.3%	11 35.5%	7 25.0%	34 28.6%
Smallholders fetching thatch	8 29.6%	12 36.4%	12 38.7%	6 21.4%	38 31.9%
Smallholders grazing animals	7 25.9%	11 33.3%	13 41.9%	5 17.9%	36 30.3%
Searching for mice	5 18.5%	3 9.1%	3 9.7%		11 9.2%
Other estates using land	2 7.4%	2 6.1%	1 3.2%	5 17.9%	10 8.4%
Total Cases Count	27	33	31	28	119

Table A29. Encroachment on Estates by ADD

	Agricultural Development Division					Total Cases
	LILONGWE	SALIMA	LIWONDE	MZUZU	KASUNGU	
No encroachment	7 29.2%	5 21.7%	5 20.8%	11 45.8%	5 20.8%	33 27.7%
Smallholder cultivation encroachment	4 16.7%	7 30.4%	12 50.0%	3 12.5%	5 20.8%	31 26.1%
Smallholders fetching firewood	10 41.7%	13 56.5%	10 41.7%	8 33.3%	9 37.5%	50 42.0%
Smallholders fetching poles	4 16.7%	11 47.8%	6 25.0%	8 33.3%	5 20.8%	34 28.6%
Smallholders fetching thatch	8 33.3%	6 26.1%	9 37.5%	6 25.0%	9 37.5%	38 31.9%
Smallholders grazing animals	9 37.5%	10 43.5%	3 12.5%	5 20.8%	9 37.5%	36 30.3%
Searching for mice	4 16.7%	1 4.3%	2 8.3%		4 16.7%	11 9.2%
Other estates using land		2 8.7%	2 8.3%	2 8.3%	4 16.7%	10 8.4%
Total Cases	24	23	24	24	24	119

Table A30. Employment of Tenants by Estate Size

	Estate Size Category				Total
	15 Ha.& Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Number of tenants past cropping season (1989/90)					
Total	79	119	235	1189	1622
Average	3	4	9	50	15
Number of children of tenants					
Total	83	148	347	2830	3408
Average	5	6	17	123	39
Number of tenants who left since last season					
Total	28	51	76	350	505
Average	1	2	3	15	6

Table A31. Employment of Permanent Laborers by Estate Size

	Estate Size Category				Total
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Own family labour					
Total	91	115	92	29	327
Average	3	3	3	1	3
Hired permanent labour					
Total	180	226	285	845	1536
Average	7	9	10	35	15
Adult males (15 years and older)					
Total	124	154	217	580	1075
Average	5	5	8	24	10
Adult females (15 years and older)					
Total	6	23	38	50	117
Average	0	1	1	2	1
Children (Less than 15 years)					
Total	50	49	30	215	344
Average	2	2	1	9	3
Permanent labourers who left since last season					
Total	75	114	300	304	793
Average	3	4	11	12	8

Note: The number of "permanent laborers who left since last season" is inflated by laborers who "left but came back"— that is, who went on short vacations after the season. At least two estates reported that more than 100 laborers fell into this group.

Table A32. Employment of Casual Laborers by Estate Size

	Estate Size Category				Total
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Hired casual labour from outside the estate					
Total	310	214	352	1711	2598
Average	15	10	16	101	32
Number of adult male casual labourers					
Total	150	110	171	651	1082
Average	7	5	8	38	14
Number of adult female casual labourers					
Total	83	57	104	670	914
Average	4	3	5	39	11
Number of children (under 15) casual labourers					
Total	77	47	77	401	602
Average	4	2	4	24	7

Note: The total number of casual laborers reported was greater than sum reported here because not all managers could identify who the casual laborers were.

Table A33. Land and Credit Provided to Tenants, 1988/89

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Hectares allocated to tenants for tobacco production	.66	.76	.84	.88	.86
Hectares allocated to tenants for food crop production	.39	.29	.33	.49	.45
Number of months tenants are provided with food rations	7.7	8.0	7.7	8.2	8.1
Seasonal credit provided	75 94.9%	119 100.0%	235 100.0%	1189 100.0%	1618 99.8%
Average credit amount	449.34	521.29	564.62	758.47	704.66
Average cash payment	372.93	565.25	617.18	643.24	621.32
Total Cases	79	119	235	1189	1622

Based on number of tenants 1988/89 season

Table A34. Land and Credit Provided to Tenants, Survey

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Hectares allocated to tenants for tobacco production	.71	.73	.96	.76	.79
Hectares allocated to tenants for food crop production	.34	.30	.45	.37	.37
Number of months tenants are provided with food rations	7.6	7.7	7.5	8.1	7.7
Seasonal credit provided	18 94.7%	25 100.0%	23 100.0%	23 100.0%	89 98.9%
Separate accounts kept for each tenant	16 84.2%	20 80.0%	18 78.3%	22 95.7%	76 84.4%
Average credit amount	428.66	497.42	512.35	625.13	526.05
Average cash payment	378.50	517.30	564.43	685.97	524.10
Total Cases	27	33	31	28	119

Table A35. Types of Inputs Proved to Tenants

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Fertilizer	18 100.0%	23 92.0%	23 100.0%	23 100.0%	87 97.8%
Chemicals	8 44.4%	5 20.0%	11 47.8%	14 60.9%	38 42.7%
Seeds	6 33.3%	9 36.0%	16 69.6%	12 52.2%	43 48.3%
Seedlings	11 61.1%	14 56.0%	7 30.4%	11 47.8%	43 48.3%
Hoe	17 94.4%	23 92.0%	23 100.0%	23 100.0%	86 96.6%
Water Can	12 66.7%	17 68.0%	18 78.3%	18 78.3%	65 73.0%
Sprayer			1 4.3%	5 21.7%	6 6.7%
Other hand tools	10 55.6%	11 44.0%	15 65.2%	14 60.9%	50 56.2%
Total Cases	18	25	23	23	89

Table A36. Problems with Tenants

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Cost of Labour	10 55.6%	7 41.2%	5 29.4%	7 33.3%	29 39.7%
Pilferage & Theft	8 44.4%	6 35.3%	9 52.9%	10 47.6%	33 45.2%
Supervision & Technical Skills	2 11.1%	2 11.8%	4 23.5%	5 23.8%	13 17.8%
Absenteeism & Turnover		3 17.6%	2 11.8%	6 28.6%	11 15.1%
Social Behaviour	1 5.6%	5 29.4%	2 11.8%	3 14.3%	11 15.1%
Total Cases	18	17	17	21	73

Table A37. Problems with Permanent Workers

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Cost of Labour	8 53.3%	7 50.0%	4 25.0%	5 33.3%	24 40.0%
Pilferage & Theft				2 13.3%	2 3.3%
Supervision & Technical Skills	3 20.0%		5 31.3%	3 20.0%	11 18.3%
Absenteeism & Turnover	3 20.0%	3 21.4%	4 25.0%	4 26.7%	14 23.3%
Social Behaviour	2 13.3%	4 28.6%	4 25.0%	2 13.3%	12 20.0%
Total Cases	15	14	16	15	60

Table A38. Problems with Casual Workers

	Estate Size Category				Total Cases
	15 Ha.& Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Cost of Labour	6 46.2%	6 35.3%	4 40.0%	4 40.0%	20 40.0%
Pilferage & Theft		1 5.9%			1 2.0%
Supervision & Technical Skills	2 15.4%	4 23.5%	1 10.0%	3 30.0%	10 20.0%
Absenteeism & Turnover		1 5.9%	1 10.0%	1 10.0%	3 6.0%
Social Behaviour	5 38.5%	6 35.3%	4 40.0%	2 20.0%	17 34.0%
Total Cases	13	17	10	10	50

Table A39. Most Important Sources of Technical Information

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Farmers' Club	10	5	6	1	22
	37.0%	15.2%	19.4%	3.6%	18.5%
Tobacco Association	5	7	8	8	28
	18.5%	21.2%	25.8%	28.6%	23.5%
Other Estate owners/managers	6	6	7	1	20
	22.2%	18.2%	22.6%	3.6%	16.8%
Extension Workers	16	13	11	3	43
	59.3%	39.4%	35.5%	10.7%	36.1%
Radio Programmes	5	8	13	1	27
	18.5%	24.2%	41.9%	3.6%	22.7%
Field Days	18	23	21	20	82
	66.7%	69.7%	67.7%	71.4%	68.9%
Newsletters	8	7	8	2	25
	29.6%	21.2%	25.8%	7.1%	21.0%
Tobacco Research Institute	3	3	3	4	13
	11.1%	9.1%	9.7%	14.3%	10.9%
Other	2	3	11	12	28
	7.4%	9.1%	35.5%	42.9%	23.5%
No Information		3	1	3	7
		9.1%	3.2%	10.7%	5.9%
Total Cases	27	33	31	28	119

Table A40. Sources of Fertilizer

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
ADMARC	20	20	20	10	70
	74.1%	60.6%	64.5%	35.7%	58.8%
Farmers' Club	8	6	6	1	21
	29.6%	18.2%	19.4%	3.6%	17.6%
OPTICHEM		4	4	7	15
		12.1%	12.9%	25.0%	12.6%
ATC	8	10	13	10	41
	29.6%	30.3%	41.9%	35.7%	34.5%
Other Estates				2	2
				7.1%	1.7%
Imports directly (Press Farming) & from OPTICHEM			1	2	3
			3.2%	7.1%	2.5%
No Fertilizer used		2	1		3
		6.1%	3.2%		2.5%
No Information		2	1	1	4
		6.1%	3.2%	3.6%	3.4%
Total Cases	27	33	31	28	119

Table A41. Sources of Agro-chemicals other than Fertilizer

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
ADMARC	6 22.2%	8 24.2%	6 19.4%	1 3.6%	21 17.6%
Farmers' Club		4 12.1%			4 3.4%
OPTICHEM	2 7.4%	2 6.1%	1 3.2%	2 7.1%	7 5.9%
ATC	12 44.4%	17 51.5%	19 61.3%	19 67.9%	67 56.3%
Shell Chemicals	5 18.5%	2 6.1%	2 6.5%	9 32.1%	18 15.1%
Other estates		1 3.0%		3 10.7%	4 3.4%
Other			1 3.2%	2 7.1%	3 2.5%
No information	4 14.8%	5 15.2%	4 12.9%	3 10.7%	16 13.4%
Total Cases	27	33	31	28	119

Table A42. Plans to Introduce New Crops Next Season

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
No Plans	16 59.3%	25 75.8%	21 67.7%	20 71.4%	82 68.9%
Cassava	1 3.7%		1 3.2%		2 1.7%
Soyabeans		1 3.0%	3 9.7%	1 3.6%	5 4.2%
Beans	2 7.4%	1 3.0%			3 2.5%
Groundnuts	6 22.2%	2 6.1%	3 9.7%		11 9.2%
Maize	2 7.4%	1 3.0%	2 6.5%	2 7.1%	7 5.9%
Sunflowers	1 3.7%	1 3.0%		1 3.6%	3 2.5%
Vegetables				1 3.6%	1 .8%
Cotton	1 3.7%	1 3.0%			2 1.7%
Seed maize				1 3.6%	1 .8%
Millet	2 7.4%	1 3.0%			3 2.5%
Burley tobacco	1 3.7%	1 3.0%	1 3.2%	1 3.6%	4 3.4%
Dark fired tobacco	1 3.7%		2 6.5%	2 7.1%	5 4.2%
Flue cured tobacco	1 3.7%		3 9.7%		4 3.4%
Sun air cured tobacco		1 3.0%			1 .8%
Trees		1 3.0%		1 3.6%	2 1.7%
Total Cases	27	33	31	28	119

Table A43. Estates Raising Livestock and Poultry by Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
NONE	5 18.5%	8 24.2%	5 16.1%	7 25.0%	25 21.0%
CATTLE	9 33.3%	13 39.4%	16 51.6%	12 42.9%	50 42.0%
GOATS	8 29.6%	12 36.4%	15 48.4%	10 35.7%	45 37.8%
SHEEP	2 7.4%	4 12.1%	5 16.1%	7 25.0%	18 15.1%
EQUINE				1 3.6%	1 .8%
PIGS	2 7.4%	2 6.1%	7 22.6%	4 14.3%	15 12.6%
POULTRY	19 70.4%	20 60.6%	23 74.2%	11 39.3%	73 61.3%
PIGEONS	7 25.9%	3 9.1%	6 19.4%	2 7.1%	18 15.1%
Total Cases	27	33	31	28	119

Table A44. Number of Livestock and Poultry by Estate Size

	Estate Size Category				Total Cases
	15 Ha. & Less	15.01 -30 Ha.	30.01-100 Ha.	100+ Ha.	
Cattle					
Sum	113	93	167	155	528
Mean	13	7	10	13	11
Goats					
Sum	66	115	133	211	525
Mean	8	10	9	21	12
Sheep					
Sum	23	22	74	337	456
Mean	12	6	15	48	25
Equine (donkeys & horses)					
Sum	.	.	.	1	1
Mean	.	.	.	1	1
Pigs, rabbits					
Sum	10	14	55	59	138
Mean	5	7	8	15	9
Poultry					
Sum	648	419	526	810	2403
Mean	34	21	23	74	33
Pigeons					
Sum	293	22	155	67	537
Mean	42	7	26	34	30