

**FROM ADMINISTRATIVE ALLOCATIONS TO COMMERCIAL
LAND TRANSACTIONS: FACTOR MARKET CONSTRAINTS
TO ECONOMIC GROWTH IN THREE PERI-URBAN
HOUSEHOLD ECONOMIES**

by

Michael Roth

June 1996



**LAND
TENURE
CENTER**

An Institute for Research and Education
on Social Structure, Rural Institutions,
Resource Use and Development

Land Tenure Center
1357 University Avenue
University of Wisconsin-Madison
Madison, Wisconsin 53715

**FROM ADMINISTRATIVE ALLOCATIONS TO COMMERCIAL
LAND TRANSACTIONS: FACTOR MARKET CONSTRAINTS
TO ECONOMIC GROWTH IN THREE PERI-URBAN
HOUSEHOLD ECONOMIES**

by

Michael Roth

June 1996

* Michael Roth is senior research scientist with the Land Tenure Center and adjunct professor in the Department of Agricultural Economics.

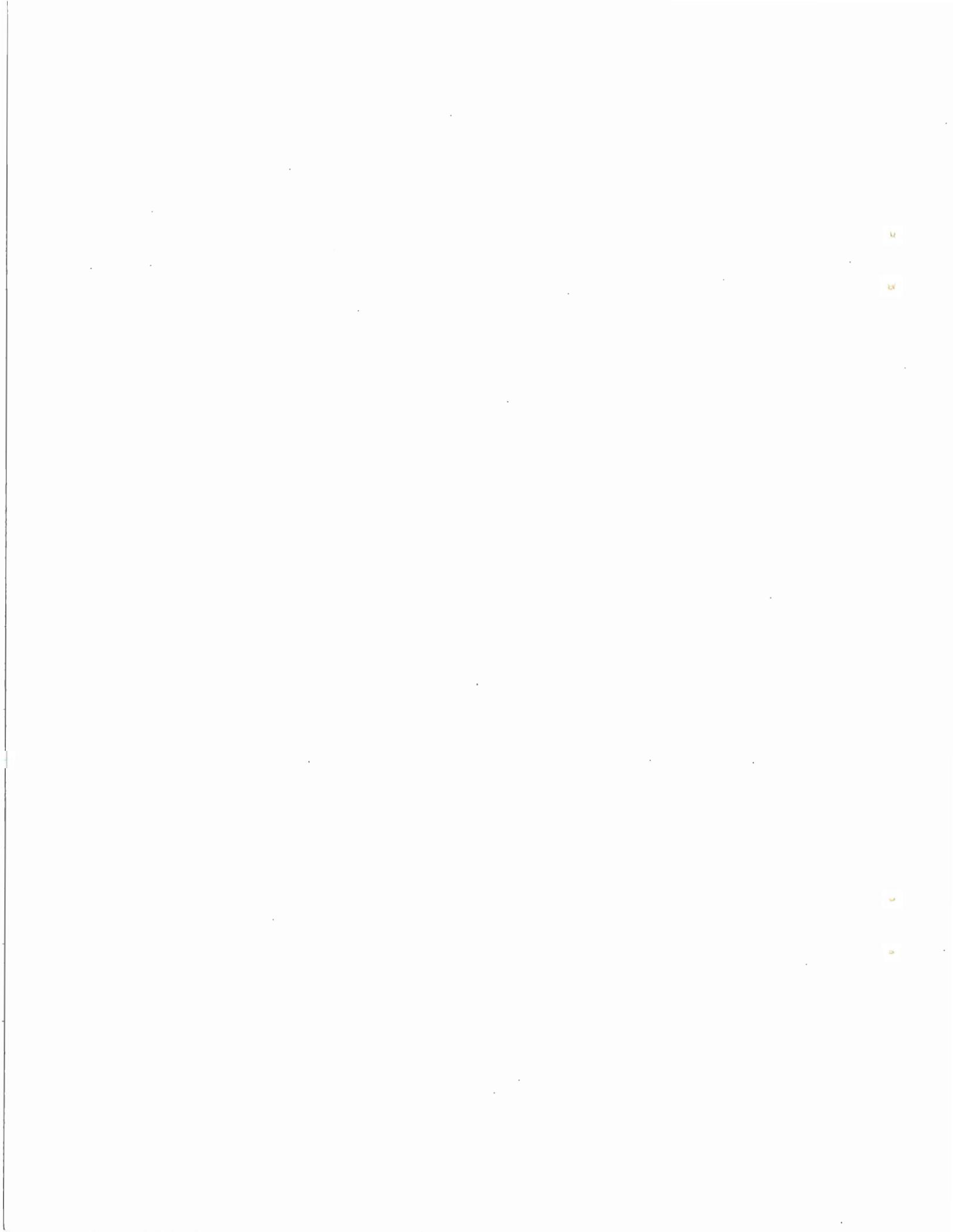
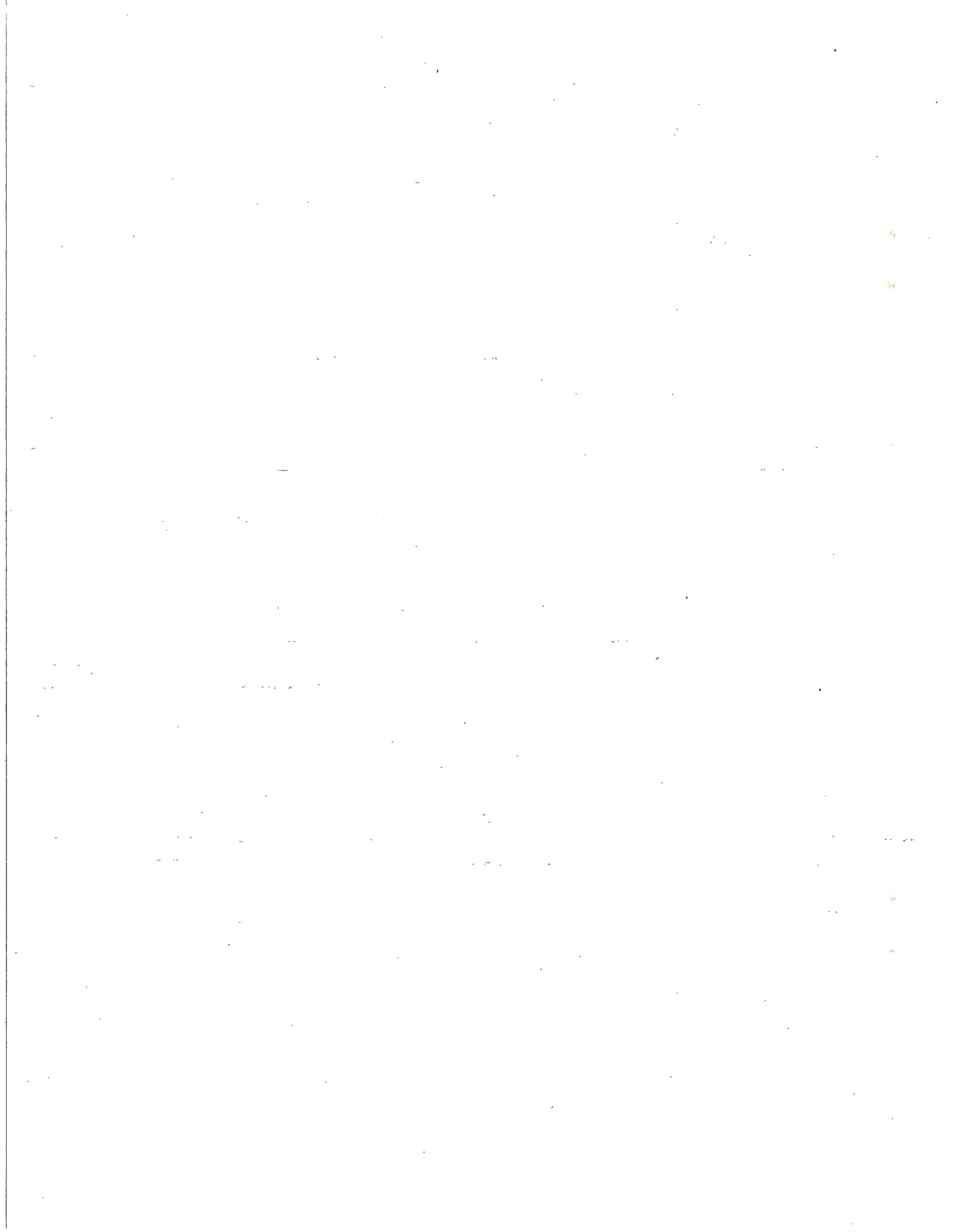


Table of Contents

	Page
I. INTRODUCTION	1
II. MOZAMBIQUE	3
III. THE GAMBIA	21
IV. GHANA	39
V. CROSS COUNTRY SYNTHESIS	56
REFERENCES	69
ANNEX A: GENERALIZED PROBIT REGRESSIONS, THE GAMBIA	71



I. INTRODUCTION

1.1 Background

The percent of people living in African cities is expected to move from 28 percent of the population in 1988 to 40-50 percent by early in the 21st century. Given this massive shift in population location, these regions stand to be the focal points for concerns of poverty, health care, food security, and public infrastructure for years to come. Compared with rural areas, agricultural marketing and commercial input procurements are not as severely constrained by high transportation costs connecting urban consumption with interior points of food production. Because of their near proximity to major urban populations or international ports, and their relatively more affordable land prices and wage rates than urban areas, peri-urban economies tend to be the nexus of high-value horticultural production, non-traditional export growth, manufacturing and commercial development, and residential expansion. Also the focal point of substantial in migration, these regions either stand to become the engines of growth for the entire economy, or instead areas of urban sprawl, sub-standard housing, massive underemployment, and poverty.

The project—Economic Growth in Peri-Urban Areas of Africa—was motivated by the need to better understand how factor markets facilitate, enable or constrain economic growth in these dynamic zones. The project was also experimental. It firstly pooled the services of three USAID cooperative agreements specializing in land, employment and financial markets to determine whether efficiencies of scale might exist in data collection, analysis, or consultations, and secondly, whether such integrated factor market methodology would produce superior research and policy analysis than the former secular approach. Consequently, this research had both research, methodological, and funding motivations. Specifically, in what ways are factor markets and their nexus enabling or constraining economic growth in these dynamic zones? Are peri-urban areas sufficiently important to justify reprioritization of donor funding? Are there economies to be gained from pooling the efforts of multiple cooperative agreements, and taking a factor market perspective in policy analysis.

1.2 Institutional Collaboration

The peri-urban project was a collaborative effort involving three USAID cooperative agreements: ACCESS II of the Land Tenure Center (LTC), FIRM of Ohio State University (OSU), and SARSA II of the Institute for Development Anthropology (IDA). Core funding was provided by USAID's former Africa Bureau and ARTS/FARA, supplemented by mission funding, to investigate factor market constraints to economic growth in the peri-urban economies of three African countries—Mozambique (1990-92), The Gambia (1992-94), and Ghana (1993-95). The research program was implemented sequentially to minimize research bottlenecks and to enable transfer of knowledge from earlier to later countries.

Research methodology tended to segment institutional focus toward the study of certain populations. Populations studied by LTC tended to focus on agricultural producing households, land acquirers, or land disputant populations, depending on the country and research site. IDA's research primarily involved samples of traders and contract farmers, while OSU's research tended to focus on micro-enterprises and financial intermediaries. Local collaborators were involved in all phases of research design, implementation, and analysis. LTC in Mozambique worked with the Department of

Economics, Eduardo Mondelane University, and with the Land Administration Research Centre, University of Science and Technology in Ghana. IDA and OSU, for reasons of skill needs or location, often had to choose different collaborators for the study.

All three institutions—IDA, LTC, and OSU—participated collectively in the design of the survey methodology generally comprised of two reconnaissance and planning trips prior to research implementation. Unlike the past, where each cooperator tended to take a secular market approach, each cooperator attempted to implement an integrated factor market approach within their respective research methodology and population samples. These dimensions—segmentation of the peri-urban economy into “agent” or population (human or firms) slices, and integrated factor market research to studies of constraints to growth within each slice or sector—were unifying themes in all study economies.

1.3 Outline

This paper is a synthesis of the LTC research; synthesis reports on the respective studies of IDA and OSU are being prepared separately. A country synthesis is first presented for Mozambique in section II, for the Gambia in section III, and for Ghana in section IV. The final section V assimilates and contrasts the major research findings across the three country case studies under various issues or themes—urbanization, problems with defining peri-urban, population settlement, employment markets, land markets, land administration, land rights, capital markets, economic growth, gender, structural adjustment, the merits of integrated factor market research, and policy recommendations. One comprehensive publication combining the work of IDA, LTC, and OSU is anticipated at a future time.

II. MOZAMBIQUE

2.1 Introduction

Following independence in the late 1970s, demand for arable land in the peri-urban green zones of Maputo mainly came from urban or ex-farm workers moving outward from the city. In the 1980s, the influx of migrants fleeing drought and civil war sharply increased land scarcity on the urban fringe. Nationalization created a system of overlapping and ineffective state responsibilities that has undermined the clarity, certainty, and transparency of land administration. Through legal restrictions on land markets, it increased the costs associated with negotiating and monitoring informal land contracts. The legal uncertainty that ensued, combined with limited surveying capacity, constrains land title and creates a strong latent demand for more robust and secure property rights. Not surprisingly, this research conducted in 1991 prior to the cease fire reveals recurring themes of civil strife, lack of gainful employment, landlessness, and tenure insecurity. The effects of legal uncertainty—tenure insecurity, high transfer costs and weak investment incentives—continue to retard Mozambique's transition to a market economy.

2.2 Land policy

According to the Mozambican Constitution adopted at independence, all land is owned by the state. Land cannot be sold, ceded, rented, pledged, or privately transferred, although land improvements may be mortgaged. A leased concession may be held by any individual or group with legal identity and may be perpetual or temporary (50 years with automatic renewal). Concession rights are transferable only by inheritance or upon death. Heirs cannot transfer land but can transfer improvements with authorization of the leasing authority. The holder must utilize the land rationally and abide by an authorized development plan, at the risk of the lease being revoked. A family's holding cannot legally exceed (per family member) one-quarter hectare of irrigated land and one-half hectare of rainfed land, unless shifting cultivation is practiced, in which case additional land up to 10 hectares may be held. Land left idle for 2 years without justification may be expropriated with all improvements reverting to the state without compensation. Should the state need to compulsorily acquire land, compensation for improvements must be paid and land of similar value must be provided. Unlike residential or commercial land uses where improvements have clear value in the law, compensation is often grossly understated in expropriation of unimproved land because land legally belongs to the state.

The constitution and law confer to the state strong interventionist powers in land administration which has devolved to various agencies. At the time of independence, the Ministry of Construction and Water, National Planning Commission, and the National Institute of Physical Planning were assigned responsibilities for land use planning in urban areas, and the Executive Council (EC) the responsibility of land allocation. Other institutions were assigned land, including inter alia the Ministries of Agriculture, Education and Interior, and APIE, charged with renting nationalized residential properties. The Department of Construction and Urbanization (DCU) was created within the EC in the early 1980s to issue titles in the Maputo metropolitan and peri-urban area. Grupo Dinamizadores and bairro organizations were granted local authority over land allocations. As noted by Garcia (1989), the resulting dispersion and overlap of responsibilities, combined with constantly changing laws and administration, have created arbitrary and uncertain land rights, lack of clear-cut responsibility for leases, a proliferation of urban technicians, and dilution of resources.

2.3 Green zones policy and settlement

The economic recession following the Portuguese withdrawal at independence precipitated the spontaneous occupation of the agricultural land abandoned by the Portuguese, mainly by former urban workers, and ex-wage laborers and sharecroppers of the former colonial farms (*quintas*). Through its "open-arms" policy, the government also invited rural people to occupy the apartments, houses, and shops abandoned by the Portuguese. The 1980s brought new land pressures to the city of Maputo initially from former Mozambican migrants prevented from working in South African mines and rural poor uprooted by drought, and later by the massive influx of refugees fleeing armed attacks by Rhodesian and South African forces in the countryside. The in-migration of people from 1982-87 caused a rapid outward expansion of settlement. By 1987, most of the best farm land in the green zones in districts IV to VIII had been claimed.

Green zones were created to help absorb unemployed urban residents, increase food security, and preserve the ecology of the low-lying wetlands. The Green Zones Directorate was created in 1980 to help coordinate farm production, monitor land use and farm infrastructure, absorb marginalized populations, and guarantee farm input supply. Extension offices (*casa agrárias*) were created in each district to implement these goals and assist in land allocations. Most marketed surplus before independence was produced by Portuguese settlers on *quintas*. In order to increase food security following independence, the government in 1983-4 adopted the 'parcelization' program aimed at transferring underutilized *quintas* to private farmers with demonstrated means and capacity.

Specific areas of Maputo were officially declared green zones in 1985, comprising three categories: permanent green zones with the best farmland (mainly demarcated areas comprising the *quintas*); provisional green zones including land suitable for urban occupation (cultivation permissible but land must be vacated without compensation when development begins); and dryland zones of urban expansion. Only land within demarcated areas may be registered with the DCU unless self-financed surveys are conducted. Three types of titles may be issued: precarious (one-year concession); provisional (5-year concession); and definitive (permanent concession). Precarious concessions are earmarked for areas of planned urban expansion, or for landholders lacking potential to develop the land. Provisional concessions are intended to evolve into definitive title once capacity to develop the land is demonstrated.

Producer associations have operated since independence when they began performing the tasks formerly carried out by labor gangs on estates (cleaning irrigation ditches). Their emphasis began to shift around 1985 toward providing members with farm inputs. Since about 1989, under the leadership of the central union, they have focused on land conflicts and defending smallholders against land grabbing, and are now striving to become a legal entity that would enable them to acquire group registrations; unfortunately the DCU has no procedure for granting group titles for agricultural land.

2.4 Survey methodology

Land markets research conducted by LTC comprised three components: assistance with developing a factor markets baseline survey (n=320) (Graham et al. 1991); a statistical survey of land markets,

employment, and resource use (Roth et al. 1995); and a land disputes study employing case study analysis (Boucher et al. 1995). All were implemented in 1991.

The land markets survey, involving 121 households (51 registered and 70 unregistered) and 162 plots (see figures 2.2 and 2.3), sought to examine land market and institutional constraints to economic growth. Titled households were randomly selected from registration lists compiled from the Maputo and Matola registries. Unregistered households were randomly selected from lists provided by *casa agrárias* and producer associations. Households were split between district IV (68) with less suitable land for housing and district VI (53) with land more suited for residential use but lacking organization of government support services (figure 2.1). Survey data were analyzed for six household strata to assess the impact of location (district IV vs district VI), gender (male- vs female-headed households), and tenure status on land access, tenure security, and income.

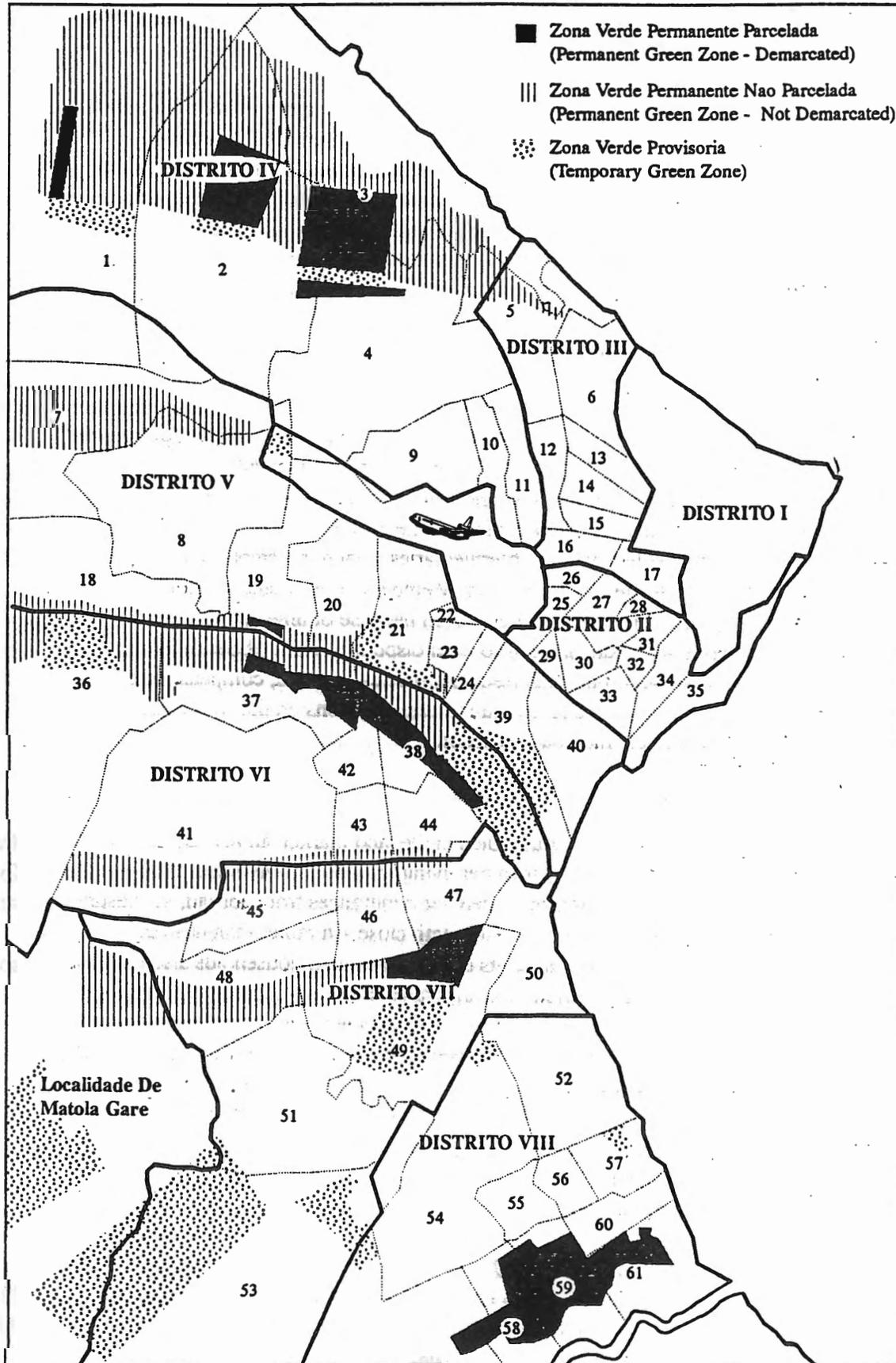
Questions on land conflicts were incorporated in the above baseline and land market surveys to identify households having experienced a land dispute. Of the total dispute cases identified (n=55) a sub-sample (n=26) was drawn with representation in all eight districts in Maputo and involving all dispute types. Three sub-populations were initially targeted for detailed case histories (figure 2.4). Group (A) includes individuals having experienced a land related conflict sometime in the past 3-10 years (depending on the survey). Group (C), includes bairro leaders, who as intermediaries in land transfers and dispute resolution usually possess intimate knowledge of land matters. Members of disputant category (B), the opposing side of the dispute with group (A), were not interviewed because of time and budget limitations. Semi-structured interviews were administered to each disputant asking about dates and nature of the dispute, whether and how the dispute was resolved, parties involved, compensation, and expenses. Both disputants and the GD were asked to provide general opinions on the source and nature of land conflicts, resolution processes, and policy solutions.

2.5 Land resources and employment

Table 2.1 provides data on mean characteristics of households in the land market survey. Of the 121 survey households, 28 percent had at least one family member living outside Mozambique. However, very few households, including female-headed, reported receiving remittances from abroad, suggesting that nonresident family members are usually dependents living with close kin rather than husbands working in the Republic of South Africa; the lower earnings of female-headed households also limit the number of dependents they are able to support. Despite the high rates of immigration by the population at large, household's on average had resided in their current place of residence for a long period of time (30 years in Maputo and 21 years in their current bairro.) Households on average held 1.3 irrigated and 0.9 rainfed plots. Irrigated machambas averaged 0.41 ha in size, while rainfed plots averaged 0.52 ha. However, registered households on average had fewer plots (1.7 vs 2.6) due to fewer rainfed holdings, but held larger irrigated machambas and total irrigated holdings and than the unregistered group. Although female-headed households had fewer dependents (19 percent fewer residents), their irrigated holdings were 64 percent smaller than the size of their male counterparts.

Seven percent of households had a member who belonged to a cooperative and 65 percent who belonged to a producer association. Non-registered households had higher rates of membership in producer associations (90 vs 29 percent) than registered households, while rates of membership by female-headed households exceeded those of male-headed households (77 vs 63 percent). Those

Maputo, Mozambique: 1993



Bairros:

- 25 De Junho (21)
- Acordos De Lusaka (44)
- Aeroporto A (26)
- Aeroporto B (25)
- Albazine (1)
- Bagamoio (20)
- Bunhiça (51)
- CFM (35)
- Chamanculo A (31)
- Chamanculo B (32)
- Chamanculo C (33)
- Chamanculo D (30)
- Cingatela (48)
- Côsta Do Sol (3)
- FPLM (11)
- Fomento (52)
- Hulene (9)
- Ingavela (41)
- Inhagoia A (23)
- Inhagoia B (24)
- Jardim (39)
- Jorge Dimitrov (19)
- Kongolote (36)
- Laulane (4)
- Liberdade (54)
- Luis Cabral (40)
- Machava (49)
- Mafalala (17)
- Magoanine (7)
- Mahotas (2)
- Malanga (34)
- Malhazine (8)
- Matola B (60)
- Matola C (61)
- Matola D (59)
- Matola F (57)
- Matola G (56)
- Matola H (55)
- Matola J (58)
- Mavalane (10)
- Maxaquene A (15)
- Maxaquene B (14)
- Maxaquene C (13)
- Maxaquene D (12)
- Micajuine (28)
- Nsalene (22)
- Patrice Lumumba (46)
- Polana Caniço A (6)
- Polana Caniço B (5)
- S. Damaso (45)
- Trevo (50)
- Tsalala (53)
- Unidade 7 (29)
- Unidade A (47)
- Unidade D (43)
- Urbanização (16)
- Vale Do Infulene (38)
- Xipamanine (27)
- Zimpeto (18)
- Zona T-3 (42)
- Zona Verde (37)

Figure 2:

Land Use Map Showing the Peri-Urban Green Zones (Agricultural Gardens) of Maputo

Figure 2.2:
Household-level sampling frame, 1991 Land Market Survey, Maputo

	Unregistered/untitled households ^a	Registered/titled households ^b	Total households
District 4	40	28	68
District 6	30	23	53
Total households	70	51	121

a. No *machambas* registered.
b. At least one *machamba* registered.

Figure 2.3:
Plot-level sampling frame, 1991 Land Market Survey, Maputo

	Definitive title ^a	Provisional title ^b	Precarious title ^c	No title ^d	Total plots
District 4	14	16	3	59	92
District 6	5	16	4	45	70
Total plots	19	32	7	104	162

a. Number of plots registered with definitive title.
b. Number of plots registered with provisional title.
c. Number of plots registered with precarious title.
d. Number of plots not registered as definitive, provisional, or precarious.

Figure 2.4:
Sampling Frame, 1991 Land Conflicts Study

Disputant Category	Disputant Category	Bairro Leaders
A n=26	B n=0	C n=9

A=First party(ies) reporting having experienced a land dispute in the last 3-10 years identified from earlier baseline and land market surveys.
B=Second party(ies) involved in the land dispute with (A).
C=Bairro leaders (Grupo Dinamizadores) responsible for land administration and dispute resolution in selected peri-urban neighborhoods.

families belonging to a cooperative mainly joined to gain access to farm inputs, or to obtain produce to sell in the market. Those families belonging to a producer association joined mainly to increase security of land rights and to acquire farm inputs; security of land rights was more important for non-registered households than registered households.

Despite the urban character of greater Maputo, crop and livestock agriculture provided over eighty percent of the income earned by adult family members in the overall sample. Households in the registered category had the highest income of any group and demonstrated the most intensive land use, whether measured by total revenue (1,012 vs 640 mt/m²), chemical inputs applied (89 vs 60 mt/m²), or net revenue (747 vs 520 mt/m²). Female-headed households, usually divorced, widowed or with

Table 2.1:
Mean Household Characteristics, 1991 Land Market Survey, Maputo

	District 4	District 6	Male h'hold head	Female h'hold head	Registered h'holds	Non-registered h'holds	Overall sample
Number of households (hh):	67	54	109	13	51	70	121
Family size and migration:							
Total no. of hh members	8.9	10.7	9.9	8.0	10.8	8.9	9.7
Percent hh w/ 1+ members abroad	20.9	37.0	26.6	46.2	29.4	27.1	28.1
Household Head:							
Age (years)	48.3	51.4	49.9	46.2	48.2	50.7	49.6
Resided in Maputo (years)	29.3	31.2	29.4	36.2	29.9	30.4	30.1
Resided in current bairro (yrs)	21.1	20.4	20.8	19.8	20.9	20.7	20.8
Number of machambas:							
Irrigated	1.4	1.3	1.3	1.4	1.3	1.4	1.3
Rainfed	0.7	1.1	0.9	1.0	0.4	1.2	0.9
Mean plot size(ha):							
Irrigated	.28	.57	.44	.13	.75	.16	.41
Rainfed ^a	.44	.59	.56	.10	.89	.38	.52
Farm size (ha):							
Irrigated	.50	.60	.58	.21	1.01	.21	.55
Rainfed land ^a	.15	.36	.26	.07	.23	.25	.24
Membership in cooperative (% yes)	1.5	13.0	6.4	7.7	3.9	8.6	6.6
Membership in association (% yes)	55.2	75.9	63.3	76.9	29.4	90.0	64.5
Crop income and expenditures per m ² : ^b							
Total revenue	804	788	836	437	1,012	640	797
Wage costs	128	69	108	46	164	57	102
Chemical inputs	68	76	76	32	89	60	72
Other costs ^c	7	8	8	2	12	4	7
Net income	601	635	644	358	747	520	616
Farm and non-farm income (000 mt):							
Crops	3,287	5,065	4,445	739	7,473	1,610	4,081
Livestock	1,735	4,018	3,013	401	5,526	735	2,754
Formal sector employment	784	205	578	46	962	208	526
Self-employment	552	564	597	176	464	625	557
Total income/capita (000 mt)	216	278	257	116	521	42	244
Total income/capita (000 mt)	531	572	596	123	977	238	549
a. Excludes the majority of rainfed plots which could not be visited due to security risk.							
b. Excludes family labor costs.							
c. Seeds, taxes, farm implements, and machinery rental services.							

Source: Roth, Boucher, and Francisco 1995.

husbands abroad, are severely disadvantaged, whether measured by land access, employment opportunities, gross revenue (437 vs 836 mt/m²), chemical input use (32 vs 76 mt/m²), or net revenue (358 vs 644 mt/m²). Even after adjusting for differences in household size, the per-capita total income of female-headed households was still only 21 percent of that reported for the male-headed category.

All members of the household with at least one wage- or self-employment activity were asked to provide information on type of work, and wage and nonwage benefits for all nonfarm employment activities in which they were involved. The construction/industry and service/administration sectors were the most significant sources of wage employment for both males and females (see tables 2.2 and 2.3). Males participated in formal wage employment to a much higher degree than females. Women were found to earn less than men in formal sector activities; with the exception of the restaurant/hotel and health sectors, monthly wages for males were 9 to 78 percent higher than those for women. Although fewer adults reported self-employment relative to wage employment (80 vs 133 adults), average net monthly income from self-employment activities is considerably higher (166,200 vs 50,800 meticaís), although monthly earnings for women are much lower than for men (232,900 vs 48,100 meticaís). Men tend to work in all types of self-employment activity; self-employment for women was mainly confined to petty trading. Why would household members work in wage employment given the higher earnings potential of self-employment? Part of the answer lies with other benefits obtained in the formal sector. On average, 52 percent of households engaged in wage employment received retirement benefits, 50 percent medical benefits, 34 percent credit assistance, 28 percent transportation services, and 26 percent food subsidies. These benefits varied widely among strata, but the category of female-headed households was most notable for lack of access.

2.6 Settlement and land access

The majority of household heads (51 percent) in the survey moved to their current bairro sometime during the period 1950-1973; another 36 percent moved between 1974 and 1980, corresponding to the economic decline that followed the Portuguese departure. Land in the green zones was mainly acquired through spontaneous occupation or administrative allocations (table 2.4). Of the 162 irrigated plots in the sample, 29 percent were acquired from bairro authorities, 15 percent through spontaneous occupation, 11 percent from the DCU or EC, and 11 percent from producer associations. A lower percentage was acquired through non-administrative mechanisms—12 percent borrowing, 9 percent purchases, and 6 percent through inheritance. No households claimed to have rented-out land.

Land acquisition modes have changed in importance over time (table 2.5). Spontaneous occupation, which represented 35 percent of land acquisitions between 1950-74, had become one of the least important modes by 1986-92. Allocations by bairro authorities were important during the post-independence era (1975-80) when they assisted urban residents in settling vacated lands, and in the early civil war period when they helped find land for refugees. Land allocation by the DCU reached 21 percent of all allocations in 1981-85 but has since waned. Allocations by producer associations, essentially nil before independence, had become predominant after 1986. Borrowings have remained relatively constant (10-15 percent) over time. Land purchases, once common before independence, virtually ceased between 1975-85 due to legal restrictions, but since 1986 have rebounded. Sellers and buyers contravene legal restrictions by claiming only improvements are transferred. Rentals have represented 3 percent of acquisitions since 1986.

A high percentage of households in all categories (38 percent) were interested in acquiring more land (Roth, Boucher, and Francisco 1995). In the overall sample, a high percentage of households would turn to the Grupo Dinamizador (35 percent) for an allocation, followed by purchasing (17 percent), *casa agrárias* (15 percent), renting (11 percent), DCU and producer associations (7 percent each). The

Table 2.2:
Monthly formal-sector^a wages, 1991 Land Market Survey, Maputo

	Females			Males			Overall	
	Mean Income (000 mt)	Range (000 mt)	n	Mean Income (000 mt)	Range (000 mt)	n	Mean Income (000 mt)	n
Construction/industry	36.1	28-50	8	49.8	23-80	46	47.8	54
Service/admin	49.3	10-108	6	73.6	15-326	23	68.6	29
Cleaning/guard	27.5	15-40	2	48.9	20-100	23	47.2	25
Restaurant/hotel	46.7	30-75	3	36.0	36-36	1	44.0	4
Commerce	27.0	20-34	2	47.5	45-50	2	37.3	4
Transportation	25.0	0-50	2	40.0	30-50	2	32.5	4
Education	41.0	32-50	2	44.7	35-54	2	42.9	4
Other	-	-	0	47.6	10-105	4	47.6	4
Health	50.0	50-50	1	45.0	40-50	2	46.7	3
Agriculture wage labor	25.0	25-25	1	32.0	32-32	1	28.5	2
All activities	38.5		27	54.0		106	50.8	133

a. One individual may have multiple activities

Source: Roth, Boucher, and Francisco 1995

Table 2.3:
Monthly Income, Principal Self-Employment Activity,^a 1991 Land Market Survey, Maputo

	Males		Females		Overall	
	(000 mt)	n	(000 mt)	n	(000 mt)	n
Services:						
Gardener	300.0	1	-	-	300.0	1
Tailor	35.0	1	-	-	35.0	1
Carpenter	350.0	1	-	-	350.0	1
Seamstress	-	-	22.5	2	22.5	2
Electrician	-	-	50.0	1	50.0	1
Mechanic	60.0	2	-	-	60.0	2
Mason	150.0	2	-	-	150.0	2
Painter	250.0	1	-	-	250.0	1
Shoemaker	18.0	1	-	-	18.0	1
Other	30.0	1	-	-	30.0	1
Agricultural industry:						
Pigs	38.4	13	50.0	1	39.2	14
Chickens	428.3	11	-	-	428.3	11
Beekeeping	42.5	1	-	-	42.5	1
Miller	-	-	72.0	1	72.0	1
Fisherman	612.5	2	-	-	612.5	2
Commerce:						
Grocery store owner	302.0	3	-	-	302.0	3
Vendor of manufactured goods	70.0	1	66.9	10	67.3	11
Vendor of agricultural goods	-	-	46.2	14	46.2	14
Vendor of food	37.8	2	26.0	4	29.9	6
Chapa 100 owner ^b	482.5	4	-	-	482.5	4
All activities	232.9	47	48.1	33	166.2	80

a. Individual may have multiple activities. b. Urban transport service, usually a minivan.

Source: Roth, Boucher, and Francisco 1995.

Table 2.4:
Plot-level mode of land acquisition, 1991 Land Market Survey, Maputo

	District 4	District 6	Male h'hold head	Female h'hold head	Regis- tered h'holds	Non- regis- tered h'holds	Overall sample
Number of plot managers	67	57	112	12	53	71	124
Total number of plots	92	70	104	58	57	105	162
Sex of plot manager (% female)	40.3	49.1	38.4	100.0	24.5	59.2	44.4
Mode of plot acquisition							
Concession from <i>bairro</i> (Gd)	37.4	18.3	29.7	23.5	28.8	29.2	29.0
Spontaneous occupation	18.7	11.3	13.8	29.4	6.1	21.9	15.4
Lent-in or borrowed	13.2	11.3	12.4	11.8	10.6	13.5	12.3
Concession from Dcu/Exec. council	8.8	14.1	11.7	5.9	27.3	-	11.1
Concession from producer association	2.2	21.1	9.0	23.5	1.5	16.7	10.5
Purchased	12.1	4.2	9.0	5.9	10.6	7.3	8.6
Inherited	4.4	8.5	6.9	-	9.1	4.2	6.2
Concession from <i>regulo</i> ^a	2.2	4.2	3.4	-	-	5.2	3.1
Concession, Green Zones Office	-	4.2	2.1	-	3.0	1.0	1.9
Rented-in	1.1	-	0.7	-	-	1.0	0.6
Concession, Ministry of Agriculture	-	1.4	0.7	-	1.5	-	0.6
Concession after evicting tenant	-	1.4	0.7	-	1.5	-	0.6

a. The *regulo* was the village chief installed by the colonial Portuguese government.

Source: Roth, Boucher, and Francisco 1995.

Table 2.5:
Trend in Mode of Land Acquisition, 1991 Land Market Survey, Maputo

	1950-1974	1975-1980	1981-1985	1985-1992
Total acquisitions	23	53	48	38
Mode of acquisition				
Spontaneous occupation	34.8	17.0	10.4	7.9
Inherited	13.0	1.9	4.2	10.5
Concession from <i>bairro</i> (Gd)	17.4	35.8	37.5	15.8
Concession from Dcu/executive council	-	7.5	20.8	10.5
Purchased	17.4	5.7	-	18.4
Lent-in or borrowed	13.0	15.1	10.4	10.5
Rented-in	-	-	-	2.6
Concession from <i>regulo</i>	4.3	7.5	-	-
Concession from producer association	-	1.9	14.6	23.7
Concession from Green Zones Office	-	5.7	-	-
Concession from Ministry of Agriculture	-	-	2.1	-
Eviction of tenant	-	1.9	-	-

Source: Roth, Boucher, and Francisco 1995.

high percentage who would seek to purchase or rent-in land provide further evidence of the rising importance of commercial transfers in the informal market. Male-headed households would tend to rely more heavily on commercial transactions, while female-headed households would tend to seek land from producer associations, Grupo Dinamizadors, and *casa agrárias*.

Plot managers regardless of gender or titling status widely perceive having the right to plant vegetables and fruit trees, invest in infrastructure, and bequeath land to heirs (table 2.6). Restrictions on land rights were most apparent on land transfers and investments in buildings and improvements. The fact that nearly 45 percent felt they held rights to rent or sell land, despite legal restrictions, suggests both confusion over rights held and the ability of certain individuals to contravene the law. Growing vegetables or fruit trees can generally be done without involving the authorities. However, permission tends to be needed on matters pertaining to permanent structures and transfers. Registered households normally seek approval from the DCU or EC, while non-registered households normally seek the permission of producer associations.

2.7 Land conflicts

Twenty-five households reported having had a land dispute sometime over the period 1973 to 1991, over 44 percent of which have arisen since 1989. The principal causes included, in declining order of importance, conflicting title claims (multiple titles or overlapping registrations), private farmers expanding their holdings, projects claiming land, border disputes with neighbors, and ex-landholders reclaiming land. While few households have experienced a land conflict directly, most have felt the ripple effect of legal uncertainty within their community. Over 70 percent of households, for example, were worried or very worried about losing land, and 57 percent felt disputes had recently become more serious (table 2.7). Similar to actual dispute data, households reported the major sources of current disputes coming from outsiders claiming land with concession papers, and the following grabbing land: neighbors, bairro officials, ex-landowners, the DCU, producer associations, and private landholders, in declining order of occurrence. The overall sample had alienated a total of 34 plots in previous years. In 65 percent of these cases, the landholders were evicted by the state, and lost land to private farmers, government, and producer associations. Less than 12 percent of all alienations involved compensation.

Many land disputes are traceable to the flood of migrants that haphazardly occupied demarcated areas following independence, or to nationalization. Land conflicts in the dispute sample tended to be concentrated in the permanent green zones. In some instances, migrants and settlers occupied properties that are now being reclaimed by former landlords. Also, under the government's parcelization program, underutilized *quintas* were reallocated in many cases to enterprising state functionaries, merchants, or others with capital or influence. Disputes sometimes arose when the DCU evicts tenants who fail to carry out the specified development conditions, or, land is allocated by the DCU to persons on land that is already occupied. While registration procedures call for municipal authorities to carefully check claims with bairro authorities, procedures were imperfectly applied.

Table 2.8 presents data on disputant characteristics, and dispute issues and processes, based on case histories compiled for the 26 disputants. Because of the semi-structured nature of interviewing, absence of a response does not necessarily mean that an aspect was not experienced. Most disputant cases (18) involved at least one party who did not reside within the community of the disputed land, including heirs or former landowners of nationalized property, or Portuguese residents who left the country.

Table 2.6:
Land-rights perceptions, 1991 Land Market Survey, Maputo

	District 4	District 6	Male h'hold head	Female h'hold head	Regis- tered h'holds	Non- regis- tered h'holds	Overall sample
Number of <i>machamba</i> managers	68	56	71	53	52	72	124
Number of plots	90	71	144	17	65	96	161
Manager perceives right to (% yes) ^a							
Plant vegetables	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Plant fruit trees	96.7	97.2	96.5	100.0	98.5	95.8	96.9
Build storehouse	82.2	76.1	79.9	76.5	92.3	70.8	79.5
Build cement wall	72.2	67.6	70.8	64.7	93.8	54.2	70.2
Build house	68.9	69.0	70.1	58.8	83.1	59.4	68.9
Bequeath to family	82.2	84.5	83.3	82.4	83.1	83.3	83.2
Rent-out plot	52.2	36.6	47.2	29.4	55.4	38.5	45.3
Sell plot	58.9	23.9	45.1	29.4	55.4	35.4	43.5
Authorization needed (% yes) ^b							
Plant vegetables	-	-	-	-	-	-	-
Plant fruit trees	1.1	1.4	1.4	-	1.5	1.0	1.2
Bequeath plot	9.9	8.5	10.3	-	10.6	8.3	9.3
Rent-out plot	12.1	9.9	11.7	5.9	13.6	9.4	11.1
Build storehouse	14.3	15.5	14.5	17.6	13.6	15.6	14.8
Sell plot	15.4	18.3	17.9	5.9	28.8	8.3	16.7
Build wall	18.7	16.9	17.2	23.5	12.1	21.9	17.9
Build house	19.8	16.9	19.3	11.8	18.2	18.8	18.5
a. Alternate responses were "no" or "I don't know."							
b. When authorization is needed, 82 to 94 percent mentioned having to obtain permissions from the Producer association or DCU/Executive Council. Other sources of permission included the <i>Casa agrária</i> and Grupo Dinamizador							

Source: Roth, Boucher, and Francisco 1995.

Most cases (17) involved at least one elite disputant with wealth or political connections. In just under half of the cases (12), disputants were women who, being widowed or uneducated, had difficulty defending their rights.

Most conflicts (20) involved residential property. The land under dispute often (14) involved multiple plots held by one party and sometimes multiple parties, the latter usually threatened by development interests. A disputant occasionally became involved in multiple, connected disputes, or in disputes comprising various layers of issues and processes. In 9 cases, a contributing factor to the dispute was destruction of property, such as pulling out fruit and shade trees, or damages to a house or building. Disputes over land inheritance were few (5) and were largely confined to family units, whereas the majority (21) involved problems with land purchase or allocation.

Most disputants (20) did not confront their opponents violently as a way of making their grievances known or receiving redress. In nearly all cases (24) a third party, usually a local authority, assisted in granting land, hearing complaints, mediating disputes, defining or revoking land rights, or appealing to

Table 2.7:
Land Conflicts, 1991 Land Market Survey, Maputo

	District 4	District 6	Male h'hold head	Female h'hold head	Regis- tered h'holds	Non- regis- tered h'holds	Overall sample
Extent of worry about losing land:							
Very worried	49.3	68.5	59.6	38.5	49.0	64.3	57.9
A little worried	14.9	9.3	11.9	15.4	17.6	8.6	12.4
Not at all worried	34.3	20.4	26.6	46.2	31.4	25.7	28.1
No opinion	1.5	1.9	1.8	-	2.0	1.4	1.7
Frequency of disputes in last 3 years (% hh):							
Much more serious than before	50.7	29.6	40.4	46.2	37.3	44.3	41.3
More serious	16.4	14.8	16.5	7.7	15.7	15.7	15.7
Less serious	26.9	40.7	32.1	46.2	39.2	28.6	33.1
Land disputes never a problem	4.5	11.1	8.3	-	7.8	7.1	7.4
No opinion	1.5	3.7	2.8	-	-	4.3	2.5

Source: Roth, Boucher, and Francisco 1995.

Table 2.8:
Disputant Characteristics and Dispute Issues and Processes, 1991 Disputant Study, Maputo

	No. cases with attribute		No. cases with attribute
Disputant Characteristics:			
Local disputants involved	8	Non-local/foreign disputants	18
Peasant disputants involved	11	Elite disputant involved	17
Woman landholder involved	12	Male landholder involved	16
Dispute Issues:			
Agricultural plot(s)	8	Residential plot(s)	20
One plot involved	12	Multiple plots involved	14
Destruction of property	9	No destruction of property	17
Land inheritance	5	Land purchase/allocation	21
Dispute Processes:			
Violent confrontation	6	Non-violent confrontation	20
Third party involved	24	Outsiders not involved	2
Local authorities involved	24	Local authorities not involved	2
Police involved	5	Police not involved	21
Military involved	1	Military not involved	25
Lawyers involved	1	Lawyers not involved	25
Court involved	3	Court not involved	23
Government officials involved	13	Govt. officials not involved	13
Money spent or lost	5	Money not spent or lost	21
Dispute appealed	6	Dispute not appealed	20
Short-lived dispute	8	Extended dispute (> one year)	18
Dispute resolved	11	Dispute not resolved	15
Private action by disputant	13	Action not taken by disputant	13

Boucher et al. 1995.

higher authorities. The police were involved in only 5 cases. Military officers and lawyers were only reported in one very serious case, and the courts were involved in only 3 cases. Higher level officials (above the bairro authorities—e.g. DCU) were involved in half the cases (13) providing documentation, rendering surveying services, or offering advice, but sometimes officials were personally involved in disputes by virtue of their attempts to acquire the land. In only 5 cases was money spent (travel costs or land documentation fees) or lost in fraudulent land transactions. No disputants reported personally bribing authorities, although some reported that bribes are frequently offered and accepted. Disputants appealed their cases in only 6 instances; two disputants explained that one often experiences difficulties when the very officials to whom the appeal must be directed are the same parties who are transgressing their property rights.

Most disputes (18) lasted more than a year, but even shorter-lived disputes threaten to resurface. Fifteen cases were unresolved at the time the research concluded; however, the concept of resolution is very nebulous, since it may mean disputant acquiescence but not necessarily disputant satisfaction. Half the cases (13) involved some sort of private action taken by the disputant in an effort to resolve the dispute or bring about satisfaction for grievances (demarkating land through fencing, building infrastructures to assert a land claim, or confiscating farm produce as compensation).

Both disputants and bairro leaders emphasized the impact of the war in creating the large population of refugees moving into small dwellings with their relatives or squatting on idle land, authorities granting plots to refugees, or former landholders returning to reclaim their holdings. Land nationalization also created a situation of latent multiple claims, in which ex-owners seek to reclaim nationalized properties, while some tenants living in the houses since independence have made substantial investments. Ex-owners are reluctant to let tenants make improvements for fear of increasing property values, or the difficulty of dislodging tenants once investments are made.

Disputants and leaders accused each other of deception in land transfers. Disputants accused leaders of using false reasons (development) for eviction in order to give land to someone else. Leaders accused some citizens of obtaining land under false pretenses for gift to family members, or for sale, and subverting the leaders' authority and the cohesiveness of the community by transacting land without their knowledge, selling land to multiple parties, and falsely assuming land ownership. Leaders further complained that citizens built dwellings, squatted, or sold land without their permission, and were concerned that occupants, especially women or refugees, could be and were evicted without warning. Disputants complained of other citizens, especially powerful community members, encroaching upon their land without consent. The informants also frequently appeared confused about how to formally transact land rights. In several cases, disputants paid for land that a seller did not own or that a community leader had no right to sell. In other cases, they approached numerous institutions in their efforts to obtain title, but were referred from one agency to another—all of which denied jurisdiction over, responsibility for, or knowledge about the procedures for processing land claims. Officials sometimes arrogantly breached land rights and at other times timidly avoided decisions.

What policy solutions would the informants propose? Aside from ending the war, disputants felt that expanding issuances of permanent titles was necessary because eviction was an ever-present threat. They also suggested restructuring administrative levels with a clear set of duties for each and improving documentation. Leaders on the other hand tended to feel that ex-landowners should not be allowed to

Table 2.9:
Perception of Registration Benefits, ^a 1991 Land Market Survey, Maputo

	District 4	District 6	Male h'hold head	Female h'hold head	Regis- tered h'holds	Non- regis- tered h'holds	Overall sample
Increase security of using land	85.1	61.1	77.1	53.8	78.4	71.4	74.4
Willingness to invest in land	83.6	59.3	75.2	53.8	78.4	68.6	72.7
Ability to receive credit	73.1	50.0	67.0	30.8	70.6	57.1	62.8
Willingness to rent-out land	35.8	25.9	33.9	7.7	49.0	18.6	31.4
Willingness to sell land	37.3	20.4	32.1	7.7	45.1	18.6	29.8
a. Percent households in strata responding "much more likely."							

Source: Roth, Boucher, and Francisco 1995.

recover their former holdings and that nationalized houses should be sold to current tenants. Leaders scarcely mentioned land resettlement, but landholders raised it repeatedly. Some people wanted full compensation for losses, others wanted partial compensation, and still others wanted to be assisted with moving costs and building materials. Both groups tended to agree that producer associations and cooperatives need to be strengthened to protect land rights and to disseminate information.

2.8 Registration

Respondents in the land markets survey, when asked about the theoretical benefits to land registration, indicated that they would be much more likely to be secure in their land use (74 percent, table 2.9), much more willing to invest in land (73 percent), and much more likely to receive credit (63 percent). Only regarding the improved ability to engage in land transfers did households report more constrained benefits due to legal restriction. Female-headed households perceived fewer benefits than their male counterparts. If households perceive such benefits, why do more households not register land? Unregistered landholders tended to feel constrained by lack of awareness about land registration (34 percent), the belief that producer associations should take care of it (25 percent), poor understanding of registration procedures (15 percent), or land area not being demarcated (9 percent). Only 4 percent of households expressed no interest in registration, suggesting a strong latent demand for surveying and titling services. Registration in practice was far from uniform. Many registered households did not complete all the necessary steps, and many unregistered households started the process then stopped for reasons of time, cost, or the belief that all steps had been completed.

Registration cannot normally be granted unless the land has been demarcated. Yet, fees for surveying land outside the demarcated areas exceed the means of smallholders. DINAGECA, which has the surveying capacity, has a mandate to register land only in rural areas outside Maputo province. The green zones office which has jurisdictional authority lacks surveying capacity. The DCU, with an urban focus, tends to allocate its scarce resources to registering urban properties. The DCU and DINAGECA, whose funding historically has been adequate for a much lower volume of land services, are in effect now levying user fees to make up for budgetary shortfalls. Requirements such as submitting a bank account, salary statement, or development plan, while perhaps applicable to capitalized farms, are ill-suited to land holdings in the family sector. Smallholders, in addition to lacking

the knowledge, resources, or influence to acquire title, must also incur the risk of losing land to outsiders who do possess the means.

2.9 Land Price

Only fifteen households reported ever having purchased land, too few observations for econometric analysis of land price determination. The data nonetheless reveal two important insights: nominal prices have risen rapidly over time; and, although the rising price of land has sharply increased landholders' wealth, it also has created a formidable barrier to potential farm entrants. Smallholders quoted prices of around \$2,500 per plot being paid in actual transactions of irrigated land, an amount roughly equivalent to \$6,250 per hectare (based on the mean of 0.4 hectare per plot). Plot managers also were asked for the price they would pay and accept for the same plot they currently held. The average reservation price was 45,966,810 mt/ha (\$20,894), and the average offer price was 31,218,177 mt/ha (\$14,190) (table 2.10). When respondents were asked to justify the exorbitant land prices reported, they stated their intention to capitalize on the strong future growth in land values. The mean price difference was 32 percent of the reservation price—a very high figure compared with real estate costs of around 6-10 percent in western markets. Equations (1) to (3) represent a general model of land-price determination for the i -th plot assuming perfectly inelastic land supply,

$$(1) \quad LP^r_i = LP^r_i [PC_i, L_i, \Pi_i \{P(M), Y, Z(M)\}, T_i, A(HC)]$$

$$(2) \quad LP^o_i = LP^o_i [PC_i, L_i, \Pi_i \{P(M), Y, Z(M)\}, T_i, A(HC)]$$

$$(3) \quad t_i = LP^r_i - LP^o_i$$

where, LP^r_i is the reservation price that the manager would be willing to accept in disposing of his or her i -th plot, LP^o_i is the offer price that the plot manager would be willing to pay in purchasing the same plot, PC_i is a vector of physical-quality characteristics of the i -th plot including land improvements, L_i is a vector of attributes of the i -th plot's location relative to markets or infrastructure, $\Pi_i \{ \dots \}$ is the annual net profits of the i -th irrigated plot, and $A(\dots)$ is a vector of household characteristics representing bargaining power and information asymmetry among households. The difference between the reservation price in equation (1) and offer price in equation (2) is the transaction cost, t_i in equation (3), the economic rent accruing to uncertainty and to intermediaries other than the buyer and seller who are involved in negotiating and monitoring the transfer contract.

Under competitive market conditions, attributes including plot quality (PC), location (L), plot income or productivity (Π), tenure status (T) should prevail as principal determinants of land prices. Unfavorable location would theoretically lower the plot price to the extent that labor time in production and transportation cost in marketing are increased. Agricultural profit (returns to family labor and land) derived from prices (P), yields (Y), commercial inputs (Z), and market access (M), should theoretically be positively related to the land price as long as land is inelastic in supply (which is surely the case in the green zones). Tenure status (T) here defined as access to title would theoretically lead to current landholders commanding a higher sale price and to greater willingness of borrowers to pay a higher purchase price as long as it confers, on balance, either greater number of land rights, greater certainty of rights, and/or lower costs of transferring land. However, in markets characterized by administrative transactions, household characteristics (HC) might play a more important role in land

Table 2.10:
Descriptive Statistics, Hypothetical Land-Price Regressions, 1991 Land Market Survey, Maputo

	Mean	Standard Deviation	Minimum	Maximum
Hypothetical sell price (000 mt)	18,156.9	32,534.7	30.0	200,000.0
Hypothetical offer price (000 mt)	12,331.2	26,151.6	15.0	150,000.0
Price difference (000 mt)	5,825.7	12,813.4	0.0	90,000.0
Plot-level attributes:				
Size of machamba (m ²)	3,954.0	7,012.2	170.0	40,000.0
Topography (inclined = 1)	.33	.47	0	1.0
Plot has salt problems (yes = 1)	.57	.50	0	1.0
Plot has flood problems (scale) ^a	.76	1.58	0	6.0
Tenure status:				
Plot registered (yes = 1) ^b	.42	.50	0	1.0
Right to sell plot (yes = 1)	.41	.49	0	1.0
Locational attributes:				
Distance to nearest market (min) ^c	39.3	33.0	3	210.0
Distance to nearest road (min) ^d	7.1	8.2	0	45.0
Access road for vehicles (yes = 1)	.08	.27	0	1.0
Land improvements:				
Cement well (yes = 1)	.19	.39	0	1.0
House or shed (yes = 1)	.24	.43	0	1.0
Livestock buildings (yes = 1)	.14	.35	0	1.0
Number of fruit trees (#)	78.1	153.8	0	1,008.0
Plot productivity				
Net plot income excluding family labor (000 mt/plot)	2,504.6	8,642.0	-1,296.5	81,321.0
Household characteristics:				
Gender of plot manager (male = 1)	.57	.50	0	1.0
Political status (yes = 1)	.25	.43	0	1.0
Farm size (m ²)	5,379.8	9,893.9	240.0	76,000.0
Farm size/resident (m ² /person)	440.3	776.9	17.0	5,714.3
Farm and nonfarm income (000 mt)	3,792.7	9,017.2	-1,228.5	81,321.0
Nonfarm income (000 mt/resident)	136.6	394.1	.0	3,416.0
<p>a. Multiplicative variable computed from frequency of problem (0=none, 1=problem occurs once per year, 2=problem occurs multiple times) times severity of problem (1=not very serious, 2=somewhat serious, 3=very serious).</p> <p>b. Precarious, provisional or definitive registration.</p> <p>c. Minutes to walk the distance.</p> <p>d. Means are calculated only for those observations for which complete information is available in computing the variance, co-variance matrix in subsequent regressions.</p> <p>e. A binary variable, 1 if the household has a member in the Grupo Dinamizador and bairro organization, 0 otherwise.</p>				

Table 2.11:
Empirical Model of Land Price Determination

	Reservation Price ^b		Offer Price ^b	
	b-coefficient	standard error	b-coefficient	standard error
Constant	-1,365.1	(4,907.4)	863.1	(3,860.5)
Size of <i>machamba</i> (ha)	21,3678.7 *	(7,321.9)	2,568.0	(5,412.6)
Topography (1=inclined)	6,520.3	(5,312.5)	-2,040.7	(4,197.3)
Salinity problems (y=1)	-4,785.6	(4,340.5)	-3,206.2	(3,342.5)
Flooding problems (scale)	3,078.7 *	(1,379.2)	402.9	(1,046.5)
Plot registered (y=1)	16,379.0 *	(5,646.6)	7,621.4 **	(4,397.9)
Access road adjacent to plot (y=1)	28,017.2 *	(7,879.7)	19,664.7 *	(6,257.5)
Presence of cement well (y=1)	-19,101.4 *	(7,694.7)	-10,131.4 **	(6,047.8)
Presence of house or shed (y=1)	-2,528.1	(8,483.7)	5,541.6	(5,953.9)
Presence of livestock buildings (y=1)	31,800.8 *	(9,431.6)	17,934.3 *	(7,129.0)
Number of fruit trees (#)	-4.5	(15.8)	-14.9	(11.8)
Farm size/resident (ha/person)	41,642.5	(64,684.9)	17,296.8*	(4,861.7)
Sex of plot manager (male=1)	-738.4	(4,773.1)	-160.7	(3,720.0)
Non farm income (000 mt/person)	7.7	(6.1)	5.7	(4.6)
Political status (y=1)	-2,866.2	(4,746.4)	-3,265.3	(3,700.2)
R2	.69		.68	
Adj R2	.65		.63	
n	114		109	

a. The dependent variable is in units of 000 meticais.
b. * = .05 significance, ** = .10 significance.

Source: Roth, Boucher, and Francisco 1995.

allocation decisions and may dominate quality and location effects. The pervasiveness of administrative transactions raises the possibility that differences in human capital, wealth, and political status among households are creating asymmetries in information access and bargaining power.

Descriptive statistics for variables included in equations (1) to (3) are provided in table 2.10. Estimate models linking plot and household characteristics with land price perceptions are reported in table 2.11. Plot size, quality, and physical improvements (access road and buildings) were found to be significant and positive determinants of both the reservation and offer prices quoted. However, variables representing asymmetries in information and unequal bargaining position among households that might be expected to distort price signals in a land market dominated by administrative allocations, showed either inconsistent or weak effects. Further regression models were estimated that link variations in price differences (transaction costs) with household level attributes. Farm size tended to have a negative effect on the price difference due to the reluctance of small landholders to dispose of land for income security reasons, or their difficulty in bidding for land due to lack of purchasing power. A negative relationship between income and transaction costs, and a positive relationship between income and land prices, also was found indicating the potential for small farms to exit agriculture and wealthier farms to expand their holdings. Land registration tended to increase transaction costs probably due to greater risk of detection, and loss of land, from engaging in "illegal" transfers. Gender had no direct influence on transactions costs per se, but gender biases were nonetheless apparent through differences in tenure status and farm size attributes.

2.10 Conclusions

Eighteen years of socialism in Mozambique has left a legacy of uncertain land rights, high transaction costs, and strong state intervention in the land market. Although land rentals and purchases are becoming more frequent, the government continues its attempts to control land allocation. The economic costs of land market restrictions are difficult to enumerate but are apparent in the widespread occurrences of land disputes, land expropriation by authorities, encroachment by refugees and private farmers, absence of fair compensation, high perceived risks in losing land, and cumbersome registration procedures. There is no doubt that property reforms are needed and wanted, and that nationalization and civil strife have seriously undermined tenure security. Yet, land registration as it now exists is no panacea. Land registration involves an onerous set of requirements and procedures that exceed the abilities and means of most smallholders and are inappropriate to the needs of peri-urban agriculture. Smallholders are unsuccessfully turning to producer associations for protection of land rights, a solution not without its own problems. Vesting powers of land policy among multiple bodies with inadequate staff and resources has created a situation of too many parties with a voice in land policy, none of which have sufficiently clear responsibilities and resources to perform their tasks effectively. Individual ownership rights may not be the best solution. Yet, it is difficult to see how Mozambique's market reforms can take hold without a land policy more geared towards serving private interests.

III. The Gambia

3.1 Introduction

The peri-urban areas of Banjul and Serekunda share many of the characteristics common to Africa's metropolitan regions. Land giving and borrowing are giving way to an emerging market of land rentals, purchases, and sales, mainly of residential property, in urban areas. The urban frontier is expanding rapidly, and, through the land market, is transforming agricultural lands into compounds, and villages into suburbs. High rents and land scarcity in Banjul and Serekunda are driving urbanites to seek land in more remote peri-urban villages, while migrants from up-river and abroad, are moving to peri-urban areas in search of housing, employment, and commercial opportunities, or to escape economic hardship. Urban farming is an important source of economic growth. Peri-urban areas with their favorable access to urban markets, and airport and port facilities for international trade, are well positioned to take advantage of horticultural production and exports. Fundamental questions nonetheless remain about its growth potential and sustainability, this study's principal sectoral focus.

3.2 Research methodology

The study site is an area roughly triangular in shape extending from Cape Point (the northern most point), to Sanyang village in the southwest, and to Pirang village in the south, excluding metropolitan Banjul and Serekunda (figure 3.1). The line running from Cape Point south through Serekunda to Welingara marks an area of dense urban settlement and commerce. The village of Sinchu Baliya at the border with Welingara (and Sinchu Alhaji several kilometers further) marks the beginning of a very dynamic band of rapid population settlement, sprawl of cement foundations and newly finished compounds, and intense competition between housing and farming. About 15 km of rural landscape then separates Sinchu from Sanyang (by air) and 18 kilometers separates Sinchu from Pirang.

Each village has different population density, land availability, infrastructure, and proximity to the urban fringe (figure 3.2). The two Sinchu villages (Baliya and Alhaji) lie at the outskirts of Serekunda and have a relatively low land/resident ratio and are experiencing rapid settlement. Sanyang has a relatively high land/resident ratio and few land ownership conflicts. Sanyang and Pirang are of nearly equal distance from Serekunda, but a paved road connects Pirang, and a laterite road connects Sanyang. Based on a 1993 population listing, village populations ranged from 169 households in Pirang to 443 households in Sanyang. Forty households in each study village were randomly selected for further study. Structured interviews were held with the village chief (*alkalo*) in each village to develop case histories of settlement patterns, land markets, employment, and present concerns. A five-round statistical survey was administered to target members within each household (Roth et al. 1993). Field work was conducted February to August 1993.

3.3 Settlement history and migration

The four sample villages were settled between the late 1800s and mid-1970s and originated in a land grant by the paramount chief (*seyfou*) or king to a single individual. Families were later invited or welcomed to clear the land. By right of settlement, they and their descendants became founding families with preferential rights of cultivation and exclusion. A village typically consists of several

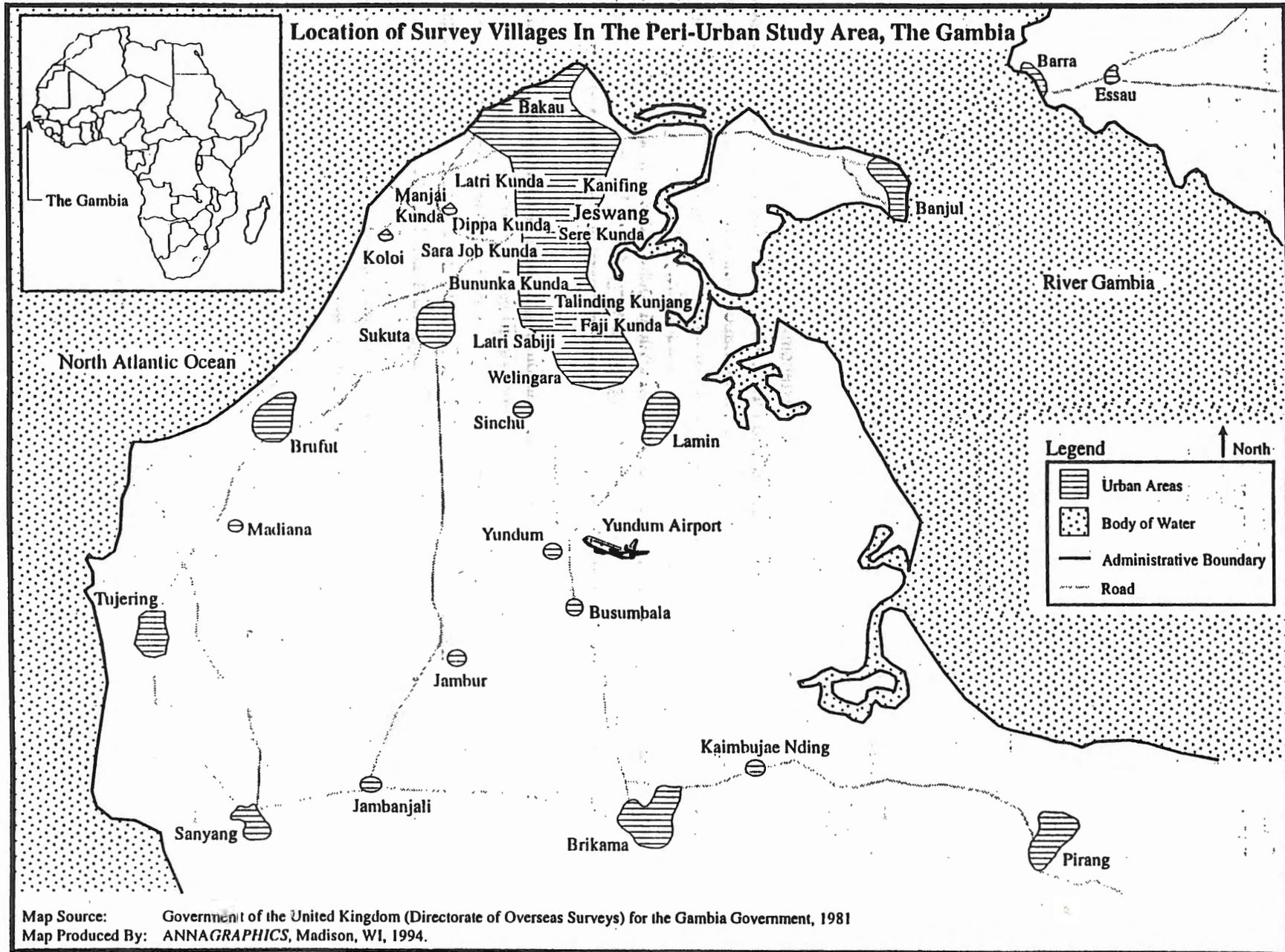


Figure 3.2:
Survey Design, 1993 Land Market Survey, The Gambia

	Sinchu	Pirang	Sanyang
Number of compounds in village (from listing)	260	123	417
Number of households in village (from listing)	267	169	443
Number of households surveyed	40	40	40
Characteristics:			
Access by paved road to Yundum airport	H	H	L
Distance or time to Yundum airport	H	M	L
Proximity to urban fringe	H	L	L
Rate of settlement by urban migrants	H	L	M
Land scarcity	H	M	L
Increasing prices for residential land	H	M	M

H=high, M=moderate, L=low.

Roth, Carr, and Cochrane 1996.

patrilineal kin groups (*kabilo* in Mandinka) which serve the primary basis for land access and reciprocal exchanges of labor and credit. A *kabilo* in turn consists of several compounds (*kordo-teos*) which may be composed of one or more production (*dabada*) and consumption (*sinkoro*) units. The *dabada*, the unit of household in this analysis, is the basic production unit for men's food crops, but more loosely is used to refer to all dependents on the production unit. Elders from the group of *kordo-teos* with founding family status constitute a governing body from which may be elected the *alkalo*. Or, the chief may be the eldest male direct descendant of the original village founder.

More recent arrivals generally solicit land from the *alkalo* or founding families. Newcomers who demonstrate a willingness to permanently settle in the village may be granted land rights as robust as the founding families themselves possess. If permanent status cannot be obtained (a common situation emerging with land scarcity) plots may be seasonally borrowed. Land obtained by clearing through direct lineage confers the most complete and permanent bundle of rights. Non-founding family members borrowing land hold annual usufruct rights, although, in practice, borrowings may run several years, and in some places annual renewals have become symbolic or disappeared. An annual tribute of kola-nuts is usually sufficient to obtain a piece of land, although cash rentals (kola money) or a fraction of the plot's harvest is increasing in importance (Freudenberger 1993).

Since the droughts of the 1970s and 1980s, and the decline of the groundnut industry, families have been substituting vegetable production for traditional crops into their farming systems. Stranger farming has steeply declined due to lack of rain, decline of the groundnut industry, and spread of animal traction, but new labor arrangements are emerging. Casual workers, mainly from up-river and the Casamance, are seeking employment for building fences, digging wells, gardening, and work on commercial farms. Households in the study area are increasingly turning to non-farm wage- and self-employment for livelihood.

Nineteen of the 120 households in the three villages moved to their current location sometime in the previous 10 years, over 74 percent of whom settled in Sinchu. Founding families, as expected, have

been relatively stationary, while 21 percent of non-founding households have recently immigrated to their current home villages. The origin of settlers is nearly equally split between urban households which moved out to the peri-urban sites and others who came from outlying rural areas. What factors were instrumental in motivating the move? Wanting to occupy a house was the single most important reason (67 percent). Other reasons included changing jobs, land for farming, and better access to utilities. Households tend to move into the urban areas of Banjul/Serekunda seeking employment, then later on a second move seek land for housing and/or farming. Households in Sinchu were the most dynamic in terms of settlement, while founding families were most stable.

3.4 Household socioeconomic profile

Of the 120 households in the overall survey, 36 can trace their lineage to founding families in their respective villages (table 3.1). Sinchu village contains few founding families, a function both of its urbanized setting and high rates of in-migration. Household heads are predominantly male, but less so in well established Pirang with greater numbers of men working or living outside the village, and more so in Sinchu village which is the settling point for many new arrivals. Family size is negatively associated with urbanization and positively associated with founding family status.

Over one-third of survey households had one or more family members absent. Absentee rates were highest in Pirang and lowest in Sinchu, while founding families had a slightly higher rate of absenteeism than non-founding families. Males in the 16-25 and 26-35 age categories experienced the highest rate of out-migration. Out-migration by females is largely confined to the 16-25 year age category. This out-migration has created a bi-polar population distribution in Pirang and Sanyang, while their settlement on the metropolitan periphery is leading to a younger age distribution in Sinchu village.

Households in Pirang and Sanyang and founding families tend to be better educated, have higher English skills, exhibit tighter ethnic settlement, are older, and have larger family sizes than households in the immediate peri-urban area. Males tend to be better educated and possess better language skills than females. Land access, measured by whether an individual is a plot manager, is fairly equal among male and female categories for the age groups 0-15 and 36-55. A much higher percentage of females are agricultural plot managers in the 16-25 and 26-35 age groups, partially reflecting the higher percentage of males in these categories that reside away from the household.

Compared with other peri-urban areas examined (Roth et al. for Maputo, 1995), households have relatively few durable assets; only 10 percent of households in the overall sample had a stove, and 3 percent a television. Livestock holdings in Sinchu are mainly confined to small ruminants and pigs—animals well adapted to confinement rearing. Cattle are more important in Pirang (3.4 animals) and Sanyang (3.9 animals). Physical assets of founding families stand out in one important regard—size of cattle holdings. Around 25 percent of founding families are major owners of cattle herds within the village during the dry season. They also own greater numbers of cattle (5.4 vs 1.2 animals) and oxen (.4 vs .2 animals). A major holder of a herd exercises considerable rights concerning the fields upon which the herd is tethered—an important means of gaining access to manure for improving soil fertility.

3.5 Employment and income

Each economically active adult was asked about cash and in-kind remittances (exceeding 250 dalassis/transaction) (\$1.00=D8.30 in 1992-93) received during the previous year. Of the 120 survey

Table 3.1:
Household Composition and Settlement, 1993 Land Market Survey, The Gambia ^a

	Sinchu	Pirang	Sanyang	Founding Family	Non-Founding Family	Overall Sample
Number of males in sample	164	205	251	209	411	620
Number of females in sample	189	204	216	207	402	609
Founding family (% yes)	7.5	37.5	45.0	100.0	-	30.0
Sex of household head (% male)	97.6	85.0	92.5	86.1	94.1	91.7
Mean family size:	8.8	10.2	11.7	11.6	9.7	10.2
Males	4.1	5.1	6.3	5.8	4.9	5.1
Females	4.7	5.1	5.4	5.8	4.8	5.1
Livestock holdings (% with) ^b	-	10.0	17.5	25.0	2.4	9.2
Households with members absent (%)	12.5	62.5	27.5	41.7	31.0	34.2
Residents absent (% yes):						
Males	3.0	16.6	8.0	10.5	9.0	9.5
Females	2.1	8.8	4.2	6.3	4.5	5.1
Families who lived elsewhere in previous 10 years (%)	35.0	5.0	7.5	2.8	21.4	15.8
a. A '-' means zero or negligible.						
b. At least one household member is a major owner of a cattle herd present in the village during the dry season.						

Table 3.2:
Non-Farm Employment Activities, 1993 Land Market Survey, The Gambia ^a

	Sinchu	Pirang	Sanyang	Founding Family	Non-Founding Family	Overall Sample
Percent of households receiving remittances	20.0	37.5	7.5	25.0	20.2	21.7
Number of remittances received	11	35	3	26	23	49
Percent of households with (% yes): ^b						
Wage-employment	57.5	40.0	25.0	36.1	42.9	40.8
Self-employment	80.0	55.0	37.5	52.8	59.5	57.7
Number of jobs per household:						
Wage-employment	.40	.78	.45	.61	.51	.54
Self-employment	1.20	.73	.48	.64	.87	.80
Number of persons employed per h'hold:						
Wage-employment	.40	.65	.43	.59	.45	.49
Self-employment	1.15	.67	.48	.64	.82	.77
a. A '-' means zero or negligible.						
b. At least one family member in household is employed in wage- or self-employment activities.						

households, 22 percent received a total of 49 remittances (table 3.2). Pirang village reported the highest level of remittances received and Sanyang the lowest. The vast majority were remitted by males mostly residing outside The Gambia or Senegal (51 percent). Another 31 percent came from individuals residing in the vicinity of Greater Banjul. About one-half of the remittances in the overall sample were sent by non-household members, although the narrow definition of household used in this study excludes close kin or the wife's family in the case of a married spouse.¹ Of the 49 transactions, 25 were in the form of cash, and the remainder were rice, cloth or clothing, jewelry, electronic goods, or sheep. Oddly, most of the remittances of rice (9 of the 12 cases) were received in Pirang, the principal rice growing area.

Various indicators of non-farm employment are presented in table 3.2. On average, 41 percent of survey households have one or more members who hold a salaried job, and 58 percent have members who are self-employed. Rates of wage-employment and self-employment are highest on the urban fringe. Individual wage- and self-employment activities are aggregated in table 3.3 into six sectors of employment: teaching; construction and trades; services; fishing; livestock husbandry and agriculture; military and civil service; and commerce. Of the 65 (96) wage-employment (self-employment) jobs worked by households in the sample, 40 (15) percent are associated with services, 22 (32) percent involve construction or trades, 14 (13) are related to agriculture, 14 (-) percent involve teaching, 8 (-) percent are salaried jobs in the military or civil service, and 3 (40) percent involve business or commercial activities. Of the 161 total jobs reported, only 11 involved activities on large-scale commercial farms. Membership in a founding family tends to increase the likelihood of employment in teaching (27 vs 7 percent) and the civil service (18 vs 2 percent). Conversely, membership in a non-founding family is more closely linked with wage-employment in the construction and trades sector (28 vs 9 percent). Both have nearly equal rates of participation in services.

Average months worked in salaried employment exceeded self-employed labor time (table 3.3). Wage employment tends to offer lower pay (D420/mth) but also tends to confer greater non-monetary benefits as indicated in table 3.4. Regional wage-rate comparisons per type of employment are constrained by too few observations. Considering all sectors combined, however, both wage rates and self-employment earnings are higher in Pirang and Sanyang villages at the outskirts of the study area. A number of factors contribute to lower wage earnings in Sinchu village: the recent settlement of many Sinchu households, the village's younger age distribution, its lower education and language ratings, and the abundant supply of under-employed labor within the greater metropolitan area.

Wage-employment in the three villages is dominated by males; only 3 of the 65 salaried jobs in the overall sample are held by women. Female participation (24 of 96) in self-employment activities are higher. Whereas men tend to work in all sectors, the vast majority of women (22 of 24 self employed jobs) tend to be engaged in commercial activity, mainly petty trade. Only for commercial activities are the number of cases sufficient to compare wage rates by gender; there, self-employed earnings of females are somewhat comparable to that of males (D797/mth vs D689/mth). However, it is in their exclusion from other sectors that women confront the most serious bias. Of the 65 (96) wage-employment (self-employment) jobs in the sample, 3 (-) percent offer subsidized food, 15 (6)

¹ A household is defined as all members who pool their resources in production, share in the output, and were resident for at least 6 months during the previous year.

Table 3.3:
Type of Wage- and Self-Employment Activities, 1993 Land Market Survey, The Gambia^a

	Sinchu	Pirang	Sanyang	Founding Family	Non-Founding Family	Overall Sample
Total number of wage-employment jobs	16	31	18	22	43	65
Percent of wage-employment jobs (%):						
Service	62.5	32.3	33.3	40.9	39.5	40.0
Construction/trades	12.5	35.5	5.6	9.1	27.9	21.5
Teaching	6.3	6.5	33.3	27.3	7.0	13.8
Fishing/livestock/agriculture	-	25.8	5.6	4.5	18.6	13.8
Military/civil service	6.3	-	22.2	18.2	2.3	7.7
Commerce	12.5	-	-	-	4.7	3.1
Months of wage-employment (mos/annum)	12.0	7.5	9.4	10.5	8.3	9.0
Mean monthly wage rates (D/mth):						
Service	511	418	474	426	482	463
Construction/trades	475	854	6,500	550	1,312	1,203
Teaching	450	715	750	718	691	709
Fishing/livestock/agriculture	-	1,309	80	2,400	1,019	1,173
Military/civil service	450	-	413	413	450	420
Commerce	754	-	-	-	754	754
Overall average	532	822	888	613	858	775
Total number of self-employment jobs	48	29	19	23	73	96
Percent of self-employment jobs (%):						
Commerce	45.8	34.5	31.6	39.1	39.7	39.6
Construction/trades	41.7	13.8	36.8	30.4	32.9	32.3
Service	12.5	24.1	10.5	21.7	13.7	15.6
Fishing/livestock/agriculture	-	27.6	21.1	8.7	13.7	12.5
Months of self-employment (mos/annum)	5.1	7.7	3.4	5.2	5.8	5.6
Mean monthly wage rates (D/mth):						
Commerce	535	1,203	879	659	784	753
Construction/trades	928	558	1,180	1,246	859	950
Service	412	439	8,750	1,934	513	1,021
Fishing/livestock/agriculture	-	2,081	359	531	1,703	1,507
Overall	683	1,193	1,318	1,104	905	954

a. A '-' means zero or negligible.

Roth, Carr and Cochrane, 1996.

percent medical assistance, 19 (-) percent paid leave, 18 (-) percent pension benefits, and 15 (1) percent transport assistance to work. Women face two sources of bias: in the self-employment sector, wage rates in construction and trades, services and agriculture are higher than in the commercial sector (which women dominate); and women are constrained from entering wage employment which, while offering lower earnings, provides more continuous employment and non-monetary benefits.

Monetary earnings and benefits are aggregated across household members in table 3.4. Wage- and self-employment earnings are mean annualized incomes of all family members employed within the

Table 3.4:
Household Income and Non-Wage Benefits, 1993 Land Market Survey, The Gambia *

	Sinchu	Pirang	Sanyang	Founding Family	Non-Founding Family	Overall Sample
Household income (dalasis/annum):^b						
Self-employment	6,180.8	8,183.7	1,695.4	2,423.8	6,608.8	5,353.3
Wage-employment	2,366.6	3,682.1	7,950.8	9,917.8	2,415.9	4,666.5
Remittances	109.8	958.5	20.0	849.2	154.3	362.8
Upland crops	203.6	462.8	506.8	528.6	332.1	391.0
Vegetables	-	1,020.9	134.7	795.6	209.3	385.2
Fruit tree (non-orchards) income	135.6	109.1	711.0	352.5	304.1	318.6
Rice	-	398.3	351.9	475.9	153.3	250.1
Orchard income	-	501.3	15.0	173.6	171.4	172.1
Total household net income	8,996.3	15,316.7	11,385.4	15,517.0	10,349.1	11,899.5
H'hold income per capita dalasis/annum):^c						
Wage-employment	268.3	359.9	680.7	857.9	249.6	455.7
Self-employment	700.8	800.0	145.2	209.7	682.7	522.8
Remittances	12.4	93.7	1.7	73.5	15.9	35.4
Farming net income	38.5	243.6	147.2	201.2	120.9	148.1
Total household net income	1,020.0	1,497.2	974.8	1,342.3	1,069.1	1,162.1
Other wage employment benefits (% hh with):						
Subsidized food	-	5.0	5.0	5.6	2.4	3.3
Medical assistance	7.5	22.5	15.0	19.4	13.1	15.0
Paid leave	25.0	20.0	12.5	25.0	16.7	19.2
Pension benefits	32.5	7.5	15.0	19.4	17.9	18.3
Transport to work	25.0	15.0	5.0	8.3	17.9	15.0
<p>a. A " means zero or negligible. b. Data on livestock purchases and sales indicated only marginal buying and selling throughout the year. c. Household income divided by mean family size.</p>						

Röth, Carr, and Cochrane 1996.

household. The annual mean household income is D11,900 or \$1,434. The majority of income is derived from self- (45 percent) and wage-employment (39 percent) activities. Despite the rural character of life in Pirang and Sanyang villages, net income from farming represents only 13 percent of income in the overall sample. Annual household incomes are highest in Pirang and lowest in Sinchu; however, once adjustments are made for family size the income differential between Sanyang and Sinchu disappears. It is understandable that agricultural incomes in Sinchu are below those of the more rural villages. It is surprising that the most remote village (Sanyang) has the highest level of wage-employment. Many people have established residences in Sanyang in recent years and now commute to and from the urban center. The annual incomes of founding families are 50 percent higher than those of non-founding families due mainly to their higher wage income, higher levels of remittances, and higher earnings from upland crops, rice, and vegetables.

Horticultural crops make an important contribution to household income in one survey village, and potentially represent an important source of income growth in the others. Of the total household income in the overall sample, 3 percent is derived from sales of fruit tree products (non-orchards), 1 percent from orchard production, and 3 percent from vegetable production. However, if one examines the same indicators in Pirang village, fruits (orchard and non-orchard) comprise 4 percent and vegetables 7 percent of household income. As vegetables tend to be produced in the dry season, gardening and trading thus appear to decrease both unemployment and underemployment in the survey village, in the process lowering the labor surplus and increasing total household income.

3.6 Farm structure

Farm holdings in the peri-urban area exhibit a high degree of fragmentation among uplands, lowlands (rice), and vegetables grown on lowlands and donor schemes; and between the private fields of individual family members in each agroecological regime and the communal fields worked by all family members. In total, 8,268 different plots of land were managed in the three villages, 7,758 by women (mostly many small vegetable and rice plots), 376 by men, and 134 by borrowers. Measuring the numerous small rice and vegetable plots would have been impossible. The area instead was estimated either by measuring the combined area if all plots were contiguous, or multiplying the total number of plots by the size of a representative plot. Areas associated with each respective calculation are hereafter referred to as a "major plot" signifying that dispersed plots have been consolidated.

Data on number of land holdings are reported in table 3.5 for four categories of land: parcels excluding rice and vegetables, plots excluding rice and vegetables, rice plots, and vegetable plots. Excluding land in rice and vegetables, each household in the overall sample held 2.6 parcels, with the greatest number in Sanyang and the fewest number in Sinchu. Households overall held 3.5 plots of land, with very little variation exhibited across strata. Each household on average also holds 1.2 major rice plots, but more variation is evident. No rice is produced in Sinchu. Households in Pirang (a major rice growing area) held 2.4 plots, while Sanyang households held 1.1 plots on average. Vegetable plots are highly fragmented and dispersed among lowland areas and donor schemes. Each household on average farmed 63.9 different vegetable plots, with the greatest number in Sanyang (123.4) and the fewest in Sinchu (1.3). Whereas in Sinchu, most vegetable cultivation is confined to small schemes, vegetables in Pirang and Sanyang are grown both on schemes and on natural lowlying areas. Compared with non-founding family households, founding families held a greater number of holdings suitable for vegetables and rice—crops reflecting higher quality lowlands.

Enumerators were instructed not to measure fallow and residential plots due to difficulties in surveying undemarcated areas covered in bush. Also compounds in villages tend to have fairly uniform dimensions, roughly 30x30 meters to 30x50 meters, that helped in area estimations. The average size of farming unit (including upland areas, rice, and vegetables) in Sanyang is 2.15 ha compared with .95 ha in Sinchu. Founding families on average controlled 1.91 ha vs 1.35 ha for non-founding families. Had fallow land been included as well, this difference would have been even greater. Overall, founding families have larger sizes of farming units as well as a greater area of quality land suitable for rice and vegetables. As expected, a decline in both the number and size of parcels tends to occur as one moves along the continuum from land abundant Sanyang to land scarce Sinchu.

Table 3.5:
Farm Structure, 1993 Land Market Survey, The Gambia ^a

	Sinchu	Pirang	Sanyang	Founding Family	Non-Founding Family	Overall Sample
Mean number of land holdings (including fallow and residential plots):						
Parcels (excluding veg/rice) (A)	2.2	2.6	3.0	2.9	2.5	2.6
Plots (excluding veg/rice) (B)	3.7	3.5	3.3	3.8	3.4	3.5
Mean number of land holdings (excluding fallow and residential plots):						
Parcels (excluding veg/rice) (E)	2.1	1.5	1.7	1.5	1.9	1.8
Plots (excluding veg/rice) (F)	2.8	2.1	1.9	2.1	2.3	2.2
Rice plots (G)	-	2.4	1.1	2.1	.8	1.2
Vegetable plots (H)	1.3	67.1	123.4	136.9	32.6	64.4
Farm area (ha):						
Non veg/rice farming area (K=ExI)	.94	1.32	1.82	1.71	1.20	1.35
Rice area (L)	-	.08	.19	.14	.08	.11
Vegetable area (M)	.01	.03	.14	.06	.07	.07
Total farm area (N=K+L+M)	.95	1.43	2.15	1.91	1.35	1.53
Land/resident ratio (N/resident)	.11	.14	.18	.17	.14	.15

Table 3.6:
Tenure Perceptions and Land Conflicts, 1993 Land Market Survey, The Gambia ^a

	Sinchu	Pirang	Sanyang	Founding Family	Non-Founding Family	Overall Sample
Land easy or difficult to acquire:						
Easy	7.5	22.5	87.5	58.3	31.0	39.2
Difficult	12.5	65.0	12.5	30.6	29.8	30.0
Very difficult	80.0	12.5	-	11.1	39.3	30.8
Best means of acquiring new land:						
Borrow	87.5	77.5	60.0	66.7	78.6	75.0
Gift from Alkalo/kabilo head	2.5	5.0	37.5	19.4	13.1	15.0
Purchase from Alkalo/kabilo head	7.5	2.5	2.5	-	6.0	4.2
Rent-in	2.5	10.0	-	13.9	-	4.2
Other	-	5.0	-	-	2.4	1.7
Repossession by Alkalo possible even after improvements made (% yes): ^b						
Planted trees	45.0	-	2.5	-	22.6	15.8
Buildings	25.0	-	-	-	11.9	8.3

a. A '-' means zero or negligible.

b. Respondent was asked whether the Alkalo of the village could take back land given to the family even after investments in buildings or trees had been made since acquisition.

Roth, Carr, and Cochrane 1996.

3.7 Land conflict

Land for cultivation is still relatively easy to acquire in Sanyang but very difficult to acquire in Sinchu (table 3.6). The majority of households, regardless of village, believe the best mechanism for acquiring additional land is borrowing it from other households. Aside from borrowing/gifts from the *alkalo*, a small number of households felt that commercial transactions (purchase and renting) would be the next most effective means. The traditional role of the *alkalo* in providing (giving or lending) land has waned considerably in Sinchu and Pirang where land scarcity has emerged. Yet in Sanyang, 38 percent of households still would consider a gift from the *alkalo* as the most likely way to obtain additional land.

Land disputes are relatively infrequent with only two households in the sample reporting ever having had a dispute over land. However, 'land disputes' is a difficult concept to apply. Under the current system, *alkalos* feel compelled to assist outsiders in finding land; yet if his reserve land has become depleted, he has no recourse but to ask tenants (generally those with larger compounds or with idle land) to give a portion back, even if borrowed for decades. Household heads in Sanyang and Pirang generally felt that the *alkalo* could not or would not repossess the land. However, in Sinchu at the urban fringe where settlement is occurring at a rapid pace, 45 percent of households felt the *alkalo* could take back land even if trees had been planted, and 25 percent believe repossession is possible even if a building had been constructed on the property. Repossession in these cases may not constitute a "dispute" in the legal sense, but the practical effect is that tenure security is compromised.

Adults attending the household-level interview were further asked to rank the most serious land problems faced by farmers. Forty-two households responded, the vast majority (36) in Sinchu village. Problems related to land shortages were the most frequently cited, including: the *alkalo* evicting people from farmland and giving or selling it to newcomers for dwellings, insufficient land for farming in the vicinity of the village, and fear of eviction. Another four households mentioned disputes, while seven households mentioned difficulties in acquiring implements, draft power, and farm inputs. These general perceptions are consistent with earlier data showing high rates of eviction, residential settlement, and land scarcity in Sinchu, and the general lack thereof in Pirang and Sanyang villages.

The current system places borrowers in a precarious situation. A significant number of borrowing families in Sinchu, who, based on allocations, may have felt that land access was assured, one day find a portion of their land repossessed by the *alkalo* to make way for others. These same processes are at work in Pirang and Sanyang, but problems are not yet widespread due to their relative abundance of land. Unfortunately, borrowing families who have been successful in acquiring land through customary mechanisms operate in trust that traditions will prevail. As land scarcity tightens, the reserve of village land upon which they rely for future inheritances experiences a decline with sales to newcomers. Borrowers may be asked to give back a portion of their land, pay a higher price through purchase or rental, or relocate elsewhere to sustain a living. It is in periods of uncertainty, where the beginnings of a commercial market begins to permanently alienate land from the founding families through purchase, that current tenants experience the greatest insecurity.

3.8 Land access

Plot acquisition histories provide a backward look at land market processes (tables 3.7 and 3.8). Of the 684 major plots with complete information, 35 percent were obtained through inheritance, 32 percent through borrowing, 23 percent through gift, and 5 percent were purchased. Very few were obtained

Table 3.7:
Plot Acquisition Histories, 1993 Land Market Survey, The Gambia *

	Sinchu	Pirang	Sanyang	Founding Family	Non-Founding Family	Overall Sample
Number of valid plot observations	128	313	243	280	404	684
Mode of parcel acquisition (% of total):						
Inherited	2.2	39.0	48.0	59.4	17.6	34.8
Borrowed-in ^b	41.3	33.5	25.4	24.5	37.7	32.2
Gift by Alkalo/Kabilo head	24.6	20.8	25.8	14.0	29.8	23.3
Purchased	22.5	.6	.4	-	8.3	4.9
Other (including spontaneous occupation)	9.4	6.0	.4	2.1	6.6	4.8
Ownership time (1993 minus yr acquired):						
All parcels combined	6.5	17.9	22.6	24.1	12.7	17.1
Borrowed-in parcels	2.5	6.7	15.3	18.4	5.9	9.4

a. A ' means zero or negligible. b. Including only 1 instance of a plot rented-in.

Table 3.8:
Plot Acquisition by Gender and Source, 1993 Land Market Survey, The Gambia *

	Inheritance	Gift by Alkalo or Kabilo head	Purchased	Borrowed
Gender of plot manager (%):				
Male family	44.5	69.6	85.3	30.9
Female family	44.1	29.8	14.7	68.6
Non-family borrower	11.3	.6	-	.4
Acquired from whom (%):				
Household member	41.7	9.9	12.1	10.7
Founding family	51.7	50.9	-	45.5
Compound head	2.5	6.2	-	4.9
Alkalo	.4	29.8	66.7	13.4
Non-family villager	-	1.9	3.0	9.8
Non-villager	-	-	18.2	9.8
Other	3.7	1.2	-	5.8

a. A ' means zero or negligible.

Table 3.9:
Changes in Land Acquisition Over Time, 1993 Land Market Survey, The Gambia *

	1912-1973	1974-1978	1979-1983	1984-1988	1989-1993
Number of observations ^b	175	58	99	95	159
Mode of parcel acquisition: ^c					
Inheritance	66.9	79.3	35.4	28.4	6.3
Spontaneous occupation	-	1.7	-	9.5	1.3
Gift by Alkalo/Kabilo head	20.0	13.8	38.4	24.2	15.1
Purchase	.6	-	8.1	10.5	9.4
Borrowed-in	12.6	5.2	10.1	25.3	63.5
Other	-	-	8.1	2.1	4.4

a. A ' means zero or negligible. b. Excludes 109 missing observations for which no year was recorded. c. Percentage of total.

through spontaneous occupation (clearing and settling land). Households in Sanyang village tend to rely on inheritance, while borrowing, administrative allocations, and purchases are more common in Sinchu. Inheritance was the principal mode of land acquisition by founding families, while non-founding families tend to rely comparatively more on borrowings and allocations by the *alkalo* or *kabilo* head. Most borrowed land is acquired by females, mainly from founding families (46 percent), the *alkalo*, another household member, a new settler in the village,² or a non-villager. Founding families tend to exchange land within and among themselves, while non-founding families tend to rely on allocations from the *alkalo* or founding families.

Agricultural lands are normally not leased, rented, bought, or sold. Residential land for the household's compound is bought and sold in Sinchu, less so in Pirang, and not at all in Sanyang. But, only improvements on land are transferred through sale according to the *alkalos*, not the land itself. Purchases tend to be undertaken mainly by males and land is mainly purchased from the *alkalo*, someone outside the village, or from another family member. Purchases are largely confined to Sinchu village on the urban fringe. Most plots were purchased for residential use, or for sons or inheritance. With Sinchu's near access to the urban market and high rate of in-migration one might have expected a greater reliance on formal banking institutions for financing land purchases. However, 82 percent of the purchases were made out of personal savings held outside formal banks, and another 18 percent from bank saving deposits. No formal or informal credit was used to acquire land.

Land transfers are categorized by years of acquisition in table 3.9 to analyze changes in the land market over time. Inheritance, which represented 67 percent of all transactions between 1912-73 had declined to only 6 percent of transactions by 1989-93. Gifts by the *alkalo* or *kabilo* head have ranged between 15 and 38 percent of transfers depending on the period, with a clear downward trend discernible since the early 1980s. Both purchases and borrowings, in contrast, have increased in relative shares with time. Purchases over the period 1912 to 1978 were negligible. However, since 1979, purchases have represented 8-11 percent of all transactions. Likewise, land borrowing remained relatively static between 1912-1983, ranging between 5 and 13 percent. However, borrowings represented 25 percent of all transfers during the period 1984-88, and 64 percent over the period 1989-93. The short ownership period of borrowed plots (2.5 years) in Sinchu leads to an over-weighting of Sinchu plots in transfer totals, biasing trends toward urban borrowings. Nevertheless, growing land scarcity in recent years appears to reduce the incidence of inheritance and gifts and increase the importance of land borrowing and purchases. Land scarcity also appears to influence the duration of land rights held. In Sanyang village, with the highest land/resident ratio, plots have been borrowed-in for 15 years on average, 7 years in Pirang village, and 3 years in Sinchu village. As land scarcity has tightened, rental periods have declined for the non-land holding groups (18 vs 6 years for founding families).

Similar to land acquisition histories, land alienations provide a backward glimpse at land disposition. Plots rented or borrowed for three years or less were excluded to ease reporting as were alienated land holdings that existed in other villages. Only eleven households (with 13 plots alienated) reported having had land 10 years ago that they no longer held at the time of the survey. Of these, the majority (10) were located in Sinchu village. Most alienations were recent, between 1989 and 1993. On average, the parcels alienated had been held 16 years, and in the case of Sinchu where most alienations had taken

² Usually absentee and needing someone to occupy or guard the land.

place, 12 years. All the alienated plots (10) of non-founding families involved evictions usually for reallocation to new settlers. While three founding families reported alienating land, the transactions involved either selling (67 percent) or giving (33 percent) land to new settlers. Those households losing land tend to be compounds with ample or underutilized space or poorer households unable to compete with cash-flush investors. In none of the alienations did the land holder receive compensation.

3.9 Land rights

Land acquisition is strongly associated with administrative allocations, reflected both in the number of rights held and in authorizations required to exercise those rights. Information about land rights was solicited at two levels: the household head's perception of his or her land rights to all household plots, and the rights perceived by plot managers to their own holdings.

Rights perceived held by the household head are highest on upland plots followed by rights on private plots, rice plots, and finally donor plots. Planting annual crops is the most common right reported, followed by planting of fruit trees, bequeathing plot to heirs, building a wall, renting the plot, and selling the plot. Rights to rent or sell land are heavily constrained, although a high percentage of household heads feel confident in their ability to bequeath land to heirs (except in Sinchu). The ability to make improvements and transfer land is also heavily compromised by the need for authorizations, particularly in Sinchu. Founding families appear to hold greater land rights, particularly transfer rights, than their non-founding family counterparts. The household heads of founding families require virtually no authorization on upland fields which fall under the control of the household head. However, their rights decline over the management of private plots and rice plots.

Substantial individual rights are perceived by plot managers to use land and make improvements, particularly in Pirang and Sanyang (table 3.10). Plot managers in founding families clearly perceive having more rights than those in non-founding families. Despite the high frequency of plots being acquired through allocations, plot managers generally feel able to rent-out or sell their holdings. Few plot managers indicating rights possession feel compelled to seek authorization to exercise those rights. The greatest rights to plant trees, build fences, and improve water retention structures are associated with rice, vegetable gardens, and orchards. Most managers of rice (and to a lesser extent vegetable) plots (i.e., women) perceived the right to bequeath land to heirs. Overall, these data suggest that private managers have considerable freedom in the management of their private holdings; to the extent that any rights are compromised by authorizations, it appears to be those of the household head. While women generally perceive higher land rights, many feel obliged to consult with others in the decision as opposed to males who perceive fewer rights but tend to act autonomously.

3.10 Land improvements

Each plot manager was also asked whether any improvement (table 3.11) was present on the plot, by whom the improvement was made, when it was made relative to plot acquisition, and whether authorization was sought from any individual other than the plot manager. Aside from manuring which reflects the greater livestock wealth of founding families, rates of investment are not markedly different among founding and non-founding families. Each of these investments would have a short-to intermediate-term life span. Based on the data presented it would not appear that insecurity of land rights by borrowing families are posing a major constraint. Sinchu village is the exception. Whether comparing manuring, fallowing, fencing or wells, the level of improvements in Sinchu village is

Table 3.10:
Land Rights of Plot Managers by Type of Crop, 1993 Land Market Survey, The Gambia

	Grains ^a	Rice	Groundnuts	Gardens	Orchards
Number of plot observations	103	122	81	160	14
Rights (with and w/o authorization) (A):					
Plant fruit or field trees	67.0	86.9	44.5	72.5	100.0
Build wall or fence	63.2	82.7	43.2	65.0	100.0
Build house or warehouse	62.1	77.0	41.9	55.6	100.0
Improve water retention structure	70.9	90.2	48.2	80.6	100.0
Bequeath to family member	67.0	87.7	44.5	68.1	100.0
Rent out	61.1	64.8	38.3	50.1	100.0
Sell plot	54.3	43.5	32.1	30.6	100.0
Percentage of rights requiring authorization (% of A):					
Plant fruit or field trees	21.8	44.3	38.9	41.4	28.6
Build wall or fence	18.5	42.6	37.0	38.5	28.6
Build house or warehouse	20.3	43.6	38.2	41.5	28.6
Improve water retention structure	30.2	67.3	51.2	56.6	28.6
Bequeath to family member	23.1	43.9	38.9	40.4	28.6
Rent out	20.6	49.4	38.6	42.5	28.6
Sell plot	23.2	35.9	34.6	40.8	28.6

a. Maize, millet and sorghum.

Table 3.11:
Fixed-Place Land Improvements,^c 1993 Land Market Survey, The Gambia

	Sinchu	Pirang	Sanyang	Founding Family	Non-Founding Family	Overall Sample
Fallow:						
Plots fallowed/uncleared in 1991/92 season (% of plots)	3.6	12.6	13.9	13.7	9.7	11.4
Years fallowed consecutively (no.)	-	8.4	1.8	4.4	4.4	4.4
Continuous manuring:						
Plot manured by tethered herd for three consecutive years (% yes)	2.8	7.9	9.0	13.5	2.9	7.4
Cement wall around plot:	5.1	2.7	2.9	4.0	2.6	3.2
Fence built around plot:	9.4	31.6	19.5	24.0	22.6	23.2
Deep dirt well dug on the plot:	10.2	20.2	12.9	16.4	15.2	15.7

c. Columns do not sum to 100% as some household heads or plot managers obtained no permission while others do so from multiple parties.

Table 3.12:
Orchard and Fruit Tree Investment, 1993 Land Market Survey, The Gambia

	Plot Held and Managed	Plot Rented /Borrowed- in	Male Managed Plots	Female Managed Plots	Overall Sample
Total plots (no.)	365	242	295	327	622
Percent of plots with (%):					
Mango trees	29.5	1.7	30.5	4.9	18.2
Orange trees	26.8	1.2	28.8	2.5	16.5
Cashew trees	6.3	.8	7.8	0.9	4.0
Compound plots (no.)	120	2	116	9	125
Percent of plots with (%):					
Mango trees	50.8	100.0	50.9	33.3	49.6
Orange trees	56.7	100.0	59.5	33.3	56.7
Cashew trees	12.5	-	12.1	11.1	11.8
Plots near compound (no.)	103	74	46	131	177
Percent of plots with (%):					
Mango trees	25.2	2.7	39.1	8.4	15.3
Orange trees	14.6	-	28.3	1.5	7.9
Cashew trees	6.8	-	13.0	.8	3.7
Outer-field plots (no.)	142	166	133	187	320
Percent of plots with (%):					
Mango trees	9.9	.6	9.8	1.1	4.7
Orange trees	2.8	1.2	2.3	1.6	1.8
Cashew trees	1.4	1.2	2.3	0.5	1.2

a. A ' means zero or negligible.

Roth, Carr, and Cochrane 1996.

markedly low compared with the other village sites. The dynamics of Sinchu village are highly complex; households do not have secure rights, land is scarce, and households wanting to expand holdings must seek land in outlying areas, sometimes in adjacent villages. Some residents moving to the area make the necessary improvements to establish a claim—a cement foundation—but continue to reside in the city saving funds to complete the dwelling.

Around 18 percent of all plots in the overall sample had mango trees present, followed by fewer frequencies of orange, cashew, lime, and other trees (table 3.12). The vast majority of tree plantings occur on the site of the compound, or near the compound, where families have relatively long-term rights. Households in the non-founding family strata have higher tree plantings for nearly all tree categories across plot types. Being earlier settlers and having larger family sizes, it would seem reasonable to assume that space constraints and subdivisions may have constrained tree plantings in the compounds of founding families. Further, founding families have a greater number of plots and, despite their larger family size, may simply lack the labor or resources required to maintain a greater number of trees on their holdings. Also, only one tree was required to establish the presence of trees in the survey. Once data are adjusted to show average tree holdings per household, tree holdings are found to be

nearly equal among founding and non-founding family groups. This suggests either that founding families are permitting the establishment of only a few trees on the perimeter of borrowed plots, or that founding families are planting greater concentration of trees relative to borrowing households.

Compound plots, whether held by founding or non-founding families tend to be considered as belonging to the respective family concerned. Unfortunately, comparisons of compound land owned and managed with compound land that is borrowed is technically impossible due to too few observations for the latter. Comparisons were possible on inner fields near the compound. Borrowing families, having only limited rights of a seasonal duration, lack incentives to invest in long-term land improvements. The rate of tree plantings for all tree categories are significantly greater on owned versus borrowed plots, providing some evidence that limited rights by tenants are constraining fruit tree investment. Tree plantings on outlying fields are also slightly higher on owned and managed plots compared with borrowed plots. The economics of fruit transport and guarding against theft would improve the viability of plantings near to the compound, but the long-term security of land rights associated with owned versus borrowed holdings also appears to be increasing planting incentives.

Survey data in table 3.12 also show a gender bias in tree plantings between male and female plot managers. For compound plots and plots near the compound, where trees are most likely to be located, a noticeable downward bias in tree plantings on female managed plots is observed. Part of this bias can be explained by land size and land use. For example, rice lowlands are unsuitable for certain tree crops, whereas the lower profitability and shading effects of trees may make them unprofitable compared with vegetables in the context of donor schemes. Nevertheless, one cannot eliminate outright the hypothesis that gender biases are at play.

3.11 Land rights and plot productivity

The following recursive simultaneous model was estimated using a generalized probit method (Amemiya's 1978) to sequentially determine discrete and continuous dependent variables in the following system of equations (see Hayes, Roth and Zepeda):

- | | | |
|-----|--------------------------|----------------------|
| (1) | $L = f(X_1, TS)$ | LT improvements |
| (2) | $T = f(X_2, TS)$ | Trees |
| (3) | $M = f(X_3, TS, L)$ | MT soil improvements |
| (4) | $I = f(X_4, L, M)$ | Commercial inputs |
| (5) | $Y = f(X_5, L, T, M, I)$ | Yield |

where, L is long-term improvements (wall, fence or well after plot acquisition), T is a binary variable indicating presence of trees (1 if mango, orange, lime, cashew or other fruit trees exist on the plot, 0 otherwise), M is a binary variable measuring medium term soil improvements (1 if fallowed in 1991/92 or whether herd tethered on plot for previous three consecutive years; 0 otherwise), I is the value of commercial inputs (dalassis cost of chemical fertilizers, pesticides, mechanical and animal traction, seeds, and other inputs), Y is the total value of fruit, field crops and vegetables produced on each plot

in per-hectare terms, TS is tenure security, and X is a vector of other exogenous characteristics of plot, its manager, manager's household, and village site. All endogenous (bold face) variables and TS are plot level observations. Empirical results are presented in Annex A.

With regard to fencing and wells, secure property rights measured by a complete bundle of rights (COMTRAMS) in equation (1) was found to positively affect the propensity to make long term improvements. Calculated at the means of the explanatory variables, COMTRANS increases the probability of making LT improvements by 12 percent. LT improvements are also associated with larger farm size. All else equal, a larger farm would be expected to generate greater farm income and cash liquidity, increasing the farm's purchasing power. Fixed improvements are more likely on plots in or near the compound (INCOMP and NEARCOMP). Gender and land fragmentation showed no significant effect.

Tenure security was also found to positively affect propensity to invest in trees in equation (2). Calculated at the means of explanatory variables, COMTRANS increases the probability of investing in trees by 21 percent. Farm size again is positively associated with presence of trees. The propensity to invest in trees is also higher on plots in or near the compound (INCOMP and NEARCOMP), indicating benefits from labor economies in fruit tree harvesting and transport, and reduced expected losses from theft or fruit destruction. A negative coefficient for plot fertility suggests that trees make better use of marginal soils. There again is no effect of gender or fragmentation on tree plantings once other factors are controlled.

Complete transfer rights have no effect on medium term land improvements in equation (3). Livestock assets (principally measured by WEALTH) show a positive and significant impact on the propensity to undertake soil improvements, underscoring the linkage between livestock holdings and manure supply. The positive relationship between M and dependency on non-farm income sources (DIVERSHH) and remittances (REMIT) suggests households are returning fields to fallow in order to pursue off-farm employment opportunities. Female plot managers are significantly less likely to undertake these investments. As land borrowers, women do not have access to land holdings for fallowing. And, men generally control livestock herds and make the tethering decisions. Fixed improvements positively influence the use of commercial inputs in equation (4). Medium-term soil improvements are negatively associated with commercial inputs suggesting that the two variables are input substitutes. Female plot managers appear to make much lower input applications than do men. Plots in and near the compound show negative coefficients, reflecting the substitution effects between fertilizer and household wastes which are deposited on these plots.

Also consistent with theory, long-term land improvements are positively related to higher yields in equation (5) indicating productivity enhancing benefits. The negative coefficient associated with presence of trees, conversely, indicates negative yield effects. Household labor positively increases yields. The negative relationship between farm size and yield reflects labor shortages. Soil fertility shows a positive and significant effect on yield. Donor gardens show a very strong positive relationship with yield, indicating the positive effect of investments in fencing and irrigation infrastructure. More complete land rights in the peri-urban economy are thus increasing the propensity to invest in trees and long-term improvements. Long-term improvements in turn are increasing plot productivity.

IV. Ghana

4.1. Introduction

The peri-urban area of Accra is rapidly transforming. Areas used for subsistence agriculture and dispersed settlement only a decade ago have been transformed into commercial development and housing. A robust land market has emerged, characterized by purchases, rising land prices, and rapid conversion of farmland into urban property. Land tenure in the peri-urban area runs the gamut from stool land that is clearly delineated and uncontested to land where ownership is disputed among two or more chiefs, families, or government. The government frequently acquires customary land in the public interest, although the communities affected have rarely received full compensation. Compulsory acquisitions more frequently than not have created overlapping interests between outsiders and indigenous communities, while in other cases government through title registration has provided positive benefits in reducing land conflicts between neighboring stools. Customary systems have generally enabled land transfers, but with mixed effects. Some chiefs return receipts from land sales to their subjects in the form of cash payments, new lands, or village improvements, while in other cases such receipts are retained by chiefs and a select circle of political allies.

4.2 Land law and administration

The 1992 Constitution recognizes public and customary (including private) tenure. Public lands are vested in the President for the people. The Constitution leaves intact the provisions of the Administration of Lands Act 123 and the State Lands Act 125, both of 1962, which grant government authority to acquire lands for the public good. Public lands are administered by the Lands Commission under the 1993 Lands Commission Act. The Commission is also charged with advising and assisting in the execution of a universal land registration program in consultation with the Title Registration Advisory Board. Customary lands are held in common by traditional authorities. Private lands are the residual (after customary and public land) held by individuals. In the Greater Accra Region, allodial¹ land rights are typically held by stools² represented by chiefs and to some extent by families. In Eastern Region, allodial title is vested in smaller administrative structures (families) led by a family head, and administration of community affairs is shared by several families under the leadership of an elected chief. Control of family land there resides not with the chief but with a committee comprised of the family head and senior family members. Irrespective of the governance structure, all allodial title holders are to hold the land in trust for their subjects in accordance with customary law.

All stool land transfers involving monetary consideration require Commission consent, and only valid transactions are enforceable in court. Cash dealings in land are prohibited, although improvements may be sold. While the constitution permits dispositions, the lack of Regional Commissions effectively curtails legal transfers in practice. Documents drawn up in consonance with the 1973 Conveyancing Decree were required to be registered under the Land Registry Act, 1962. However, purchasers and mortgagees of land were not protected against fraud or mistake, and no provision was made for land

¹ The term allodial in its original sense means land free from the tenurial rights of a feudal overlord. In Ghana, land reverts to its allodial holder, typically a chief and elders, upon termination of usufruct.

² A stool is a community governance structure similar to chieftancies in other cultures and refers at once to the administrative structure and the actual chair on which the community leader sits.

description by reference to an officially approved plan, resulting in some instruments registered with meaningless plans. These and other limitations led to the Compulsory Land Title Registration Law, 1986 which provides for the registration of land and nearly all interests in land including allodial title, usufructory title, leaseholds, freeholds, and tenancies. Despite its potential in conferring certainty and finality to land ownership, the law is operative in only the Greater Accra Region.

Duration and size of land transfers are also stipulated by the Administration of Lands Act. Since 1969, non-Ghanaians can only acquire residential interests in land for a maximum of 50 years. Ghanaians can acquire rights in residential land for 99 years, but mining interests are restricted to 60 years, commercial interests to 50 years, timber interests to 30 years, and poultry and cereals to only 10 years. Farm size limits are outdated and grossly exceed present day realities. Permissible transfers for commercial and poultry/cereal operations range between 640 and 1,920 acres, between 1,433 and 38,400 acres for mining interests, and between 25,551 and 153,600 acres for timber concessions.

The administrator of stool lands established under the 1994 Office of the Administrator of Stool Lands Act is charged with collecting rents, dues, royalties, or other revenues from stool lands, and disbursing such revenues in the public interest: 10 percent for administration of the Office; of the remaining 90 percent, 25 percent is to be paid to the stool; 20 percent to the traditional authority; and, 55 percent to the District Assembly in the area where the stool lands are situated. The administrator and Regional Lands Commission are further charged with working with relevant agencies, traditional authorities, and stools in preparing a policy framework for developing stool lands. Under the Constitution, there can be no disposition or development of stool land unless the Regional Commission has certified that such is consistent with the development plan approved by the local planning authority. The Local Government Act of 1993 further stipulates that all development requires planning permission and development permits from the District, and for urban areas, from the Metropolitan Assemblies.

According to the State Lands Act, 1962, any land--stool, family, private--may be compulsorily acquired in the public interest subject to lump sum compensation being determined and processed by the Land Valuation Board. Conflicts over claims of interest or compensation are to be taken to the State Lands Tribunal, appealable to the Court of Appeal. Under the Administration of Lands Act, 1962, the president may authorize occupation and use of any stool land for the public welfare.³ Other statutes enabling compulsory acquisition include the Lands (Statutory Wayleaves) Act, 1963 (Act 186), under which land is acquired for roads, highways and utilities, and the Public Conveyancing Act, 1965 under which stool land can be declared a "selected area".

Allocations and transfers of public land are handled differently. Individuals must make an application to the Commission to acquire public land, which must review the application and allocate land according to availability. As public land is usually offered for sale at highly concessionary rates and is scarce, the process favors rent seeking by those with privileged access to information, knowledge of government procedures, or influence. Ground rents comparable to those on stool lands are assessed. In addition, if government has improved the land through provision of utilities or roads, then the acquirer must pay for the improvements.

³ The stool's interest is not extinguished in either case, making compensation unnecessary. However, any revenues collected by the state is to be paid to the stool lands account.

4.3. Research methodology

Village case studies using focus-group methods and triangulation were administered to three principal groups—chiefs or village council, Queen Mothers and women's group(s), and male youth group(s)—in three community sites. A statistical land market survey was also administered to 345 households that either acquired land or were indigenous groups affected by those transfers. Based on reconnaissance visits in 1993-94, five stylized land market situations were observed. **Type 1:** land transactions generally take place expeditiously and without serious disputes, and proceeds from land sales are broadly distributed within the stool. **Type 2:** proceeds from land sales largely benefit the chief or other land holding groups within the community. **Type 3:** customary systems are under stress, manifested by serious disputes between neighboring stools or families. **Type 4:** government compulsory acquires stool or family land without compensation. **Type 5:** Community lands are registered, and government plays a positive role in protecting the land rights of its citizens.

Three research sites selected for the village case studies reflect these typologies to various degrees. **Gbawe** (T1, T3, and T5), an old farming village situated some 10 kilometers west and inland from Accra in Greater Accra Region represents the customary tenure system at its best. Once a small village, it has become engulfed by residential settlement moving outward from Accra city. Unlike some chiefs in Accra, receipts from land sales are widely distributed within the community. **Amasaman**, a medium sized village located about 7 miles north of Gbawe is a commercial pineapple growing area with nascent residential development. In **Ofankor** (T2 and T4) village, located north of Accra, government has compulsarily acquired nearly all of the community's land. **Ashongmang** (T1, T4, and T5), in the Atomic Energy residential area north of Accra, is also the site of a tacit dispute between the chief and government. Structured informal interviews were administered to each of the three target groups, focusing on nine areas of inquiry: settlement history, land use, land markets, land conflicts, economic livelihood, trends, land administration, local finance, and attitudes on public policy

The land market survey in figure 4.1 was also administered in Gbawe along with two additional sites. **Kasua** village, located roughly 14 miles due west of Accra city in Central Region, is experiencing rapid development with increasing competition between agricultural, residential, and commercial uses. **Asabaham**, a small village 4 miles north of Kasua marks the beginning of the agricultural belt. **Aburi** is situated about 22 miles from Accra city in Eastern Region. Unlike Gbawe and Kasua where the chief is the central authority, in Eastern Region the tenure system is largely decentralized under families. The land market in Aburi has been highly speculative driven by land buyers from Accra. The six mile stretch between Aburi and Nsabaa is bordered by pineapple production rising from the valley floor to the top of steeply sloped hillsides. Two household populations were randomly surveyed—individuals having recently (past 5 years) acquired land in Gbawe, Kasua, and Aburi, and indigenous households at risk of losing land from those acquisitions in neighboring Amasaman, Asabaham, and Nsabaa, respectively.

4.4 Gbawe

Hunters in the 15th century claimed some 10,000 acres including present day Gbawe. The core of the old village still exists, but the mud traditional housing has now become surrounded by cement block and landcrete homes of modern design. The dramatic decline in rainfall in the 1970s sharply increased

Figure 4.1:
Sampling Design, Land Market Survey, Ghana

	Gbawe	Kasua	Aburi	Total
Acquirer sample	80	80	80	240
Indigenous community sample:				
Amasamam	35			35
Asabaham		35		35
Nsabaa			35	35
Total households	115	115	115	345

the number of migrants moving into the area from the country's interior and decreased earnings from farming. Around 20 years ago, a rapid transition began, involving the conversion of farm land into residential and commercial uses, and migrants and people from Accra acquiring property in Gbawe. Stone mining in the town quarry is the primary mode of employment for which the chief grants work permits. Of the 800 or so able bodied workers in the community, perhaps 200 do regular quarry work. Unemployment among the youth is as high as 80 percent. Others find employment as drivers, masons, carpenters, and general laborers in the construction industry.

Boundaries of stool lands are recognized by natural land marks—trees, hills, streams, and stones—some of which have become destroyed by development. For an outsider to acquire land, procedures in Gbawe are indicative. A fee is paid to the stool when informing of one's interest to acquire stool land. Stool authorities then direct the acquirer to individuals with available land. Once a plot is located, a drinks payment is negotiated. A 70x100 foot residential plot normally costs ₵500,000 (\$1.00=₵930 in 1994), but could reach as high as ₵2.0 million for prime land well situated for business development. Another ₵75,000 is then normally paid for legal documents and a formal site plan. Land sales amount to as much as ₵4–₵6 million in some years. Citizens are also required to pay annual ground rents. While constitutional provisions stipulate that a percentage of ground rent collections are to be returned to the stool, no reimbursements have been received for several years. Land is sometimes allocated to a business at a discount in exchange for commitments to hire community workers or make improvements. Land is sold for a particular purpose. Anyone wanting to change that designated purpose must petition the Chief and perhaps pay a fee. Violators are called before the stool and may be fined. The most serious crimes are dealt with by banishment, but covenants are rarely broken.

Land conflicts are rare among families within the stool. However, disputes are common between Gbawe and neighboring stools. Of the 9,836 acres originally comprising Gbawe, only 4,918 acres remain, the rest being lost through litigation or encroachment. Land sales receipts are used to pay for roads, drains, schools, and clinics, but also to cover litigation costs. Fighting the claims of outside interests has involved considerable expenditure. According to the Gbawe Land Allocation Committee, the community spent ₵20 million to ₵30 million in fees, remuneration and favours to lawyers, judges, surveyors, planners, court clerks, and bailiffs in one suit. In addition, well over 50 building plots had to be given in lieu of monetary payments. Sacrifices to the gods and ancestors, transportation, and payments to witnesses were also said to be substantial.

Every family who loses land as a result of alienations or development is allocated new land by the chief from a special reserve after making a token payment in addition to possible fees for the indenture and site plan. A large tract near the present village has been reserved for modern residential construction, with plots allocated to every resident family in the community. The stool pays for most infrastructure development, including electricity, latrines, piped water, schools, clinics, public bathrooms, showers, a football park, and a petrol station. Funds come primarily from payments made by land acquirers to the stool. While revenue sharing from the stool accounts should help with such improvements as well, no payments have been received. Income from land sales generally flows to the men. However, women were well informed about the sums involved, and did not feel alienated from the benefits. Funds accumulated by the stool in the course of land transactions are regularly allocated to various women's committees upon application for specific projects.

Women as well as men are actively involved in nearly all aspects of land administration. They regularly attend court hearings in Accra on important land disputes. They are vigilant as they pass through their lands, identifying encroachments and planting white flags to inform encroachers they must contact local authorities or face eviction. Young men in the community also form vigilante patrols to assure that rules are obeyed and land use is duly registered with the Chief. Unauthorized developments are marked with a flag and, if not regularized, are demolished. Relations are cordial with the Lands Commission, Town and Country Planning Department, Survey Department, Land Title Registry, and even the District Assembly, despite funds not being paid from the stool account. Gbawe's remaining lands have now been registered. Every residential acquirer is advised by the chief to obtain a formal lease to protect their rights against outsider claims. All in all, the local government machinery is working well, and to the benefit of all community members. Gbawe stands in stark contrast to Ofankor and Ashongmang where open conflict exists between government and the community.

4.5 Ofankor

Ofankor is one of the traditional *Ga* communities believed to have been founded in the 16th century. Stool land within the community is controlled by five land-owning families under the responsibility of the chief and elders. Land boundaries are identifiable by natural markers, e.g. mountains, valleys and die-hard fire resistant trees like *ntome*. It is customary for the old men to dig a hole along boundaries and bury a bottle of schnapps before planting *ntome*. In case of dispute, the bottle is excavated and exhumed to prove the boundary line. Although families do not know the exact extent of their land area, there is local harmony, facilitated partly by inter-marriages.

Until recently, any individual of age wishing to acquire land simply had to contact the principal land holding families. Marriage was (and still is) the decisive factor in being able to obtain land for a house or to feed the family. Plots were allocated free of charge. Strangers could also acquire land with minimal consideration: a customary drink (i.e. 1 bottle of schnapps) and a token yearly rent termed *adode* of roughly ₵1,000 per acre. For any person presently wishing to acquire a plot upon which to build a house, the terms have drastically changed. Housing plots measuring 100x100 feet are currently being sold by the chief for between ₵500,000 and ₵1,500,000, the price depending on personal relationships, location, and infrastructure.

Land conflicts within the community are rare. There has nonetheless been substantial duress caused by the government's compulsory acquisition of land for residential development, and in turn with outsiders who have benefited from government allocations. By Executive Instrument (EI) 82, 1978, the Government compulsorily acquired about 85 per cent of all Ofankor lands in the public interest. Adding insult to injury, local leaders came to know of the expropriation only when they saw prisoners and others cutting boundary lines in the late 1980s. In 1990, when the affected families first contacted the Lands Commission to state their case, the layout for "Ofankor sector one residential area" had already been completed and the land sold to outsiders. Compensation, assessed to be ₵17,200,000 in 1980 and not less than ₵2 billion in 1994 (after adjusting for inflation), has yet to be paid. Neither has the Administrator of Stool Lands returned to the community its share of ground rents.

Prior to the early 1980s, demand for land was relatively dormant. However, due to immigration in the past 10 years, Ofankor has become a cosmopolitan center with residents from every tribe in Ghana. Land was largely used for subsistence farming and livestock raising. Arable land is now very scarce due to government appropriations, and livestock are a nuisance. Like Gbawe, the mining of soil and gravel has become an important source of income. Men generally seek employment in Accra; women are mainly engaged in quarry work and petty trading. Prior to government's acquisition of land, women were able to obtain work permits to mine stone from the chief. Women who now seek to mine gravel and sand are harassed and sometimes driven away by the police. Quarry workers not from the land-owning families must now pay a customary drink, ₵2,000, and a monthly rent of ₵1,000 per lot.

The effect of the Executive Instrument has been profound: acute land shortage; out-migration by young men and women to Accra and suburbs; a shift in employment toward laborers, artisans, and clerical occupations; and environmental degradation from sand winning and stone quarrying. Serious confrontations have resulted between the land-owning families and the private developers who have acquired Ofankor's land from the Commission. Beneficiaries have tended to be the educated, professionals, businessmen, civil servants, firms, and the well-to-do. Other land uses earmarked by public land administrators for the remainder of the acquired lands further strengthens the argument that the land was expropriated mainly for the welfare of individuals outside of Ofankor community: residential plots, sports complex, quarters for retired army personnel, police depot, timber market, and complementary infrastructure including roads, water, and electricity.

In addition to the upkeep and defense of the stool and the celebration of festivals, revenues from land sales are channeled into general development projects. According to women's groups, however, revenues are not distributed equally among households. Landholding families determine how revenue from the land is utilized, and families have bank accounts into which the revenues are paid. For individuals not belonging to one of the five land holding groups, few benefits are derived from land sales. Most people know and obey traditional land covenants. When infractions occur, violators are asked to appear before the chief and fines may be levied. Persistent violators may be banished, and the police or government officials may be called upon in cases of serious infractions.

The youth led 'Asafo company' is acting as the local law enforcement body against trespassers and encroachers. Their erected white flag denotes a warning sign, whilst a red flag commands that the work stop. The company has effectively confronted and physically harassed developers and officials. The Lands Commission has duly allocated most of these lands to various developers and outsiders. Yet,

neither the government nor the Lands Commission has the administrative machinery nor the power to adequately police the acquired land. Furthermore, the public land acquirers cannot freely develop their lands without atoning fresh tenancy (entailing additional expenses/costs) to the stool or family heads.

Residents would welcome industries, hospitals, and other infrastructure on some of the public land. Most humiliating is government's failure to provide compensation at the same time that land is parceled out to privileged outsiders who then mock the wretched existence of the previous land owners. Despite their unhappiness with the present situation, all groups felt powerless in seeking justice and openly voiced threats of war or of commandos destroying the efforts of developers. Community elders sharply criticized government authority—revenue sharing by the District Assembly has yet to materialize, just compensation for land has not yet been paid, government planning is non-transparent, and there is lack of community involvement in planning efforts. One might expect local authorities to harbor animosity to newcomers. Instead, local authorities feel obliged to make land available to all Ghanians, particularly in cases of humanitarian need, marriages, and the plight of migrants.

4.5 Ashongmang

Ashongmang village was established in the 16th century when the *Ga* people migrated from Egypt through Nigeria. The settlement, an area of some 12,000 acres including *Ga* (Accra) was founded by Odan Nto and his descendants who are now the land holding families of Ashongmang. Since these early migrants were people from many villages, the chief decided to assign each family a piece of land (e.g., Ofankor). All lands formerly claimed by Odan Nto are purely family lands, not stool land. Disputes have arisen in recent years between Ashongmang and surrounding families. Rates of settlement, once fairly stable, have grown dramatically in recent years due to in migration.

Hunting and farming once comprised the main forms of livelihood. Members of the original founding families still rely on farming, although most youth now seek employment in the public sector. Older women tend to seek work in Ashongmang, while the men and the youth migrate out, seeking work in Accra or elsewhere. Residential development now overshadows all other forms of land use, although land is not scarce. Of the present 1,468 acres of land within the boundaries of the stool, only about 800 acres have been developed. Some of the excess has been ear-marked for future development including schools, hospitals and churches. As a result of numerous court cases, the elders engaged The Town and Country Planning Department to formally delineate land. The family head was advised to put in the infrastructure, because lack of such facilities led to uncontrolled development in New Town where facilities such as playground, schools, and open spaces are lacking.

Descendants from Odan Nto's family had free access to land in the past, but a small gratuity was normally paid to the family head out of respect and deference. Strangers in addition were expected to annually pay drink money to the family head. Demand for land by outsiders from Accra has driven up land prices in recent years. Nowadays, members of the family are still requested to pay only drink money for residential land, while strangers, in addition, must pay a purchase fee up to ₵3.5m for a 100x100 foot plot. While strangers are expected to pay more for land, they also are given liberties to formally register the lands they occupy. Women members of a land holding group enjoy the same rights as men. Any woman who wants to acquire land aside from that of her husband or father would undergo the same process of paying drink money, unless a stranger, in which case she is expected to pay for the land.

Land disputes between the community and government has been a major source of friction. The community has yet to receive compensation for the establishment of the Atomic Energy Commission, except for crops planted in the year of acquisition (1977). The family is now planning to take the issue up with government in court. Disputes with other families or stools, having already been resolved in court, are no longer a serious concern. The Odan Nto family is one of two families in Accra that has registered their land. Rarely is encroachment a problem. Anyone caught encroaching is brought before the law. The Lands Commission also helps by directing land seekers away from settled property. With regular site inspection that goes on in the settlements, unlike other places in Accra, the family is able to successfully deter land seekers who do not have the necessary documents.

Proceeds from land sales are used to finance community improvements, including electrification, roads, water, and schools. The beneficiaries see these visible developments and are aware that they are provided from the proceeds of the family lands that are sold. The family has also used some of the proceeds to build houses for family members at Korle Wei as well as paying for the education of their children. Part of the money is also invested in bonds and treasury bills, and some is shared among family members. The family head sees land sales to outsiders as a means to help those in need of land, and to help develop the town, since the community lacks the resources to do it.

Two of the family head's children are responsible for day to day administration of the family's land. They are intimately involved in all aspects of planning with the help of the Town and Country Planning Department to assist with layouts. They also see that developers abide by the building code, ensure all documents are legally acquired, and prevent unauthorized structures and developers from building on the land without the necessary permits, a problem that is not easy to control. In general, the family maintains a good working relationship with the District Assembly, Town and Country Planning Department, the Land Title Registry, and the Lands Commission Secretariat, a situation that has helped control the wanton actions of developers. The family head and elders nonetheless feel cheated when rightful compensation is not paid by government, particularly when they see government allocating it to others for commercial development.

4.6 Land acquirers

Who are the individuals acquiring land in Aburui, Gbawe, and Kasua? As indicated in table 4.1, they are mostly middle aged (some plots acquired years prior to age of respondent at time of survey), male, of Ghanaian nationality, and middle to upper class, as indicated by ownership of cars and televisions, and quality of housing (see table 4.4 for comparable indicators of indigenous community). The group is also well educated with 45 percent of the acquirers having post-secondary or partial university training. Unlike the relatively homogenous ethnic composition of neighboring Amasaman, Asabaham, and Nsabaa, the process of urbanization in the three communities has widened ethnic diversity. The fact that the vast majority of land acquirers were strangers to the chief or family head in the village concerned is further evidence that the land market is not ethnically or family biased within the community. Few of the acquirers had any agricultural land with the exception of Kasua, indicating both their dependency on non-farm employment for livelihood and their principal motif for land ownership—residential use or inheritance, although providing for the future inheritances of children played an important role as well (table 4.2).

Table 4.1:
Land Acquirer's Characteristics, Land Acquirer's Survey, Ghana

	Village			Gender		Overall
	Gbawe	Kasua	Aburi	Male	Female	
Age (%):						
1-25 years	-	5.0	1.3	.5	7.6	2.1
26-35 years	15.0	16.3	11.3	12.2	21.2	14.2
36-45 years	50.0	41.3	42.5	47.3	34.6	44.6
46-55 years	28.8	22.5	32.5	28.7	25.0	27.9
56+ years	5.0	12.5	11.3	9.6	9.6	9.6
Missing	1.2	2.4	1.2	1.7	2.0	1.6
Gender (%):						
Male	77.5	76.2	81.2	n/a	n/a	78.3
Female	22.5	23.8	18.8	n/a	n/a	21.7
Nationality (%):						
Ghanian	98.7	98.7	91.2	95.7	98.1	96.3
Nigerian&Lebanese	1.3	1.3	8.8	4.3	1.9	3.7
Marital status (% hh):						
Married	92.5	90.0	91.3	96.3	73.1	91.3
Widowed	5.0	2.5	5.0	1.1	15.4	4.2
Consumer assets (% hh w/):						
Car	61.3	55.0	60.0	63.3	42.3	58.8
Television	95.0	70.0	80.0	80.9	84.6	81.7
Solid cement walls in house	92.5	67.5	77.5	79.8	76.9	79.2
Hand pump or tap in compound	52.5	52.5	32.5	47.9	38.5	45.8
Highest education completed (%):						
None or other	5.0	33.8	5.1	12.8	21.1	14.6
Partial primary or elementary	13.8	17.6	11.3	12.2	21.1	14.1
Secondary or Vocational technical	33.8	21.3	21.3	23.9	30.8	25.4
Post secondary	11.3	16.3	23.8	17.6	15.4	17.1
Partial or completed university	36.3	8.8	38.8	32.5	11.5	27.9
Koranic	-	2.5	-	1.1	-	.8
Ethnicity (%):						
Akan	36.3	23.8	57.5	38.8	40.4	39.2
Ga	30.0	15.0	11.3	17.0	25.0	18.8
Fanti	8.8	33.8	8.8	17.6	15.4	17.1
Ewe	21.3	10.0	8.8	13.8	11.5	13.3
Other	3.6	17.4	13.6	12.8	7.7	11.6
Relationship to chief in village where plot is acquired (%)						
No acquaintance	72.5	57.5	83.8	72.9	65.4	71.3
Acquaintance or friend	20.0	22.5	6.3	14.9	21.2	16.3
Family or relative	3.8	12.5	5.0	8.0	3.8	7.1
Other	3.7	7.5	4.9	4.2	9.6	5.3
Family has agricultural land (% w/)	-	37.5	5.0	16.0	7.7	11.3

Source: Unpublished data.

Table 4.2:
Land Use Change of Acquired Plot, Land Acquirer's Survey, Ghana

	Village			Gender		Overall
	Gbawe	Kasua	Aburi	Male	Female	
Primary reason for acquiring plot (%):						
Residential or commercial use	78.8	35.0	87.5	66.0	71.1	67.1
Agricultural use	3.8	40.0	2.5	16.0	13.5	15.4
Children or inheritance	13.8	22.5	6.3	14.4	13.5	14.2
Other	3.6	2.5	3.7	3.6	1.9	3.3
Second principal reason:						
Children or inheritance	72.6	31.0	63.0	55.1	61.0	56.5
Residential or commercial use	20.5	36.2	13.0	23.5	24.4	23.7
Investment	1.4	20.7	17.4	13.2	7.3	11.9
Other	5.5	12.1	6.6	8.3	7.3	7.9
Land use before acquired (%):						
Idle	68.8	57.5	46.3	55.9	63.5	57.5
Agricultural	27.6	40.0	51.3	40.9	34.6	39.6
Residential	-	1.3	1.3	1.1	-	.8
Other or unknown	3.6	1.2	1.1	2.1	1.9	2.1
Principal use currently (%)						
Idle	38.8	12.5	57.5	37.2	32.7	36.3
Agricultural	23.8	52.6	27.5	35.6	30.7	34.6
Residential	27.5	28.8	11.3	21.3	26.9	22.5
Other	9.9	6.1	3.7	5.9	9.7	6.6
Plot ever used for collateral (% yes)	1.3	3.8	2.5	2.7	1.9	2.5
Plot or portion ever disposed (% yes)	1.3	5.0	3.8	2.1	7.7	3.3
Plot registered (% yes)	52.5	20.0	90.0	55.3	50.0	54.2
Occupy principal plot acquired (% y)	12.5	60.0	18.8	30.9	28.8	30.4

Source: Unpublished data.

Most land was idle or in agricultural use at the time of acquisition (table 4.2). While the extent of idle land has decreased (58 to 36 percent) following acquisition, a remarkable high percentage of plots nonetheless remains idle. Inter-stool disputes over land as witnessed in Ofankor and Ashongmang communities are a contributing factor, but motive and source of financing probably are more important causes. Acquiring land for children postpones the need to build for immediate residency. Whereas in western mortgage markets which enable consumers to enjoy the comforts of home today with payments amortized into the future, the reliance on personal savings for land purchase and building development creates the need to stagger improvements (first land, then walls, a roof, utilities, finishing work, and household furnishings phased over years) in line with personal savings growth. Consequently, only about one-third of households occupied the principal plot acquired (table 4.1).

The vast majority of plots were acquired by purchase (moreso in Aburi where families control the land) and allocation by the chief (table 4.3). A chief or sub-chief was involved in the majority of transactions,

Table 4.3:
Characteristics of Land Transaction, Principal Acquired Plot, Land Acquirer's Survey, Ghana

	Village			Gender		Overall
	Gbawe	Kasua	Aburi	Male	Female	
Principal Mode of Acquisition (%):						
Purchase	10.0	42.5	88.8	48.9	40.4	47.1
Allocation by chief	85.0	33.8	2.5	41.0	38.5	40.4
Rental	1.3	12.5	1.3	5.3	3.8	5.0
Other	3.7	12.5	7.4	4.8	17.3	7.5
Date of Acquisition (%):						
1990 and before	24.9	51.1	19.9	32.4	30.8	32.0
1991	16.3	16.3	30.0	21.8	17.3	20.8
1992	30.0	26.3	15.0	22.3	28.8	23.8
1993	18.8	5.0	26.3	17.6	13.5	16.7
1994	10.0	1.3	8.8	5.9	9.6	6.7
Acquired from (%):						
Chief or sub-chief	96.3	80.0	47.5	75.0	73.1	74.6
Family head	2.5	5.0	46.3	18.6	15.4	17.9
Government	-	1.3	-	-	1.9	4
Other	1.2	13.7	6.2	6.4	9.6	7.1
Person initiating transaction (%):						
Land acquirer	62.5	85.0	86.3	79.3	73.1	77.9
Chief's surveyor	32.5	7.5	-	12.8	15.4	13.3
Seller	-	1.3	7.5	2.7	3.8	2.9
Other	5.0	6.2	6.2	5.2	7.7	5.9
How came to contact the seller (%):						
Introduced by friend or relative	85.0	41.3	61.3	63.8	57.7	62.5
Personal contacts	8.8	16.3	27.5	16.0	23.1	17.5
Introduced by chief's agent	1.3	20.0	3.8	9.0	5.8	8.3
Contacted chief in home village	-	15.0	2.5	5.9	5.8	5.8
Other	4.9	7.4	4.9	5.3	7.6	5.9
Interval elapsed (days) b'ween date of first contact and final sale						
	36.9	31.9	35.0	34.7	34.2	34.6
Amount paid:						
Cash	602,150	408,506	781,820	660,855	368,410	597,492
In-kind goods	72,018	4,202	40,618	42,696	25,389	38,946
Annual rent:						
Required (% yes)	86.3	66.3	1.3	50.0	55.8	51.3
Amount	13,196	8,975	3,000	12,248	8,203	11,295
Term of acquisition (years) ^a						
	93.9	58.3	14.7	54.5	59.8	55.7
Sources of financing (% yes):						
Personal savings	97.5	85.0	96.3	95.7	82.7	92.9
Remittances	-	3.8	5.0	1.6	7.7	2.9
Loan from bank	-	-	3.8	1.6	-	1.3

a. Length of allocation note or term of sale.

Source: Unpublished data.

and family heads to a lesser extent; government acquisitions were insignificant in all study sites. The land acquirer initiated the sale in the majority of cases by contacting the chief or his agent after seeking advice from his or her network of friends, relatives, and personal contacts to decide upon location. However, the effect of chiefs and families seeking to sell land for revenue is also evident in data indicating the chief's surveyor involvement in initiating the transaction, particularly in Gbawe. Sales on averaged were finalized in slightly over one-month, and virtually none of the sales were contested (unreported data). At the time of acquisition, the acquirer receives an allocation note that is kept on file by the chief's administration. Mean terms of 94 years in Gbawe stand markedly in contrast with 15 years in Aburi, the latter hardly sufficient to cover the life span of any building or enterprise. Mean prices paid in table 4.3 are non-inflation adjusted; the lower price data for Kasua reflect earlier acquisition dates, and data for all villages generally substantiate the earlier anecdotal price evidence reported. Problems faced by communities getting their share of ground rent payments from the District Assembly are apparently not caused by landholders not making payments, as over 86 percent of households did so in 1993. Money to purchase land in the vast majority of cases came from personal savings, indicating weak formal and informal credit linkages for mortgages.

4.7 Indigenous community

By comparison, heads of the indigenous sample are elderly, still mostly male and poorly educated (table 4.4). A high frequency of households are headed by divorced, separated, and widowed women, a large number of which have had little or no education even compared with their male counterparts. Over two-thirds of the sample resided in the same location 10 years ago indicating their indigenous status. Despite being separated in location from their land acquirer counterparts by only several miles, their low wealth status indicated by consumer assets held and quality of housing are striking.

The majority of households acquired land from their family heads or chief through allocation or inheritance (table 4.5). In contrast with their land acquirer counterparts, purchases comprised a negligible portion of acquisitions. About 20 percent of households also had land they disposed of in the previous ten years, in the majority of cases because the chief took back the land for new settlers or people outside the village. In one third of the cases alienated, no compensation was received, the remainder receiving cash and/or new land. While the chief may also have been using land sale proceeds to make community level improvements, this fact was not immediately recognized by those individuals having been disposed of land. The rumblings of discontent with the way chiefs are allocating land is also evident in other ways. Over one-third of households in Gbawe reported the ability of the chief to take back land even after the family had constructed buildings. Also one-fourth of all survey households indicated disputes being more serious today despite the benchmark being a period of widespread disputes without neighboring stools or families, and 28 percent indicated chiefs and sub-chiefs as the principal source of conflict, a figure that reached 37 percent in Gbawe. Nevertheless, when the ability to acquire additional land depends on good relations with the chief, households are understandably reticent to contest alienations when they occur.

For those able to purchase land (land acquirers), the land market has enabled land acquisition for residential use or investment, generally at low transaction costs. For residents of the indigenous community, their future status is more questionable. Quality of life within the village may improve, but only if the chief is willing to use proceeds for community improvements. Households may experience only private gain or loss depending on compensation. The social costs, however, are significant. As

Table 4.4:
Household Characteristics, Indigenous Community Survey, Ghana

	Village			Gender		Overall
	Gbawe	Kasua	Aburi	Male	Female	
Age of h'hold head:						
16-25 years	-	2.9	-	1.4	-	1.0
26-35 years	2.9	8.6	-	4.3	2.9	3.8
36-45 years	20.0	22.9	25.7	28.6	11.4	22.9
46-55 years	14.3	8.6	14.3	12.9	11.4	12.4
56+ years	62.8	57.0	60.0	52.8	74.3	59.9
Gender of h'hold head (%):						
Male	77.1	62.9	60.0	n/a	n/a	66.7
Female	22.9	37.1	40.0	n/a	n/a	33.3
Marital status:						
Married	65.7	68.5	71.5	90.1	25.7	68.5
Single	-	8.6	-	1.4	5.7	2.9
Divorced or separated	2.9	2.9	11.4	2.8	11.5	5.7
Widowed	31.4	20.0	17.1	5.7	57.1	22.9
Consumer assets (% w/):						
Car	20.0	31.4	11.4	31.4	-	21.0
Television	37.1	28.6	42.9	47.1	14.3	36.2
Solid cement walls in house	22.9	34.3	45.7	40.0	22.9	34.3
Hand pump or tap in compound	2.9	-	8.6	2.9	5.7	3.8
Education (%):						
None	62.7	54.3	54.2	42.8	85.7	57.0
Partial primary or elementary	31.5	40.0	34.3	45.7	14.3	35.3
Secondary or Vocational technical	2.9	5.7	5.7	7.2	-	4.8
Post secondary	2.9	-	2.9	2.9	-	1.9
Partial or completed university	-	-	2.9	1.4	-	1.0
Other including Koranic						
Ethnicity (%):						
Akan	-	2.9	94.3	30.0	37.1	32.4
Ga	100.0	2.9	-	40.0	22.9	34.3
Fanti	-	80.0	-	25.7	28.6	26.7
Ewe	-	2.9	-	1.4	-	1.0
Other	-	11.3	5.7	2.9	11.4	5.7
Mean farm size (hectares):	.22	11.82	10.08	9.15	3.83	7.37
Lived elsewhere in previous 10 years (% yes)	14.3	37.1	37.1	30.0	28.6	29.5

Source: Unpublished data.

Table 4.5:
Land Market Characteristics, Indigenous Community Survey, Ghana

	Village			Gender		Overall
	Gbawe	Kasua	Aburi	Male	Female	
Principal Mode of Acquisition (%):						
Allocation	47.5	53.5	12.0	36.5	40.0	37.7
Inheritance	24.6	37.2	44.0	32.7	38.0	34.4
Occupied uncultivated land	26.2	-	-	14.4	2.0	10.4
Gift	-	2.3	14.0	4.8	6.0	5.2
Borrowed	-	-	14.0	5.8	2.0	4.5
Other ^a	1.7	7.0	16.0	5.8	12.0	7.8
Acquired from (%):						
Family head	24.6	55.8	56.0	41.3	48.0	43.5
Chief or sub-chief	70.5	34.9	8.0	40.4	40.0	40.3
Other ^b	4.9	9.3	36.0	18.3	12.0	16.2
Land disposition in past 10 yrs (% hh)^c	34.3	11.4	14.3	24.3	11.4	20.0
Reason for disposition:						
Land taken back by chief	92.3	20.0	20.0	64.7	50.0	60.9
Other ^d	7.7	80.0	80.0	35.3	50.0	39.1
Land alienated to new settler or person outside the village (% plots alienated)	53.9	80.0	60.0	58.8	66.7	60.9
Compensation received (% yes):						
Cash	15.4	60.0	60.0	29.4	50.0	34.8
New land	38.5	-	20.0	29.4	16.7	26.1
None	46.2	40.0	20.0	42.2	33.3	39.1
Indirect benefits from land disposition:						
None or unsure	61.5	60.0	100.0	70.6	50.0	65.2
Better schools, clinics and latrines	-	40.0	-	11.8	-	8.7
Better roads and utilities	46.2	-	-	17.6	50.0	26.1
Disputes over land ownership more severe than 10 years ago (% hh)	17.1	-	60.0	28.6	20.0	25.7
Chief can repossess land after holder has constructed buildings (% yes):	37.1	-	-			12.4
Principal cause of ownership conflicts:						
Chiefs or subchiefs	37.1	8.6	37.1	30.0	22.9	27.6
Outsiders	20.0	-	-	5.7	8.6	6.7
Best means of acquiring new land:						
Allocation from chief	60.0	85.7	8.6	45.7	62.9	51.4
Borrow or rent	8.6	2.9	48.6	22.9	14.3	20.0
Purchase	22.9	5.8	11.4	17.1	5.8	13.3
Other	8.5	5.6	31.4	14.3	17.0	15.3

a. Includes purchase, rental, pledging, and other. b. Includes other household members, new settlers, other villagers, and families in other villages. c. Any land previously held by any household member in past 10 years that is no longer held? d. Including land sold, exchanged, given away or bequeathed.

Source: Unpublished data.

Table 4.6:
Changes in Past Decade, Indigenous Community Survey, Ghana

	Village			Gender		Overall
	Gbawe	Kasua	Aburi	Male	Female	
Land held by indigenous community is smaller or much smaller ^c	51.5	54.3	85.7	67.2	57.1	63.9
Greater difficulty in gaining access to land: ^{a, b}						
Male adults	91.5	-	45.7	51.4	34.3	45.8
Female adults	100.0	-	42.8	54.3	34.3	47.7
Young men	100.0	-	74.3	64.3	45.7	58.1
Young women	100.0	-	71.4	64.2	42.9	57.1
Agriculture is no longer profitable for children (much or very much so)	94.2	34.3	82.9	74.2	62.9	70.5
Children are much or very much moving out of the village to the city ^d	94.3	14.3	82.8	64.2	62.9	63.8
Greater (much or very much) tendency for unemployment: ^f						
Male adults	85.7	17.2	42.9	55.7	34.3	48.6
Female adults	85.7	31.4	42.9	61.4	37.2	53.3
Young men	57.1	20.0	91.4	52.9	62.8	56.2
Young women	60.0	20.0	82.8	51.4	60.0	54.2

a. Similar results for female adults. b. Similar results for young women. c. Versus "same", "greater" or "much greater."
d. Versus "not really" or "no." e. Versus "about the same" or "easier." f. Versus "same", "less" or "much less."

Source: Unpublished data.

indicated in table 4.6, the future land endowment of all three indigenous communities is shrinking, access to land is more difficult particularly for the youth, agricultural earnings are failing to keep pace with urban opportunities, children are leaving the village for work in the city, but employment opportunities are outpacing labor supply resulting in rising unemployment.

The data suggest a segmented land market, one involving commercial transactions to land acquirers typically outside the community, the other administrative allocations to community residents. Aside from gifts to strangers, which families would discourage because of lost sale revenue, there does not appear to much difference between the two samples in terms of the various land rights specified (table 4.7). The land market is thus enabling urban growth and relatively robust land rights or interests in land. On the darker side, the land market can only be expected to benefit exit households if adequate compensation is paid, and households have the necessary skills to enter urban employment. The dependency of households on quarry work and reports of high unemployment raise serious doubts about the validity of these assumptions.

Table 4.7:
Market Evolution, Land Acquirer's Survey, Ghana

Rights held (yes) ^a	Village			Gender		Overall
	Gbawe	Kasua	Aburi	Male	Female	
Land acquirer's sample:						
Plant fruit trees	90.1	93.8	97.5	93.6	94.1	93.8
Build	95.0	85.0	97.5	92.0	94.3	92.5
Bequeath	95.1	80.0	97.5	91.0	90.4	90.8
Rent-out	95.1	83.8	97.5	91.5	94.2	92.1
Sell	91.3	70.1	97.5	86.7	84.6	86.3
Gift to a stranger						
Indigenous community sample:						
Plant fruit or field trees	98.2	93.0	71.4	88.0	87.8	87.9
Build	98.2	93.0	69.4	83.0	85.7	85.2
Bequeath	98.2	93.0	63.3	81.0	87.8	85.2
Rent-out plot	98.2	93.0	67.3	87.0	85.7	86.6
Sell	94.7	79.1	63.3	78.0	77.6	79.9
Gift to a stranger	94.7	62.8	32.7	68.0	59.2	65.1

a. With or without authorization.

Source: Unpublished data.

4.8 Concluding comments

All communities in the study have experienced severe conflicts with neighboring families under various forms of customary tenure. While a good case can be made for a strong and effective authority to adjudicate and record land rights, and provide for compensation, the experience has been mixed. Court systems have served the public interest well in resolving conflicts, sometimes despite severe limitations in the law. In Gbawe, where land rights have been assured through land registration, the relationship between local authorities and government is good, and government has intervened on a number of occasions to protect the land rights of Gbawe's citizenry. However, strong complaints against government actions were voiced in all three communities—government expropriation of land, lack of compensation, failure to return the designated share of ground rents back to the stool and community, subsidized sales of land to outsiders, high transactions costs to convey or register property, or failure to adequately resolve land conflicts between stools. Restrictions that call for the concurrence of the Lands Commission and related departments in transferring land and ensuring that its use complies with an authorized development plans belie their capacity to effectively enforce the law given their highly centralized management, shortages of skilled personnel, and limited supplies and budgets. Finally, one might expect that government's reallocation of community lands might create animosity towards outsiders moving into the community. Surprisingly, there appears to be relatively little resentment harbored. All three communities welcome land sales to help fund community improvements and to cover litigation costs against rival claims. The far more difficult problem is the decline in welfare of those individuals that as members of non-founding families receive no monetary benefit and, without human capital, find themselves disadvantaged in selling skills in the market place.

V. CROSS COUNTRY SYNTHESIS

5.1 Urbanization

High natural birth rates and in migration are stoking urban population growth worldwide with the strongest future trends projected for sub-Saharan Africa. Levels of urbanization for the three countries in this study (1993: 24 to 35 percent) are comparable with Sub-Saharan Africa and East Asia (table 5.1). Whether social and physical infrastructure and employment opportunities can expand to meet the rising demand for food, housing, health, education, and urban infrastructure associated with this population swell will mean the difference between economic development or decline for a significant and fastest growing segment of the population.

All three study economies experienced rapid urban population growth in the 1980s, particularly Mozambique, as a result of people fleeing civil war in the countryside and, in The Gambia, people seeking employment and housing or fleeing drought and agrarian decline upriver. Rates of urbanization are very similar between Sub-Saharan Africa and East Asia. However, lacking the extensive irrigation of East Asia, the greater probability is that Africa will follow the trajectory of Latin America with rates of urbanization approaching 70 percent in the distant future. The implications would be enormous: high sustained growth of urban perimeters; demand outpacing urban planning and supply of roads, water, and basic infrastructure and services; and without expanding urban employment opportunities—high unemployment, crime, and urban squalor.

While the rate of change is subject to question, urbanization will continue to grow as it has worldwide since 1970. Research findings support the conclusions of the West African Long-Term Perspective Study (WALPS). Population demographics are shifting to urban and coastal areas of Africa, and with that shift will come the need for increased focus of resources on commercial and industrial development, poverty, food insecurity, unemployment, and human development in urban and peri-urban areas. It may well prove to be the case that donors will have little recourse but to shift funding away from food production and the environment to health, population, food assistance programs, and employment growth in urban and peri-urban areas in line with these population trends. This does not mean that rural food security and environmental problems have been dealt with satisfactorily; they have not. Rather, the twin juggernauts of urbanization and migration will continue to create powerful consumer groups calling for more affordable housing, health care, and jobs. It is not clear that interests pressing for relief from landlessness and environmental degradation will prevail in the battle for scarce public resources.

5.2 Peri-urban definition

Settling on a mutually agreeable definition of peri-urban has eluded this research since 1989 when the first workshop on peri-urban methodology was held (Roth 1989). The notion of a perimeter or concentric band of mixed agriculture, industry, and dispersed housing at the edge of an urban metropolis is easy to conceptualize. Targeting these areas is far more difficult from a research and policy standpoint, because land use and population are so dynamic; rural and peri-urban populations today quickly become the peri-urban and urban populations of tomorrow. When urban perimeters are pushing outward at rates of several kilometers per year as is the case in Accra, research sites are quickly engulfed by the wave of urban growth. Alternatively, in Mozambique, the green zones because

Table 5.1:
Urban Demographic Trends

	Total Population		Urban Population as Percentage of Total		Average Annual Growth in Urban Population	
	1993 Size (millions)	Avg. annual Growth Rate (% 1980-93)	1970 (%)	1993 (%)	1970-80 (%)	1980-93 (%)
Mozambique	15	1.7	6	31	10.8	8.4
The Gambia	1	3.7	15	24	5.2	6.0
Ghana	16	3.3	29	35	2.9	4.2
Sub-Saharan Africa	559	2.9	19	30	4.8	4.8
Latin America and Carib.	465	2.0	57	71	3.6	2.7
East Asia and Pacific	1,714	1.5	19	31	3.4	4.2

Source: World Bank Development Report, 1995.

Table 5.2:
Components of GDP and Growth Rates

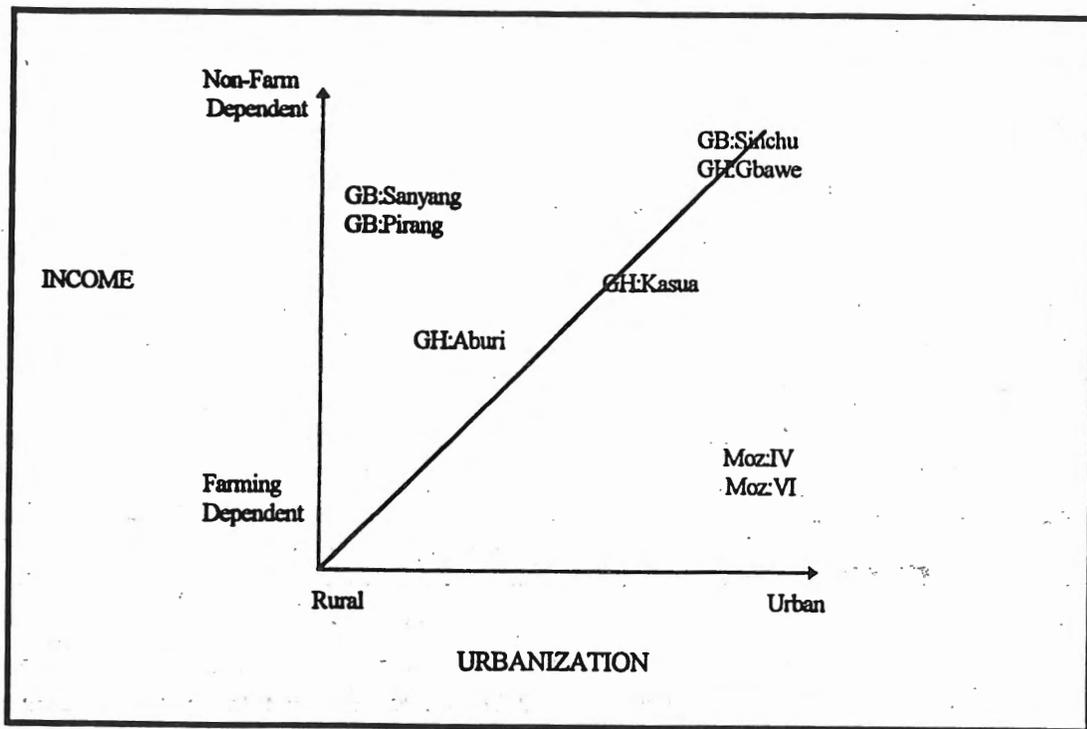
	GDP/Capita (%)	Agriculture (%)	Industry (%)	Manufacturing ^a (%)	Services, etc. (%)
1993 Levels (GDP/capita, %):					
Mozambique	90	33	12	-	55
The Gambia	350	28	15	7	58
Ghana	430	48	16	8	36
Sub-Saharan Africa	520	20	33	16	47
Latin America and Carib.	2,950	-	-	-	-
East Asia and Pacific	820	17	41	30	41
Growth Rates (1980-93, %)					
Mozambique	-1.5	1.4	-4.4	-	3.4
The Gambia	-0.2	0.8	5.5	-	3.0
Ghana	0.1	1.3	4.2	4.1	6.8
Sub-Saharan Africa	-0.8	1.7	0.9	0.9	2.2
Latin America and Carib.	-0.1	2.1	1.4	0.8	2.4
East Asia and Pacific	6.4	4.0	10.0	10.6	8.2

a. Manufacturing, usually the most dynamic component of the industrial sector, is shown separately.

Source: World Bank Development Report, 1995.

of their wetlands ecosystem have survived, but only temporarily, despite becoming surrounded by residential growth. In the case of Sanyang and Pirang villages (25 kilometers from Banjul) in The Gambia, in every way they appear rural in physical character, yet non-farm earnings represent 90 percent of household income and a high proportion of young males live and work in the city. The urban tentacles of remittances, migration, and non-farm earnings are affecting the household economy far into the countryside. Determining where peri-urban begins and ends is difficult, but far less important than is

Figure 5.1:
Relationship between Urbanization and Non-Farm Income



the recognition that urbanization is deeply affecting employment, food security, and economic development in areas far beyond the boundaries of the metropolis.

5.3 Settlement

Population resettlement and migration are the engines driving change in household structure, resource access, markets, and productive and reproductive strategies in the three peri-urban economies studied. As a result of migration and war in Mozambique, a significant percentage of households are headed by women with widowed, divorced, or separated marital status, the poorest segment in society. Land allocation by the paramount chief in the late 19th through the mid 20th century established the founding families that control land holdings in the peri-urban areas of The Gambia presently. Migration from Egypt through Nigeria in the 16th century helped establish present day stools and families in the peri-urban areas of Accra. Settlement history and chance for many of these populations have been the decisive factors separating fortune from poverty.

Peri-urban areas are the landing or convergence zones where those of divergent wellbeing assemble as result of "inner-cities-out" and "rural-areas-in" migration. In Mozambique, population moved outward from the inner cities to the suburbs following independence to escape economic decline and to resettle abandoned Portuguese estates. Similar outward migration was observed in The Gambia and Ghana to escape the high costs of city living, to obtain land for a residence, and to provide for children's inheritance. In-migration from the countryside to peri-urban areas is also playing an important role in

the peri-urban dynamic, but with different economic and social consequences. In Mozambique, great numbers of migrants fleeing civil war invaded Maputo causing widespread squatting and land conflict. Youth fleeing economic decline in the rural areas in search of better jobs and life in The Gambia and Ghana are more subtle examples of the ruralization taking place on the urban periphery. Sinchu village on the urban fringe of Banjul demonstrated much poorer education and language skills than their counterparts in more stable but peri-rural Pirang and Sanyang. Resettlement patterns in Accra were not as crystallized as migrants tend to be swallowed by Accra's massive size. Nonetheless, for indigenous communities affected by immigration, households find themselves squeezed by a declining land base to support agriculture, and lack of necessary skills to move into remunerative non-farm employment.

Household economic profiles and demographic structure tend to defy generalization at least in early stages of peri-urban development. Younger to middle-aged families with money and jobs from the inner city may move outward to establish a home among indigenous elderly families who are seeing their children move elsewhere in search of employment opportunities. Modern, sometimes extravagant, housing is found dispersed amidst mud compounds. Wealthy families may live temporarily adjacent to those in abject poverty. Professionals may come to live adjacent to agricultural laborers. Land markets and urbanization tend to widen the ethnic diversity of settlement patterns. Income distribution tends to once again narrow as the peri-urban dynamic moves outward carrying along with it those individuals who were unable to succeed in employment or those seeking yet more affordable housing. Sometimes, zones of dispersed residential settlement may reach many kilometers outward from the city as in the case of The Gambia in which case the peri-urban dynamic may take decades to evolve. Conversely, in Mozambique, for reasons of security, the peri-urban band is much tighter and is shifting more rapidly into urban settlement.

5.4 Employment markets

The dependency of most study villages on non-farm employment notwithstanding, economic growth in Africa has taken a different course than the rapid industrial and manufacturing growth characteristic of East Asian economies (table 5.2). Compared with East Asia and the Pacific, the composition of economies in Sub-Saharan Africa tend to be more heavily weighted toward agriculture and service sectors with a noticeable under weighting in manufacturing. Reliable comparative data on rates of unemployment could not be located, but the high rates of under- or unemployment observed in all three peri-urban economies probably represent another significant difference. Growth rates in GDP and by sector were not greatly different between Sub-Saharan Africa and Latin America between 1980-93, but both sets of growth rates fell short of the rapid growth in East Asia, particularly in the manufacturing and service sectors.

Depending on the location of the peri-urban village concerned, principal sources of livelihood included farming, artisan work (carpentry, brick laying), building construction, taxi cab driving, rock quarrying, teaching, petty trading, commerce and trade, contract work, general labor, and civil service employment, among others. With the exception of Ghana, men tend to hold wage- or salaried jobs, while women tend to be engaged in self-employment, particular low-productivity petty trading. Pay scales tend to be substantially lower for women than men in most sectors, but too few degrees of freedom precluded correlating wages with skills differences. The far stronger bias occurred when

women were relegated to self-employment activities (petty trading) with low earnings potential, or lack of access to wage employment which offers year-round employment opportunities and non-monetary benefits such as health care, pension benefits, and food and transportation subsidies. Women-headed households, as the primary bread-earner and care provider for children, tend to be most disadvantaged in this regard.

Market segmentation also alters the labor force composition of peri-urban households. Such villages as Pirang and Sanyang in peri-rural areas of The Gambia have experienced a shift in the age-gender composition of the household toward women and the elderly, as young men (and young women to a lesser extent) leave for work in the city. The age composition of indigenous households in peri-urban Accra exhibits similar bi-polarization. Hence, despite growing land scarcity resulting from farm land conversion, nearly two-thirds of households in Kasua (Ghana) reported land becoming easier to obtain over the past decade despite the total land area available to indigenous households shrinking. The loss of young workers in the household can thus create the anomaly of rising land/worker ratios and labor scarcity at the same time that farm size is declining. Households are also confronted with need for rising labor productivity to keep pace with urban inflation and a widening urban-rural wage gap while simultaneously losing the most productive members of the household.

5.5 Land markets

Prevailing methods for acquiring land varied widely among the three study countries. In Maputo, administrative allocations by city or local authorities tended to predominate. Founding families in The Gambia tended to pass land through inheritance and gift, while non-founding families tended to borrow or request allocations from the chief or founding families. The same process of gifts, borrowings, and allocations from stools and families is present in Accra, but only on land held in reserve by the chief, and for his subjects. For land outside this rapidly shrinking area, the land market has all but become fully commercialized, despite legal restrictions on land sales. Even in Mozambique, land rentals and purchases are becoming more established, and when asked how they might acquire additional land, a significant proportion of men cited commercial sales and rentals as the most likely source, while women tended to emphasize administrative allocations. Long-standing families within the community are an exception; having become accustomed to administrative allocations of the chief, many look to the continuance of those allocations in the future. Customary allocations are clearly waning or beginning to wane in all the peri-urban areas with a number of consequences: growing individualization of rights, alienation of land from the community, widening ethnic diversity of communities, and rising land value.

The verdict is out whether a decline in power of traditional authorities will accompany the individualization in the land market. In Mozambique, traditional authorities have long ago had any responsibility usurped, first by colonization and later by official authority. In The Gambia, some chiefs and founding families are clearly selling off land, others are encouraging buyers and subjects to register land in their own names to guard against encroachment by the next chief or surrounding stools, and still others zealously assert their ownership rights. The case of Ghana is exemplary in two ways: first, in how customary traditions have been incorporated into the prevailing body of statutory law and land

administration, and, secondly, in the extent to which chiefs have used the land market to attract outsiders with capital and using land sales receipts for community improvements.

One might conclude that the customary land market is working well. Customary allocations in adapting to growing land scarcity are converting to rentals and sales. Land prices are rising to reflect scarcity value. Migrants from the countryside are able to acquire land near the city. Inner city residents are moving outward to communities without hindrances tied to family or ethnic status. However, other phenomena are undercutting this land market utopia. In Mozambique, smallholders are banding together in producers associations in an attempt to guard against repossessions, overlapping allocations, and the threat of outsiders grabbing land. Such problems might be explained away by the dysfunctional system of public land administration there, but in The Gambia and Ghana many problems arise from inherent inadequacies in the customary system itself. It is certain chiefs in The Gambia that are expropriating land from long-term borrowers to resell land to new settlers. The same sales are occurring in Ghana along with substantial resources being spent on litigation fighting the claims of rival stools. When disputes were cited as a problem, landholders in both Accra and Banjul tended to point to either chiefs or outsiders as the main culprits. Unfortunately, for many indigenous communities, chiefs and an inner circle of families are selling land to enhance their own well-being, threatening the welfare of both borrowing families and indigenous communities. As a smallholder who has borrowed land for years, one is never sure whether those rights will prevail or, in the process of migrants or outsiders moving into the community, whether the chief will demand the return of land or whether compensation will be paid. For many, lack of human capital will constrain their ability to seek well-paid jobs in the non-farm sector if land should be lost, further heightening their employment uncertainty.

5.6 Land administration

It is thus no surprise that individuals in all peri-urban sites tended to praise the benefits of registration in securing one's rights to land, in increasing investment incentives, in increasing access to capital, and in preventing fraudulent transactions. However, these claims stand markedly in contrast to the restrictive statutory tenure and poor functioning of official land administration that existed in all sites. In Mozambique, the land code prohibits most forms of land transfers, while the cumbersome surveying and registration system makes permanent title almost impossible to obtain. Moreover, the state generally and the DCU in particular have seriously undermined tenure security through compulsory acquisitions and title assignments. Official land allocations in The Gambia were not a problem in the areas associated with this field research, but it is widespread knowledge that government land allocations to civil servants and privileged interests was a contributing factor behind the military overthrow in 1993. Even in Ghana, while certain communities (Gbawe) have welcomed government planners, surveyors, and registration, compulsory acquisitions without compensation by the state have robbed other communities (Ofankor) of their land assets.

In peri-urban areas generally, there is no longer an alternative to central state authority in matters of recording and securing land rights, in land use planning, and in zoning regulations. Clearly evident in these case studies is the dire need for a more democratic and effective government. Participatory government and upgrading land administration capacity will be the two biggest land market challenges in the coming decades. The Ghana model of integrating customary tenure into the statutory system

points the direction toward which future reforms will need to head. But resources are key; if resource rich economies like Accra are experiencing difficulty, it is difficult imagining the Maputo's or Banjul's of Africa making the substantial reforms and investments needed based on scarce public budgets.

5.7 Land rights

Generalizations about land rights in the three communities are difficult. Usufructory land rights were most robust in Ghana, weaker in The Gambia, and highly restricted in Mozambique. The ability to sell or alienate land from the community (and to a lesser extent invest in buildings) was restricted in all study sites. While the need for land use zoning increases in any urban setting, the data indicate a remarkably high level of authorizations from household and compound heads, chiefs, family heads, and government. Registration of orchards in The Gambia conferred a complete set of land rights. However, in Mozambique, registered landholders reported more limited rights of transfer than those households without title due to their greater exposure to legal restrictions. Several groups in particular face limited access to land rights generally and transfer rights in particular: land borrowers (mainly women) and non-founding families in The Gambia; and female-headed households in Mozambique. However, in Accra, a high degree of individualization has evolved in stool and family land allocations, and without gender biases. Whether this gender neutrality reflects historical factors, changes in attitudes associated with a modern urban economy, or is the consequence of legal interventions is difficult to conclude.

5.8 Capital markets

In none of the peri-urban economies studied did formal credit play a significant role in productive activities. Of 121 households in Maputo, only 21 percent made use of credit facilities in the previous five years. Of all loans mentioned ($n=28$), 21 percent involved credit for non-farm businesses, and 28 percent for farm inputs or productive assets. The remaining loans covered consumer items or social expenses. Households in The Gambia reported a total of 136 credit transactions in the previous year, of which, 52 percent represented osusu (rosca) withdrawals, 43 percent kafo (group lending) loans, 2 percent private loans from friends and family, 2 percent from traders, and 1 percent each from an employer, household member, or bank. The majority of loans and osusu withdrawals were used to fulfill social obligations (46 percent), followed in declining order of importance by other uses, durable goods purchases, home construction, business, farm inputs, equipment, and education. Among the land acquirer sample in Accra, only 6 (four from banks and two from moneylenders) of 222 total plots had ever been pledged as collateral. Credit was acquired for purposes of building a house, a business venture, establishing a farm, or purchasing agricultural inputs or equipment.

Low credit volume is understandable in Mozambique, and perhaps even in The Gambia, where dependency on non-farm income sources and rosocas are substituting for formal banking credit. Peri-urban development in Ghana, however, is remarkable. Households are acquiring land for residential housing, and both land and housing are commanding sizable investment. Restriction on land sales undermine the capacity to mortgage land, even where a strong commercial land market has emerged. Unlike western markets where long-term mortgages provide a key cornerstone of commercial banking, the reliance on personal savings for land purchase and building development creates the need to stagger purchases and improvements in line with personal savings growth, and holdings of multiple properties to accommodate this staggered effect. The sprawl of semi-finished compounds in Ghana and The

Gambia is symptomatic of the weak integration that exists between land and capital markets in all three economies.

5.9 Economic growth and agricultural productivity

Clearly a mosaic of land rights is manifest in peri-urban areas. Those individuals belonging to a landholding group, able to obtain registration (and complete land rights as in The Gambia), or able to purchase land, have, through more robust rights, greater incentive to invest in economic growth than women or borrowing groups who hold fewer rights. Combined with the weak linkage between land and capital markets, a fairly strong anti- or slow-development bias is observed. Lack of secure rights to sell and mortgage property in face of political uncertainty increases the risk of tying up capital in an enterprise that may fail for reasons of wrong location, judgment, political risk, external factors, or fraudulent behavior. Without a legal code that unambiguously defines and broadens rights with the full backing of government, it is difficult to imagine a robust domestic capital market for manufacturing and industry emerging. Risks to commercial development are further exemplified by communities destroying property, multiple parties asserting rights of ownership, and land being left idle in Accra, or to lack of private incentives to maintain buildings and property due to lack of clear ownership and transfer rights between lessor and lessee in Mozambique. These problems are particularly constraining for the residential sector, the leading growth sector in all the peri-urban economies studied.

Is this mosaic of land rights having any affect on food production, or investment in agricultural land improvements? Using a recursive econometric method in The Gambia, a dummy variable associated with complete bundle of rights (right to sell proxy) was found to positively affect the propensity to make long term improvements and invest in trees, but had no influence on medium term improvements (figure 5.2). Irrigation and fencing, in turn, positively influenced commercial input use and yields. A single equations approach using OLS and logit regression methods studied similar effects of land registration in Mozambique. As with The Gambia, possession of title increased the propensity to invest in long-term fruit trees and wells, and these improvements were found to be positively associated with yield.

These findings imply an economic benefit to be gained from land tenure reform. Besides secure land rights, other important factors constrain farm income or output growth. In The Gambia, the negative coefficient associated with presence of trees indicates substitution for crop agriculture and attributes other than income driving tree plantings. Farm scale economies positively influenced the propensity to invest in fruit trees (including orchards) and make long-term land improvements (fencing and wells), but scale diseconomies in yield suggest labor shortages constraining productivity. Women were more inclined to make investments in fencing or wells but, lacking access to livestock herds and fallowed land, tended to underinvest in medium term soil improvements, and lacking access to non-farm income, tended to underinvest in commercial inputs. The positive association between manure use and livestock possession, and between non-farm earnings/remittances and use of commercial inputs, suggest that non-farm earnings are substituting for capital markets with a downside--non-farm earnings simultaneously decrease household labor supply. Family members in aggregate earn higher income, but agricultural productivity is nonetheless constrained by labor shortages created by urban pull.

**Figure 2:
Summary of Tenure and Performance Linkages**

	Fruit trees ^a	Long-term Improvements ^b	Medium-term Improvements ^c	Commercial Inputs ^d	Yield ^e
The Gambia:					
Commercial inputs					≈
Medium-term improvements				-	-
Long-term improvements			≈	+	+
Fruit trees					-
Farm size	+	+			-
Gender (1=female)	≈	+	-	-	
Tenure security	+	+	≈		
Mozambique:					
Commercial inputs					+
Medium-term inputs ^e					-
Long-term improvements	≈				+
Fruit trees					+
Farm size	≈	≈			≈
Tenure security ^f	+	+			≈
<p>a. Whether mango, orange, lime, cashew or other fruit trees exist on the plot. Mozambique: Whether mango or avacado trees were planted after acquisition.</p> <p>b. The Gambia: Post acquisition wells or fences. Mozambique: Post acquisition dirt or cement wells.</p> <p>c. The Gambia: Whether plot fallowed in previous year or herd tethered on plot for previous three consecutive years. Mozambique: value of manure.</p> <p>d. Value of commercial inputs applied.</p> <p>e. The Gambia: Total plot revenue. Mozambique: Gross revenue per square meter.</p> <p>f. The Gambia: Index of complete rights. Mozambique: Plot registered.</p>					

Founding families in The Gambia who possess land but lack sufficient labor appear willing to lend land to borrowers but are unwilling to confer long-term use rights. Borrowing families who have plentiful labor but lack access to land or livestock herds tend to underinvest in soil fertility enhancements and, lacking long-term rights, have too little incentive to invest in long-term improvements (wells and fencing). Mozambique's case is structurally different, but similar outcomes are observed. The dysfunctional banking system and economic disruption caused by civil war have acted to constrain commercial input use and, lacking the financial resources to privately survey land, smallholders have been unable to obtain title to increase usufructory rights. So, they seek group ownership in producer's associations as a defense against land grabbing, but are unable to obtain legal rights.

5.10 Gender

Strong gender biases were present in Mozambique and The Gambia, but were virtually undetectable in the case of Ghana. In Mozambique, the relationships were profound--women were the least educated, had the lowest earnings and poorest language skills, were discriminated against in wage employment, and tended to be relegated to low income petty trading. Women-headed households, by any standard,

represented the most disadvantaged group in the sample. Similar but less profound biases in human capital were present in The Gambia; while women in the Pirang and Sanyang village sites had access to the best quality land, they also obtained weaker land rights. Finally, within the land acquirers sample in Ghana, gender appeared to have no effect on any of the land market indicators studied. Elderly women and widows in indigenous communities were poor by land acquirer standards, but their economic disadvantage was probably more strongly influenced by lack of human capital skills than gender bias per se.

5.11 Structural adjustment

What has structural adjustment meant for each of the peri-urban sites? Price liberalization in Mozambique helped fill shelves in stores and vegetables filled markets nearly overnight. Accra today is a bustling international city with booming markets compared with only a decade ago. However, from an institutionalist perspective, the foundations for sustainable economic growth have yet to be cemented. Antiquated laws and restrictive land policy still prevail. Government administrations are coping with problems of growth with inadequate legal and capital foundations rather than investing in the institutions—clear laws, pro-growth investment codes, democratic governance, and effective government administration—that will lay the foundations for future growth.

The economic benefits of getting prices right have begun to stagnate in face of inadequate property and financial institutions. Work on getting institutions right has barely begun. The second stage of reforms will need to focus on structural and institutional factors that are constraining supply response to international price movements. High transportation costs still drive a wedge between border and interior prices. Despite the proximity of all sites to coastal ports, commercial input and credit use was low, marketing systems for export of high valued crops were lacking, weak telephone infrastructure constrained communications, and insecure property rights undermined investment incentives. If such problems exist within only a few kilometers of the ports and ministries responsible for agricultural policy, it is not surprising that agriculture's response to structural adjustment has been constrained.

Should donors invest in rural development in order to keep people on the land or encourage peri-urban economic growth? This is a philosophical question too important to ignore but nearly impossible to answer. Advancements in technical change by major grain exporters until recently have put downward pressure on international grain prices against the relatively stagnant input-output ratios that characterize African agriculture. Eliminating import subsidies and export taxes should benefit agricultural and mineral exports, but changes in tradable prices will not likely have a dramatic effect on the merchandise trade balance of service dependent economies.

The equation would dramatically change if worldwide commodity prices begin reversing their downward course of the last 15 years as many market prognosticators predict. With a long term secular rise in commodity prices, rural incomes and service sectors will stand to benefit disproportionately, both through higher prices and greater incentives to commercialize production. Substantial reverse urban-to-rural migration is unlikely to occur, however, creating demands for food price relief among the growing urban majority. Opening borders to trade will simultaneously increase the vulnerability of nations to international price shock and international competition for tight food

supplies. For small country importers, investments in technical change may affect import levels and exchange rates but will not significantly influence world food prices; such importing nations will thus find themselves competing for imports with the rapidly growing nations of east Asia and Latin America. Ever greater pressure would be placed on donors to provide food relief and support urban income growth to increase purchasing power.

This debate glosses over one very important point—the structural reforms required in peri-urban zones also benefit rural areas. Peri-urban zones will represent the nexus of economic growth in decades to come. Financial sector improvements that create the nascent financial sector in peri-urban areas will provide the foundations for decentralizing future credit services. Investment in land administration machinery will help develop the legal institutions and provide the critical mass of surveyors and planners that will aid tomorrow's decentralization programs. Financial liquidity and consumer food demand created by non-farm employment growth combined with improved infrastructure connecting rural areas with cities will contribute mightily to improving rural development and enhancing urban food security (assuming urban income growth).

5.12 Integrated factor market research.

What value has integrated factor market research played in this research? The answer is “profoundly so” but in ways different than originally imagined. The focus on different sub-populations—LTC on agricultural producing households or disputants, IDA on traders, and OSU on firms and credit institutions—did not enable inter-university collaboration to the extent originally envisioned. Also, many of the factor market constraints, being so fundamental, did not need sophisticated analyses of factor linkages to identify obvious policy and institutional shortcomings. However, the research benefited enormously from having three cooperative agreements focus their resources and attention within one geographical area. Also, working with the multiple actors in the economy enabled understanding of inter-sector linkages in ways that would have been misunderstood in the context of more narrowly applied research. Finally, the peri-urban zone is a litmus test for the effectiveness of policy. The highly dynamic nature of these zones tends to magnify the scope and depth of factor market issues and distortions in ways that are absent in rural areas. Having the benefit of multiple researchers from different disciplines and factor market perspectives sorting out causes and effects was very useful in comprehensively discerning growth constraints.

5.13 Recommendations

1. Market liberalization. The rapid growth in private land markets reflects the huge chasm between land policy and economic reality. Governments no longer have the capacity to control economic behavior given weak capacity, and the consequences would be ruinous if they did. Three priority problems need addressing: reducing transactions costs associated with rentals and sales through legal reforms; increasing the value of collateral and the security of lenders in long-term mortgages; and, as in Ghana, designing legal reforms that fully integrate traditional authorities into a unified and comprehensive legal and land administration system.

2. Land Administration. Elitist departments comprising the land apparatus in all three study economies have much to learn about customer service. Achieving full-fledged community participation

and goodwill will mean the difference between people's acceptance of laws and regulations or continuing confrontation and dissension. However, coercing this policy change through curtailed donor funding is not the answer. Constrained supply of mapping, surveying and titling services inevitably creates rent-seeking behavior. Instead, donors need to expand public sector reform and democratization programs, in this case geared to the land sector, but also must invest in government capacity to expand affordable services (surveying, land mapping, rights documentation), both private and public, to disadvantaged clientele.

3. Community land trusts. Smallholders in Mozambique banded together in producer's associations as a defense against land grabbing. Stool and family allocations in Ghana are remarkable for the lack of disputes among family members belonging to the stool. However, the severe disputes and high litigation costs experienced between stools battling over land suggests the need for group title or community land trusts to resolve competing claims. Compensation will be required, set by negotiation or arbitration at fair market value.

4. Courts. The courts have generally exceeded all reasonable capacity given the limits of law in deciding upon land conflicts. How can fair market compensation be assessed when land has no value, cannot be sold, and when government becomes actively engaged as a buyer and seller of land? Legal reforms are fundamental, as are special programs to provide legal support services to the poor.

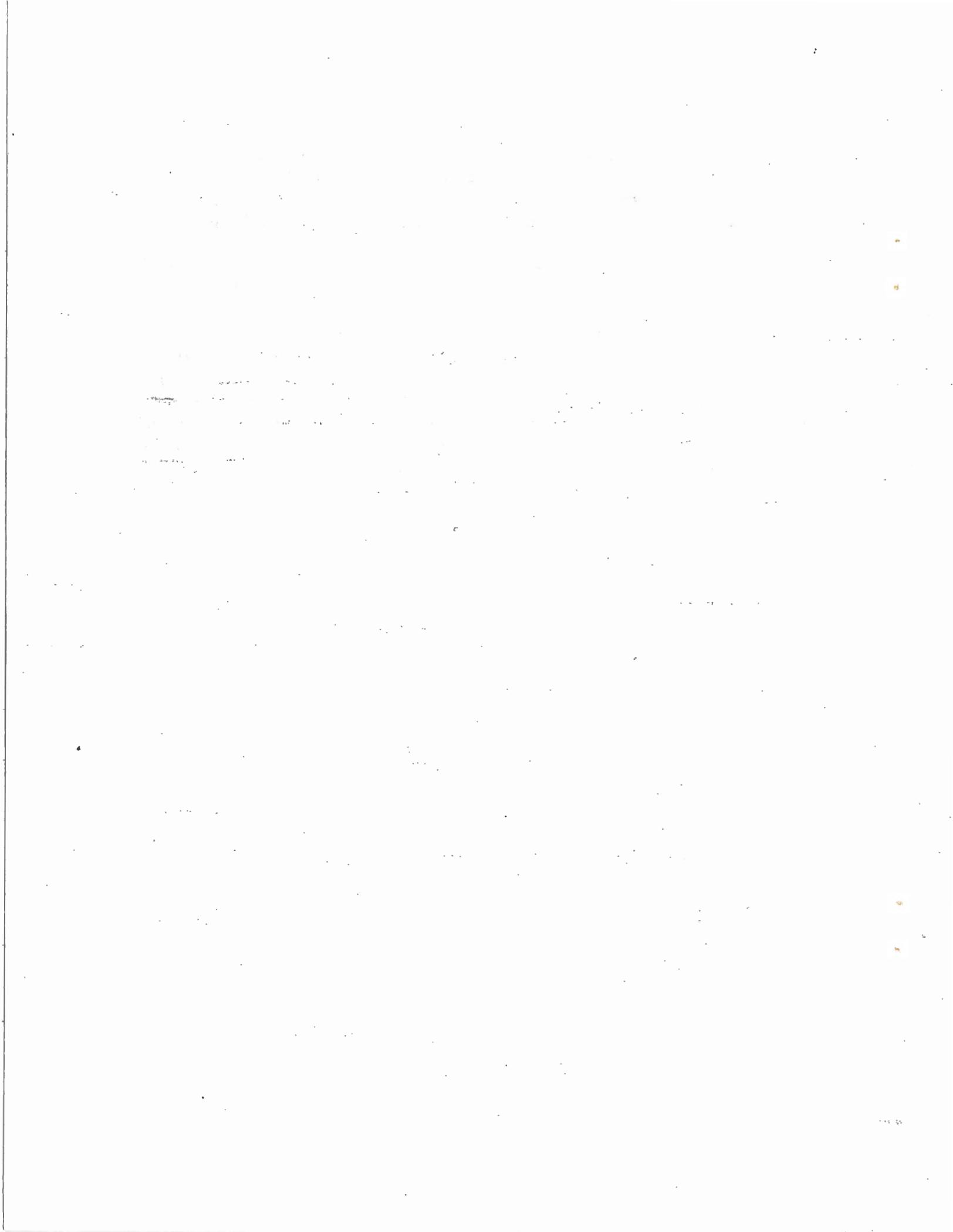
5. Public land markets. There is little justification for government involvement in land expropriation and sales for commercial development. The example of Ofankor in Ghana has done much to discredit government's trust in the minds of the people. Land development companies can and should negotiate directly with customary authorities, with government acting to ensure fair bargaining and the suitability of planning to an authorized development plan. Government's role should be to ensure that negotiations are fair and that terms are obeyed.

6. Private land markets. A number of limitations constrain the land market in all sites: litigation among stools; inaccessible or prohibitive cost of registration; lack of tenant security; failure of government to pay compensation; some chiefs and families pocketing land sales receipts; compulsory land acquisition; and land grabbing by commercial and political interests; among others. A more judicious legal code, land administration and court system would go a long way in removing these deficiencies. However deep the reforms, several groups are at risk of welfare loss—land borrowers with weak tenant rights, the elderly, and female headed households. Curbing land market activity to protect these groups is not the answer. Other policy options are preferable to land market controls depending on the situation—property tax subsidies to prevent forced liquidation through high leasehold fees; grandfather clauses applied to current documented holders, legal support services for communities, eliminating government's involvement in the land acquisition and sales market, NGO identification and support of disenfranchised groups, and land valuation by private assessors.

7. Disenfranchised groups. For elderly families confronted with urbanization, the land market may be the only option against impoverished retirement. Lacking skills, they are often reluctant to retrain for urban sector employment. Their remaining concerns are housing and pension income. Whether fair cash compensation is paid or new land provided by traditional authorities from land sales

will largely determine whether these needs are fulfilled. Widowed, divorced, and separated heads of households and migrants are the second most vulnerable group in all study sites. Poor language skills, lack of experience, and illiteracy preclude many from gainful employment or social integration. NGOs have the most promising role to play in identifying these households and in turn assisting government in developing social safety nets and human development programs. The use of the land market to finance community development speaks well of the community vision fostered by certain chiefs and families. Legal reforms should seek to broaden access to these benefits rather than restricting land transfers.

8. Wage employment. Gender biases in access to wage employment are striking; however, causes remain unclear. Age and skill differences might explain part of the male dominated wage employment. The inclusion of women household heads, who as primary care providers of children are constrained in the amount of time they might spend outside the home, provide a partial answer. Unfortunately, female involvement in wage employment was permitted to few number of observations to statistically test causality. Whether this analysis points to job discrimination, skills differences, or lack of nursery care are all important questions from a policy standpoint.



REFERENCES

- Boucher Steve, Antonio Francisco, Laurel Rose, Michael Roth, and Fernanda Zaqueu. 1995. *Legal Uncertainty and Land Disputes in the Peri-Urban Areas of Mozambique: Land Markets in Transition*. Madison: Land Tenure Research Paper 121, January.
- Graham, Douglas H., Irae Baptista Lundin, Antonio Francisco, William Nall, Mindy Walker, and Paul Jenkins. 1991. *Peri-Urban Baseline Research Results, Maputo, Mozambique*. Maputo: Ohio State University, October.
- Hayes, Joseph. 1995. *Tenure Security, Investment, and Productivity in Gambian Agriculture: A Generalized Probit Analysis*. Thesis submitted in fulfillment of the Master of Science in Agricultural Economics, University of Wisconsin.
- Kasanga, Kasim R., Jeff Cochrane, Rudith King, and Michael Roth. 1996. *Land Markets and Legal Contradictions In the Peri-Urban Area of Accra Ghana: Informant Interviews and Secondary Data Investigations*. Land Tenure Center Research Paper 126, May.
- Roth, Michael. 1989. *Proceedings of the First Workshop on Economic Growth in Peri-Urban Areas of Africa*, 23 and 24 October. Madison: Land Tenure Center.
- Roth, Michael. 1993. *Land Markets and Intra-Household Access to Resources and Income Opportunities, Research Methodology: The Case of Non-Traditional Export Crops in the Gambia*. Madison: Land Tenure Center, November.
- Roth, Michael, Ben Carr and Jeff Cochrane. 1996. *Land Rights and Intra-Household Employment and Resource Use in the Peri-Urban Area of Banjul, The Gambia*. Madison: Land Tenure Center Research Paper 126, January.
- Roth, Michael, Steve Boucher and Antonio Francisco. 1995. *Land Markets, Employment and Resource Use in the Peri-Urban Green Zones of Maputo, Mozambique: A Case Study of Land Market Rigidities and Institutional Constraints to Economic Growth*. Madison: Land Tenure Research Paper 123, October.

ANNEX A:

Generalized Probit Estimation of Plot Revenue

Equation (1): (L) = Post-Acquisition Wells or Fences

Variable Description	Variable Name	Coefficient	Standard Error	t-statistic
Constant	C**	-0.937	0.347	-2.702
Complete rights	COMTRANS**	0.455	0.217	2.097
Preferential rights	PRETRANS	-0.188	0.237	-0.793
Sinchu village	SINCHU1**	-0.962	0.251	-3.826
Sanyang village	SANYANG2**	-0.538	0.190	-2.838
Wealth index	WEALTH*	0.035	0.018	1.933
Gender (1 = female)	SEX	0.492	0.300	1.639
Farm size (ha.)	FARMI**	0.176	0.077	2.292
Fragmentation index	SIMPSON	-0.116	0.297	-0.391
Plot in compound	INCOMP**	1.170	0.302	3.872
Plot near compound	NEARCOMP**	0.541	0.199	2.717
Pre-existing well	WELLBEFO**	1.138	0.477	2.385
Pre-existing fence	FENCBEFO*	-0.678	0.401	-1.693
Private garden	PGARDEN	0.258	0.343	0.752
Donor garden	DGARDEN**	0.890	0.450	1.978
Rice plot	RICE**	-1.432	0.396	-3.615
Groundnut plot	GNUT	-0.348	0.286	-1.216
Residence plot	RESIDNCE**	-1.027	0.303	-3.386
Plot size (ha.)	AREA**	-0.781	0.344	-2.270

Table of Observed and Predicted Outcomes:

Observed	Predicted		Total
	0	1	
0	395	28	423
1	63	81	144
Total	458	109	567

Percent Correctly Predicted: 84.0

Note: Single and double asterisks (*) denote significance at the 10% and 5% levels, respectively, in a 2-tailed "t" test. Degrees of freedom = 548.

Equation (2): (T) = Presence of Trees

Variable Description	Variable Name	Coefficient	Standard Error	t-statistic
Constant	C**	-1.254	0.388	-3.231
Complete rights	COMTRANS**	1.007	0.284	3.551
Preferential rights	PRETRANS**	0.729	0.306	2.385
Sinchu village	SINCHU1*	-0.509	0.280	-1.820
Sanyang village	SANYANG2*	0.381	0.209	1.827
Gender (1 = female)	SEX	-0.196	0.316	-0.619
Farm size (ha.)	FARMI**	0.200	0.086	2.319
Farm fragmentation	SIMPSON	-0.215	0.335	-0.641
Plot in compound	INCOMP**	2.480	0.346	7.160
Plot near compound	NEARCOMP**	0.650	0.227	2.863
Soil fertility	FERTILTY*	-0.351	0.195	-1.796
Private garden	PGARDEN	-0.441	0.347	-1.272
Donor garden	DGARDEN	-0.482	0.575	-0.838
Rice plot	RICE**	-1.385	0.422	-3.280
Groundnut plot	GNUT**	-0.829	0.328	-2.527
Residence plot	RESIDNCE**	-1.947	0.356	-5.470
Plot size (ha.)	AREA**	-0.799	0.278	-2.869

Table of Observed and Predicted Outcomes:			
Observed	Predicted		Total
	0	1	
0	410	20	430
1	48	89	137
Total	458	109	567

Percent Correctly Predicted: 88.0

Note: Single and double asterisks (*) denote significance at the 10% and 5% levels, respectively, in a 2-tailed "t" test. Degrees of freedom = 550.

Equation (3): (M) = Medium-Term Soil Improvements

Variable Description	Variable Name	Coefficient	Standard Error	t-statistic
Constant	C**	-0.810	0.277	-2.925
Complete rights	COMTRANS	-0.081	0.209	-0.390
Preferential rights	PRETRANS**	-0.704	0.269	-2.615
Long-term investment	LANDIMP	0.007	0.089	0.081
Sinchu village	SINCHU1**	-0.793	0.264	-3.005
Sanyang village	SANYANG2*	0.380	0.212	1.794
Wealth index	WEALTH**	0.041	0.019	2.205
Percent nonfarm HH income	DIVERSHH*	0.424	0.252	1.679
Gender (1 = female)	SEX**	-0.776	0.183	-4.250
Remittances (D)	REMIT**	1.29E-04	6.04E-05	2.132
Soil fertility	FERTILTY	-0.168	0.180	-0.937
Pre-existing well	WELLBEFO	-0.057	0.660	-0.087
Pre-existing fence	FENCBEFO	-0.237	0.496	-0.478

Table of Observed and Predicted Outcomes:

Observed	Predicted		Total
	0	1	
0	493	4	497
1	65	5	70
Total	558	9	567

Percent Correctly Predicted: 87.8

Note: Single and double asterisks (*) denote significance at the 10% and 5% levels, respectively, in a 2-tailed "t" test. Degrees of freedom = 554.

Equation (4): (I) = Value of Commercial Input Applications

Variable Description	Variable Name	Coefficient	Standard Error	t-statistic
Constant	C**	101.068	22.202	4.552
Long-term investment	LANDIMP*	14.928	7.776	1.920
Soil improvements	LANDMNG*	-25.015	14.078	-1.777
Sinchu village	SINCHU1**	48.423	17.677	2.739
Sanyang village	SANYANG2	-23.338	14.980	-1.558
Wealth index	WEALTH	0.519	1.386	0.374
% nonfarm HH income	DIVERSHH	-22.132	18.265	-1.212
Gender (1 = female)	SEX**	-75.990	18.074	-4.204
Remittances (D)	REMIT**	0.037	0.005	7.810
In-compound plot	INCOMP**	-116.817	18.223	-6.411
Near-compound plot	NEARCOMP*	-31.533	16.122	-1.956
Soil fertility	FERTILTY	19.473	12.626	1.542
Pre-existing well	WELLBEFO	31.292	39.748	0.787
Pre-existing fence	FENCBEFO	-22.166	29.061	-0.763
Plot size (ha.)	AREA**	28.729	11.320	2.538
R-Squared: 0.2671				
Note: Single and double asterisks (*) denote significance at the 10% and 5% levels, respectively, in a 2-tailed "t" test. Degrees of freedom = 552.				

Equation (5): (Y) = Value of Output per Hectare

Variable Description	Variable Name	Coefficient	Standard Error	t-statistic
Constant	C	628.206	3175.126	0.198
Long-term investment	LANDIMP**	6675.182	1449.269	4.606
Presence of trees	TREES_YN**	-2654.073	1015.728	-2.613
Soil improvements	LANDMNG	-1468.485	1267.823	-1.158
Commercial inputs (D)	FARMCOST	-18.906	13.031	-1.451
Sinchu village	SINCHU1	-1172.671	2291.699	-0.512
Sanyang village	SANYANG2	-1176.986	1859.925	-0.633
Wealth index	WEALTH	-127.179	193.224	-0.658
HH labor resources	LRESHH**	534.171	157.583	3.390
Farm size	FARMI*	-1359.095	765.750	-1.775
Farm fragmentation	SIMPSON	3791.205	2690.062	1.409
Soil fertility	FERTILTY*	3121.666	1701.734	1.834
Wages received (D)	WAGE	0.050	0.132	0.378
Pre-existing well	WELLBEFO	2507.376	4937.415	0.508
Pre-existing fence	FENCBFO	2380.300	3759.123	0.633
Donor garden	DGARDEN**	30783.160	3757.837	8.192
Residence plot	RESIDNCE	75.008	2463.332	0.030
Plot size (ha.)	AREA	3591.187	2527.446	1.421
R-Squared: 0.3835				
Note: Single and double asterisks (*) denote significance at the 10% and 5% levels, respectively, in a 2-tailed "t" test. Degrees of freedom = 549.				

