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## Smallholder Income and Land Distribution in Africa: Implications for Poverty Reduction Strategies

by

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**BACKGROUND:** More than 45% of Sub-Saharan Africa's population is now estimated to be in poverty. The swelling poverty in Africa has increasingly focused governments, international donors, and researchers toward developing strategies that are "pro-poor." Strategic plans for poverty reduction have been prepared since 1998 by at least 15 African governments with support from the World Bank. However, most of them provide only scant attention to the role of land access and land distribution in rural poverty.

It is well recognized that severe land inequalities persist in many African countries between small-scale and large-scale farming sectors. Redressing these inequalities is likely to be an important element of an effective rural poverty reduction strategy in countries such as Zimbabwe and Kenya. However, *within* Africa's small-scale farming sectors, surprisingly little attention has been devoted to quantifying land distribution patterns and considering how they will affect feasible pathways out of poverty.

**OBJECTIVES:** This synthesis is drawn from a larger paper that provides a micro-level foundation for discussions of land

allocation and its relation to poverty within the smallholder sectors of Eastern and Southern Africa. Results are drawn from nationwide household surveys between 1990 and 2000 in five countries: Ethiopia, Kenya, Rwanda, Mozambique, and Zambia.\*\* The paper addresses four major points:

**1. Why geographically-based targeted approaches to poverty reduction – e.g. focusing on marginal areas – are likely to miss a significant share of the poor in any particular country regardless of targeting efficiency in these areas;**

**2. Why agricultural growth alone, and without greater opportunity for land constrained households to acquire land use rights, is not likely to be a sufficient engine for directly lifting a significant share of small-scale farmers in this region out of poverty, especially those who have access to less than one hectare of land;**

**(3) Why agri-food stem productivity growth is needed not only to generate gains for smallholder farmers that can respond to growth incentives, but also to create a more dynamic and diversified rural economy that can help pull the poorest and most land-constrained households out of poverty; and**



**(4) Why increased access to land is likely to affect significantly the poverty-reducing effects of agricultural growth.**

**DOES EQUITY AFFECT GROWTH? :**

The model of structural transformation has demonstrated that in countries where 70-80% of the rural population derive the bulk of their income from agriculture, poverty reduction typically depends on agricultural productivity growth. But clearly growth alone is not sufficient for poverty reduction; the distribution of assets makes a difference. Evidence is emerging that not only does the initial distribution of assets affect the rate of economic growth, but it also affects the poverty-reducing effects of the growth that does occur.

For example, the initial percentage of landless households in India significantly affected the elasticity of poverty to non-farm output (Ravallion and Datt 2002). In a sample of 69 countries, Gugerty and Timmer found that, in countries with an initial “good” distribution of assets, both agricultural and non-agricultural growth benefitted the poorest households more in percentage terms. In countries with a “bad” distribution of assets, however, economic growth was skewed toward wealthier households, causing the gap between rich and poor to widen.

These findings reinforce the idea that where access to land is highly concentrated and where a sizable part of nationally-representative sufficient land to earn a livelihood, then special measures may be necessary to tackle the problem of persistent poverty.

**FIVE KEY FINDINGS: First farm sizes are declining over time.** Our larger paper reviews FAO data since 1960, which indicates that the ratio of land under crop cultivation to agricultural population (a rough proxy for farm size per capita) has been shrinking gradually but consistently in

Africa. The FAO data indicate that relatively densely populated countries such as Kenya and Ethiopia have seen this ratio cut in half over the past 40 years. And even in countries widely considered to be land abundant, such as Zambia and Mozambique, the data also show a clear trend in declining farm sizes. The overall conclusion drawn is that the agricultural labor force is increasing faster than the area under crop cultivation, and this appears to be very robust in all cases.

These trends suggest that it will be increasingly difficult for farming alone to provide adequate livelihoods for many land-constrained households without substantial shifts in labor from k in agriculture on ones own farm to related off-farm and non-farm rural employment vectors.

**Second, within each of the five countries, we find serious disparities in land allocation at the local level (Table 1).** After ranking all smallholders by household per capita land size, and dividing them into four equal quartiles, households in the highest per capita land quartile controlled between eight and 20 times more land than households in the lowest quartile. In Kenya, for example, mean land access for the top and bottom land quartiles were 1.10 and 0.08 hectares per capita, respectively. These figures already include rented land, which is marginal in most of the countries examined. In each country, the bottom 25% of small-scale farm households are approaching landlessness, controlling less than 0.12 hectares per capita. In Ethiopia and Rwanda, the bottom land quartile controlled less than 0.03 hectares per capita. These surveys contain only households engaged in agricultural production; households not engaged in farming are excluded from the sample.

Gini coefficients (a measure of inequality ranging from zero to one) for land allocation within the small-scale farming sectors are displayed in Table 1 column (d). The Ginis also indicate a high degree of dispersion in land holdings, and are comparable to those

**Table 1. Smallholder Land Distribution in Selected African Countries**

Country	(a) sample size	(b) Ave. land access per HH	(c) Household Per Capita Land Access				(d) Gini Coefficients			
			Ave.	Quartile			Land per HH	Land per capita	Land per adult	
				1	2	3				4
		– ha –	– ha –	– ha –						
Kenya	1416	2.65	0.41	0.08	0.17	0.31	1.10	0.55	0.56	0.54
Ethiopia	2658	1.17	0.24	0.03	0.12	0.22	0.58	0.55	0.55	0.55
Rwanda 1984	2018	1.2	0.28	0.07	0.15	0.26	0.62	–	–	–
Rwanda 1990	1181	0.94	0.17	0.05	0.10	0.16	0.39	0.43	0.43	0.41
Rwanda 2000	1584	0.71	0.16	0.02	0.06	0.13	0.43	0.52	0.54	0.54
Malawi <sup>1</sup>	5657	0.99	0.22	0.08	0.15	0.25	0.60	–	–	–
Zambia	6618	2.76	0.56	0.12	0.26	0.48	1.36	0.44	0.50	0.51
Mozambique	3851	2.1	0.48	0.1	0.23	0.4	1.16	0.45	0.51	0.48

Note: Numbers for Ethiopia, Rwanda, Mozambique, and Zambia, including Gini coefficients, are weighted. Numbers for Kenya are sample statistics.

<sup>1</sup> Results from the “Profile of Poverty in Malawi, 1998,” National Economic Council, Malawi, 2000.

estimated for much of Asia during the 1960’s and 1970’s (Haggblade and Hazell 1988). Very importantly, the Gini coefficients do not shrink when computed in terms of per capita and per adult land holdings.

**Third, we examined whether households in the bottom land quartile contain mostly “part-time” farmers who are engaged primarily in off-farm and non-farm rural activities for their livelihoods.** We compute income shares from crop production, animal and animal-derived production, and off-farm income for each land quartile. As expected, off-farm income shares are highest for the bottom land quartile and decline as landholding size rises. However, in none of the five countries do households in the bottom land quartile earn more than 50% of their total income, on average, from off-farm activities, despite their very small farms. In Zambia, Rwanda, Mozambique, and Ethiopia, the off-farm income shares were 38.5%, 34.5%, 15.9%, and 12.7%, respectively.

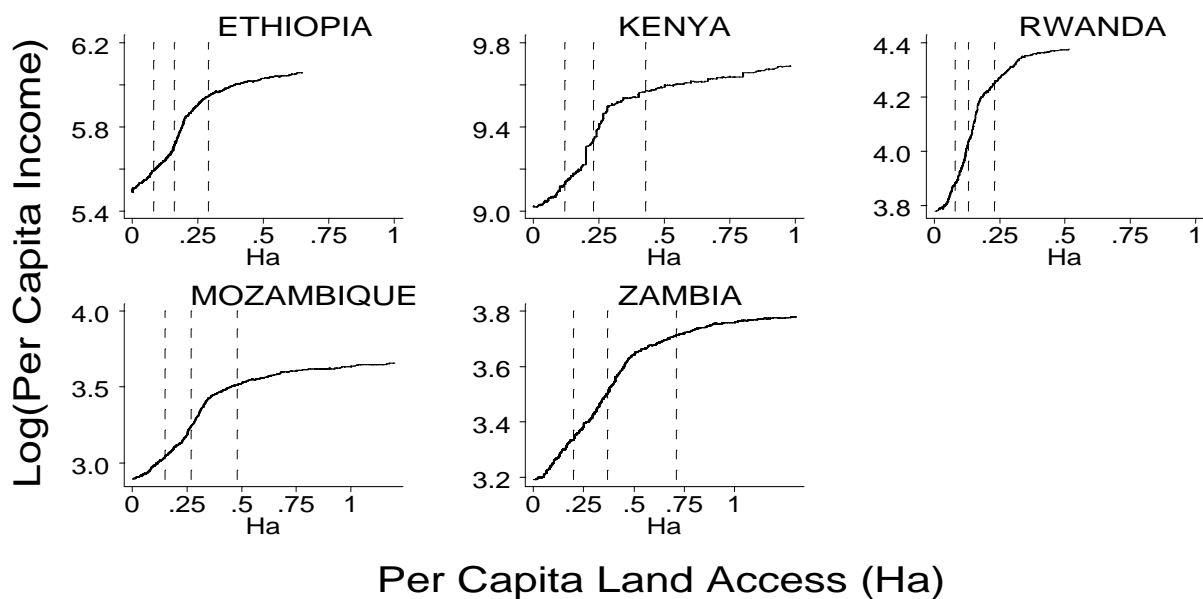
**Fourth, we examine the extent to which land allocation patterns influence household income and poverty.** If non-farm activities are able to compensate for small landholdings and provide land-poor

households with adequate alternative income sources, then disparities in land ownership should not necessarily be a policy problem. To examine these issues, we present simple bivariate graphs relating household per capita landholding size to household per capita income, including non-farm income and crop income from rented land (Figure 1). The three dashed vertical lines show the 25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> percentiles

The locally-weighted regression lines in Figure 1 are created using locally weighted smoothed scatter plots (LOWESS) with window length set at .6 or .7 of the neighboring observations (Cleveland 1979). of sampled households along the x-axis. For example, 25% of the sample households in Kenya have between zero and approximately 0.10 hectares per capita, while the top quartile owns on average 1.1 hectares per capita.

In each country, we find a positive association between household per capita land holdings and per capita income (the sum of crop, livestock, and off-farm income). The association between household income and land is especially steep among households whose land size is below the median level in each country (middle dotted line in Figure 1).

**Figure 1. Log of Per capita Income by Per capita Land Owned**



Note: The vertical lines are drawn at 25th, 50th, and 75th percentiles of per capita land owned for each country. The top 5 percent of observations are excluded from the graphs because lines are sensitive to a few extreme cases.

Because the vertical axis showing per capita income is in log form, we can read differences in numbers as percent changes. For instance, the line for Kenya starts at the log of per capita income at 9.2 and has a kink at 9.6. The difference between these two points is 0.4, which indicates a 40% increase in per capita income when household per capita land size increases from zero to 0.25 hectares. The same increase in land holdings (from zero to 0.25 hectares) increases per capita income by more than 40% in Rwanda, just less than 40% in Mozambique, and about 30% in Ethiopia. In all four countries, the association between land and income becomes weaker somewhere within the third land size quartile, and nearly disappears in the fourth quartile.

**Fifth, the largest part of the variation in per capita farm sizes within the small-farm sectors is, in every country, predominantly within-village rather than between-village.** Regression techniques indicate that there are significant regional differences in farm sizes,

and within villages, household's landholding sizes are influenced by their stock of productive assets and adult labor. Yet neither village-level differences nor household socio-demographic and asset characteristics (including age of the head of the household) are capable of explaining more than a third of the  $R^2$  of most of our household land access models.

Research in other disciplines has highlighted the importance of the period of the clan's settlement in a particular area in determining land allocated to the clan, as well as the importance of kinship ties and power relationships within traditional governance structures in explaining disparities in land allocation within villages (Marrule 1998). These processes are related to the recently emerging literature on kinship ties, trust, and social capital (e.g., Fafchamps 1992; Gabre-Madhin 2001). These findings lead us to speculate that, more generally, there may be important institutional and governance factors



operating within local systems for allocating land that may be accounting for at least some of the unexplained variation in per capita landholding size within the smallholder farm sector.

**Our final key finding relates to targeting the poor.** While some areas experience significantly higher rates of poverty than other areas, the findings from these five countries – Ethiopia, Kenya, Mozambique, Rwanda, and Zambia – suggest that income poverty among smallholder households is not primarily a geographic phenomenon. Most of the variations in smallholder incomes tend to be within-village rather than between village. This has implications for targeting vulnerable groups, assuming that income is the basis for targeting. Geographically-based targeting and poverty reduction strategies – e.g. focusing on marginal areas – is likely to miss a large fraction of the poor in any particular country.

Targeting of vulnerable, resource poor households requires greater emphasis on intra-community targeting, as a complement to regional targeting. Within villages, households with small per-capita farm sizes and low education are especially likely to be at the low end of the income distribution. Attention to intra-village targeting is more challenging and costly than regional targeting, but these costs must be evaluated against the benefits of allocating scarce resources more effectively toward poverty alleviation.

**IMPLICATIONS FOR THE DESIGN OF POVERTY REDUCTION STRATEGIES:** Realistic discussions of poverty alleviation strategies in Africa need to be grounded in the context of these land distribution patterns and trends.

Under existing conditions, the ability of households in the bottom per-capita land quartile to escape from poverty directly through agricultural productivity growth is limited by their constrained access to land and other resources. Viewed in a static way, one

could conclude that the only way out of poverty for the severely land-constrained rural poor is to increase their access to land. Viewed within a dynamic structural transformation framework, this group's prospect for escape from poverty may involve being pulled into productive rural off-farm and non-farm sectors.

Abundant evidence of the transformation process elsewhere indicates that growth in rural and urban off- and non-farm sectors typically starts from a robust stimulus to agriculture, which generates rural purchasing power for goods and services. During this process, there will be high payoffs to education, as the most highly skilled households have the best access to the well-paying non-farm jobs. Therefore, while greater equity in land holding is key to rural poverty reduction in the short run, an important longer run goal is to also look for ways to facilitate the movement of the rural poor into skilled off-farm rural and non-farm jobs through investments and policies that support the processes of structural transformation.

What are the implications of these findings in the context of recent empirical studies indicating a negative relationship between the concentration of rural assets and the contribution of economic growth to poverty reduction? It may be necessary to ask whether structural transformation processes may be retarded in situations in which the distribution of rural assets are so highly skewed that a large strata of the rural population may be unable to benefit from agricultural growth incentives that would otherwise generate broad-based growth multipliers.

In the five countries examined in this study, the distribution of land and other productive assets within the smallholder sector appears to be at least as skewed as in much of Asia at the time of their green revolutions. And estimates of land concentration would be worse after



accounting for the large-scale farm sectors in Kenya, Zambia, and Mozambique.

The literature on growth linkages indicates that the first-round beneficiaries of agricultural growth generate important multiplier effects by increasing their expenditures on a range of local off-farm and non-farm activities that create second-round benefits for a wide-range of other households in the rural economy (Johnston and Mellor 1961; Mellor 1976). In much of Africa, the consumption growth linkages have been found to be especially important (Delgado and Minot 2000).

The extent and magnitude of these second round effects depend on how broadly spread the first round growth is. The initial distribution of land and other productive assets will clearly affect the size of these multipliers. If dynamic labor and services markets can be developed, then other employment opportunities should be easier to create in the very locations where the larger smallholders are investing and raising their output and productivity.

Pro-active public sector investment and policy support in getting smallholder agriculture moving, as well as in developing these labor and service markets will be a key determinant of the magnitude of the growth linkages to be derived from agricultural growth.

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<http://www.aec.msu.edu/agecon/fs2/papers/index.htm>  
Hard copies can be obtained by writing to: MSU Bulletin Office, 10-B Agriculture Hall, Michigan State University, East Lansing, MI 48824-1039. Note on references: all literature cited herein is listed in the larger paper.

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