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**Gender Inequalities in Ownership and
Control of Land in Africa**

Myths versus Reality

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ABSTRACT

Over the past decade, stakeholders have made a variety of generalized claims concerning women's landownership, both globally and in Africa. Typically, these claims include statements with single statistics, such as "women own less than 2 percent of the world's land" or "women own approximately 15 percent of land in Africa south of the Sahara." These claims are problematic because they are not substantiated by empirical evidence, do not reflect variations in landownership across or within countries, do not acknowledge differences in landownership regimes, nor address comparative ownership by men in the same contexts. Neither do they address the difference between ownership and control of land. The lack of a clear understanding behind statistics on gender and land also leads to an inability to clearly articulate a policy response to the potential inequalities faced by women and men. The objective of this paper is to explore, conceptually and empirically, the levels and relative inequalities in landownership between women and men in African countries. The first section of the paper engages in a conceptual discussion of how to measure gendered land outcomes, what ownership and control mean in different contexts, and why attention to these factors is important for the development of gender and land statistics. The second section of the paper systematically reviews existing evidence from microlevel large sample studies by region to summarize recent trends in land access, ownership, and control by sex. The third section presents new statistics from a variety of nationally representative and large-scale unpublished data on gender and land in Africa. Results provide not only a nuanced understanding of the importance of measuring land indicators for gendered development in Africa and globally but also new statistics on a variety of land outcomes to aid stakeholders in the discussion of gender-land inequalities.

Keywords: gender, land, property ownership, bundles of rights, Africa

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1. INTRODUCTION

Claims that “less than 2 percent of the world’s land is owned by women”¹ or that “women make up less than 5 percent of agricultural landholders in North Africa . . . and own approximately 15 percent in Sub-Saharan Africa”² are commonly found on development and advocacy websites and in presentations and other literature. These generalized claims concerning women’s landownership are both global and specific to Africa. Some statements are slightly more nuanced, such as “Women in the developing world are 5 times less likely than men to own land, and their farms are usually smaller and less fertile”³ or “less than a quarter of agricultural holdings in developing countries are operated by women, and low rates of female landownership significantly obstruct access to financial assets, including credit and saving.”⁴ The majority of these claims either does not provide a citation or reproduces earlier citations, leading to a myth that implies that we know the extent to which women are disadvantaged with respect to landownership.

Yet, all of these statements convey the important generalization that large gender inequities exist in the ownership and control of an asset of primary importance, both globally and in Africa. After all, many myths contain an element of truth. However, using claims that are not substantiated by data or credible sources is problematic for a number of reasons (Cohen 2013). In writing this paper, we attempted to trace these claims back to their original sources; but in doing so, we found that many of the claims, though initially used to raise awareness of women’s lack of property ownership, lacked statistical backing. Historically, sex-disaggregated landownership data were not typically collected, and thus, it is nearly impossible for these statistics to be substantiated. Although the data may have existed for a few case studies, they are not available on a nationally representative or large scale.

An effort to substantiate these claims raises a number of other concerns. Although a single statistic necessarily masks differences both globally and within countries, myriad considerations and challenges must be addressed in the effort to estimate a more useful statistic or set of statistics. The first consideration is providing a clear conceptualization of what *women’s property ownership* means. The concept of ownership must be clearly defined. Although deeds clearly identify an owner (or owners), in many places in Africa and throughout the world, individuals may have only partial ownership rights. For example, a woman may have the right to farm a parcel of land and bequeath it to her children, but not to sell it without permission from her kinship group. Second, the single statistics that are used seem to imply that individuals own land. Without further qualification, however, it is not clear how land that is owned jointly is classified. In particular, it would be important to note how land that is owned by couples is included in the measure. It is also unclear how land owned by clans, tribes, institutions, or government actors, rather than by individuals, is included. Finally, any claim about the share of land owned by women needs to be made in comparison with that owned by men. The implication seems to be that because women own “only 2 percent” of the land, men must own the remaining 98 percent. However, this is an unfounded assumption that cannot be made without knowledge of what percentage of total land is actually owned by individuals. The statistic would resonate differently if men owned only 4 percent of land.

¹ The “2 percent” (or “1 percent”) figure has been widely reproduced, and most commonly traces citations back to the Food and Agriculture Organization of the United Nations (FAO). There are variations on how this figure is presented, including “less than,” “only,” or “more than” 2 percent. See, for example, Action Aid (www.landcoalition.org/publications/her-mile-women%E2%80%99s-rights-and-access-land), Oxfam ([/www.oxfam.org/en/node/2037](http://www.oxfam.org/en/node/2037)), and Bread for the World (www.bread.org/what-we-do/resources/fact-sheets/empowering-women-in-agriculture.pdf).

² Citations of landownership from Africa are more varied as compared with global citations. See for example, UN Women ([/www.unwomen.org/en/news/stories/2012/12/cop18-landmark-decision-adopted](http://www.unwomen.org/en/news/stories/2012/12/cop18-landmark-decision-adopted)), Oxfam New Zealand (www.oxfam.org.nz/what-we-do/issues/gender-equality/women-in-the-developing-world), and International Fund for Agricultural Development (www.ifad.org/pub/factsheet/women/women_e.pdf).

³ Taken from the Bill and Melinda Gates Foundation (www.gatesfoundation.org/infographics/pages/women-in-agriculture-info.aspx).

⁴ Taken from FAO (www.fao.org/economic/es-policybriefs/multimedia0/female-land-ownership/en/).

Beyond these conceptual and methodological limitations, the lack of a clear understanding and reproduction of statistics on gender and land is problematic in a number of ways. First, it leads to an inability to clearly articulate a policy response to the inequalities faced by women and men, both geographically and programmatically. Second, although reproduction of stark figures with shock value may attract the attention of an otherwise apathetic public, funder, or organization, it may endanger future efforts. As better data and analyses emerge, programs in countries in which women own only 10 percent of the land may be overlooked in favor of programs that claim lower, unsubstantiated figures. Finally, it discourages further research and data collection that are specifically aimed at providing evidence for these already-cited statistics.

This paper uses a range of data sources from Africa to explore, both conceptually and empirically, the gender-landownership myth. The second section of the paper addresses the conceptual challenges of defining ownership, addressing issues of joint ownership, and creating comparable measures. The third section of the paper systematically reviews existing evidence from 16 microlevel large-sample studies and from other unpublished large-scale data to summarize current knowledge on land access, ownership, and control by gender. The fourth section presents new statistics from a variety of nationally representative and large-scale data on gender and land in Africa: (1) FAO's Gender and Land Rights database, (2) the ICF International's Demographic and Health Survey (DHS), and (3) the Living Standard Measurement Survey's Integrated Surveys on Agriculture (LSMS-ISA). Although the statistics derived from these are not strictly comparable, they do provide insights into patterns of gender inequality in landownership. The final section of the paper discusses results and provides a more nuanced understanding of the myth and reality of gendered land statistics, as well as recommendations for improved research and policy on women's landownership in Africa.

Based on the evidence reviewed, it is clear that global or regional statements putting forth a single statistic for women's landownership are gross oversimplifications. Without suitable data to confidently produce macro level statistics, it may be better for policymakers and advocates to rely on country-specific data that are more relevant to generating information on the nature of underlying inequities and to producing informed recommendations for government and civil society action.

2. MEASUREMENT OF SEX-DISAGGREGATED LAND INDICATORS

Conceptualizing Access to and Ownership of Land

The first challenge in identifying women's landownership is conceptual, rather than empirical. What do we mean by ownership? How does it differ from access to land? Does ownership require formalization and documentation? Does ownership imply a specific bundle of rights, such as the right to sell the land? Or is the appropriate definition operationalized simply by asking people whether they own the land and then accepting their definition of ownership?

The questions about access to and ownership of land may differ, depending on the purpose of the survey, the research, and policy agenda. Studies of farm productivity may be most focused on questions of who has the use rights (such as access or ability to withdraw outputs or natural resources) to the land and who makes the farming decisions, rather than who has formal ownership of the parcel. Other studies may be concerned with questions about how security of tenure affects decisionmaking, particularly with regard to agricultural decisions. Although most of this work considers tenure security at the household level, other research suggests that individual tenure within the household may also affect the outcomes of some household decisions (Doss 2005; Allendorf 2007; Deere and Twyman 2012). Conversely, formal definitions of ownership, such as documentation or titling, may be more relevant to analyses of farmers' ability to use land as collateral in accessing credit and efforts to protect the rights of farmers in the face of external threats from those seeking to acquire land for large-scale investments.

Frequently, surveys use a measure of *reported ownership*, which is obtained simply by asking respondents whether they own the land. The *they* in question is usually the household, with the specific question being whether someone in the household owns the land. This question may be followed by an inquiry into which household members are the owners, which allows for much more detailed analysis, including analysis of ownership by men and women. Often, however, the ownership question is embedded in a question about land tenure, asking whether the land is owned, leased, sharecropped, or rented by the household or an individual within the household. Although the survey's enumerators may be given some definition of ownership, at least in practice, it is often simply left to the respondents to say whether they own the specific parcel or plot of land in question.⁵

A second level of ownership is that of *documented ownership*. Households may have some form of documentation indicating that they own the land. This documentation may be a certificate indicating registration or a formal title or deed.⁶ In areas where land is not formally registered or titled, people may have other forms of documentation, such as a sales invoice or a will in which the land was bequeathed to an individual. For example, in many parts of Madagascar, a system of *petit papiers*, largely handwritten documentation signed by both parties, has arisen for people to informally document land transactions because an effective formal system does not exist (Burnod et al. 2012).

When referring to documented ownership, two different conceptualizations are commonly used. The first is whether a woman is reported to be an owner on a parcel for which the household has some form of documentation. This should be distinguished from a situation in which a woman's name is on the ownership document as an owner. In many instances, although women are reported as joint owners of land parcels with their husband, only his name is on the documentation. If threats to land tenure security are external to the household, it may be less important whether a woman's name is actually on the document, as having the name of anyone in the household on the document may provide some tenure security. However, if the concern is about a woman's rights to the parcel following the dissolution of the

⁵ Another dimension is the concern of who within the household is doing the reporting. In many surveys, one respondent is asked about who owns each parcel of land. This may result in different answers than asking each person individually about whether she or he owns land.

⁶ Although often used interchangeably, the terms *title* and *deed* are not equivalent. A title shows the rights to which a person is entitled, whereas a deed is a legal instrument that is referred to when conferring these rights. Simply put, the title only shows the ownership, while the deed is the formal, legal document that can transfer property ownership.

household due to death or divorce, it is important for welfare outcomes that her name is on the documents.

Finally, ownership may be conceptualized as *effective ownership*. The effective owner is the person who makes the decisions regarding the use and potential sale of the property. In agriculture, decisions regarding use may include decisions about what to plant, what inputs to use, when and how much to harvest, and how to dispose of the crops. However, these rights are more closely associated with management control than with ownership, similar to FAO's definition of the agricultural holder (see Section 4). Ownership implies holding *all* rights within a bundle of rights that typically includes the right to make improvements on, rent out, and decide how to use the land. However, it is the right of alienation, or the right to transfer land to another party, that defines ownership. Different people may have some of the rights that make up the bundle of rights, but only the owner has the right of alienation.

Each of these definitions may be useful in a specific context. The extent to which an individual claims to be an owner may affect the choices that he or she makes with regard to the land and with regard to a broader range of decisions within the household and community. Both *reported* and *documented* ownership may be associated with greater agency and empowerment in a range of domains. In some circumstances, having documented ownership may provide greater tenure security. Finally, to understand agricultural production, it may be most important to understand who has the *management control*, or who is making the decisions regarding the use of the land and management of cropping inputs and outputs.

For any definition of *ownership*, a number of key indicators can be created to analyze the gender gaps in landownership and control. For each of these indicators, the definition of *landownership* must first be specified. However, all of the indicators discussed require data on individual owners of land. Simply having data on whether the household owns land will not suffice. When only household-level data are collected, researchers do often compare the landownership patterns of male- and female-headed households. However, this approach may underestimate women's landownership by ignoring the land owned by women in male-headed households. For example, for the four countries in Latin America for which individual land data were available, Deere, Alvarado, and Twyman (2012) found that the percentage of households headed by women who own land is considerably smaller than the percentage of households in which women own land. This approach could also overstate women's landownership in instances where the husband has migrated, and the household is thus classified as female-headed, even if the husband has primary claims to the land. Therefore, any evidence or statistics included in this review will not rely on indicators at the household level.

Individual and Joint Ownership

Although there has been some debate about whether it is in women's best interest to have land titled to them individually in comparison with joint titles with their husband or another household member, relatively few analyses have examined these questions in a rigorous way. What is known is that the patterns of joint and individual ownership are often complex and differ widely across contexts.

There are numerous ways to present data on the owners of each parcel of land. The first would be to categorize the owners of each parcel, such as owned (1) individually by a woman, (2) individually by a man, (3) jointly by a couple, or (4) jointly by people who are not a couple (for gender analysis, it might be important to know whether the joint owners who are not in a couple are all men, all women, or both men and women). Here, *the couple* refers primarily to a married man and woman; however, many types of partnership arrangements may be substituted, with varying implications for legality and property rights in different settings. People living in consensual unions may or may not have the same property rights as married couples. In particular contexts, other sets of joint owners might be important, such as two brothers or a man and his adult son. The distribution of the parcels by the applicable forms of ownership would be the relevant statistic reported to answer basic questions regarding gender inequality in landownership. If the data include information on value or area of land, it would then be possible to apportion the value or area to the form of ownership. These data would provide additional information, such as whether land owned individually by men is larger or of higher value than that owned individually

by women or jointly by couples. This approach is used in the analysis of the LSMS-ISA data in this paper. However, even without this detailed information on the value and area of each parcel, it might be possible to identify counts of parcels owned only by men, only by women, or jointly by both men and women at an aggregate level.

The second way to consider individual and joint ownership is by using persons, instead of land, as the unit of analysis. In this instance, the respondents are asked whether they own any land. The questions may distinguish between individually owned or jointly owned land.⁷ Rather than identifying the owner or owners of each parcel, this identifies whether each person owns land. The operationalization of these indicators is discussed further below. This second approach is used in the analysis of the DHS data.

Operationalizing Indicators of Landownership

Among the definitions of ownership are a number of variations in how indicators may be produced based on the data available for analysis. This section simply refers to landowners; however, the definition of *landowner* may be a reported or documented owner or a landholder or manager. Two sets of distinctions are vital. The first is whether the indicator simply looks at the number of plots of land or considers the area or value. The second is whether it considers the incidence of ownership by examining the share of men and the share of women who are owners of land, or the distribution of owners, by examining the share of landowners who are women.

This analysis uses five key indicators. The incidence measures (Indicators 1 and 2) use the individual as the unit of analysis and indicate whether each individual surveyed owns any land. Often surveys may restrict the population by posing these questions only to men and women above a certain age. This information can then be used to generate different types of statistics. Indicator 1 shows the percentage of women who are landowners and the percentage of men who are landowners. This measure is calculated as follows, where the numerator is the number of women (men) who own land, either individually or jointly, and the denominator is the total number of women (men):

$$\frac{\text{Women landowners}}{\text{Total number of women}}, \frac{\text{Men landowners}}{\text{Total number of men}} \quad (1)$$

The second measure (Indicator 2) is the percentage of landowners who are women:

$$\frac{\text{Women landowners}}{\text{Total number of landowners}} \quad (2)$$

Again, the numerator is the number of women who own land, whether individually or jointly, whereas the denominator is the number of men and women who own land, whether individually or jointly.

Although Indicators 1 and 2 are often reported interchangeably, they provide different information. For the former, it is necessary to know the percentages for both men and women within the same population, so that it is possible to compare them to produce a measure of inequality. The significance and policy implications of 10 percent of women owning land would be quite different if 10 percent of men in the same population owned land, compared with a situation in which 90 percent of men in the same population owned land. Indicator 2 does not show how widely land is owned within a country; it only shows the share of landowners who are women.

A third indicator uses the number of plots of land as the denominator, with the number of plots owned by women (men) as the numerator:

$$\frac{\text{Number of plots owned by women}}{\text{Total number of plots}}, \frac{\text{Number of plots owned by men}}{\text{Total number of plots}}, \frac{\text{Number of plots owned jointly}}{\text{Total number of plots}} \quad (3)$$

⁷ Again, it may be that each individual is asked about his or her ownership or that one person is asked about the ownership of everyone in the household.

For this measure to be useful, it must be a distribution of the plots across the various forms of ownership; the sum of the shares of the different categories should equal 1. As noted earlier, the joint category may be further disaggregated into couples and other forms of joint ownership, if appropriate.

One of the limitations of this third approach is that each plot is treated equally, regardless of size or value. If size or value data are available, additional measures can be calculated. One measure that is often reported is the mean size of plots:

$$\text{Mean size of women's plots; Mean size of men's plots.} \quad (4)$$

The mean size alone does not tell anything about the number of plots owned by men or women; rather, it is a simple indicator that is often quite easy to calculate.

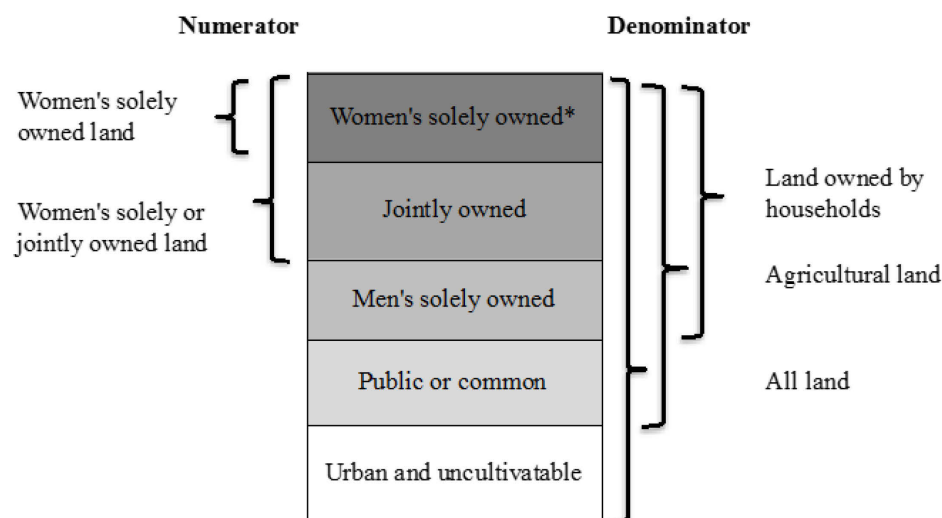
A more useful indicator is the distribution of land by form of ownership. The basic structure is to calculate the percentage of land that is owned by women, men, or men and women jointly:

$$\frac{\text{Land area owned by women}}{\text{Total land area}}, \frac{\text{Land area owned by men}}{\text{Total land area}}, \frac{\text{Land area owned jointly by men and women}}{\text{Total land area}} \quad (5)$$

The first challenge with this indicator is how to define the denominator—the total land area. It could be defined as the total land area owned by men or women (or thought of as total land owned by households), in which case the share of land owned by men and the share owned by women would sum to 1. Or it could be defined as the total area of agricultural land; thus, land that is not owned by individuals but is owned by corporations or the state would be included. This would require a survey of lands, not of households. Finally, the denominator could incorporate all of the land area of a country, including urban areas, which are typically excluded from agricultural survey samples. In this case, all land would be included, regardless of whether it is individually owned or suitable for agriculture. Depending on which denominator is used, the results will differ greatly. If value of land, rather than area, is available, then value may be substituted for area in the denominator of Indicator 5.

Figure 2.1 illustrates the various options for defining both the numerator and the denominator. The numerator may be women's (or men's) solely owned land, or it may be all land owned by women (or men), whether individually or jointly.

Figure 2.1 Variations in landownership units of analyses



Source: Authors.

Note: Ownership can be further disaggregated into documented and undocumented ownership.

Historically, surveys relied on assisting farmers to estimate the area of parcels using a number of recall and comparison techniques. More recently, survey enumeration for agriculture-specific surveys uses global positioning systems to calculate area. Despite significant improvements in accuracy, there are challenges with measuring all parcels, particularly those geographically distant from households; global positioning system area measurements are often seen as cost and time prohibitive in larger multi-topic surveys.

3. EXISTING EVIDENCE FROM MICROSTUDIES IN AFRICA

We start by reviewing available microlevel, individual-level statistics on gendered bundles of rights over land in Africa.⁸ The review includes data collected after 2002 and found in published studies, technical reports, and gray literature, as well as unpublished data received from researchers. We sought to limit our review to studies that analyze data that are either nationally or subnationally representative, with sample sizes approaching 500 observations. We also excluded studies in which purposive sampling may have created samples that did not accurately reflect individual landownership in that area; for example, impact evaluation studies with purposive sampling or land evaluations in which program participants were given land as part of the program's intervention. We do, however, include studies that collect data on national land titling programs and provide information to contextualize results. Studies collecting data on all types of land (agricultural, nonagricultural, and mixed-use land) are included in the review.

In total, the review includes 16 studies from 8 countries (Ethiopia, Ghana, Malawi, Mozambique, Niger, Rwanda, South Africa, and Uganda).⁹ Table 3.1 presents results alphabetically by country. The first column identifies the authors and year of the publication or document reviewed, as well as the format in which the data are available (published in a peer-reviewed journal, working paper or other unpublished manuscript, or data from authors). The second column indicates the country (and region, if applicable) and the year the study data were collected. Columns 3, 4, and 5 indicate the sample size(s), sampling strategy employed, and land type referenced in the study, respectively. Column 6 identifies which of the five indicators described earlier in this paper is used: (1) the percentage of women/men who are owners/managers, (2) the percentage of owners/managers who are women/men, (3) the percentage of plots owned/managed by women/men/joint/other, (4) the mean plot size, and (5) the share of land (in area or value) owned/managed by women/men. Column 7 reports the actual wording used in the study, such as *owner*, *manager*, or *operator*. In addition, we present which measure of ownership is used: reported ownership, documented ownership, or management of land. The final column of the table indicates the data source. Given the differences in how these indicators are reported, it is not possible to strictly compare across indicators.

Among the 16 studies reviewed, 6 are nationally representative, and the remaining 10 are regionally representative or cover large geographic areas of the country. Sample sizes range from 355 households in Rwanda (Santos, Fletschner, and Daconto 2013) to 3.6 million households in Uganda (UBOS 2010).

The most commonly reported indicator is Indicator 1—the percentage of women/men who are landowners/managers (18 times across 7 studies). Within Indicator 1, *ownership* was the most frequently reported category (16 times), usually given as a *reported* measure. Within the broad category of ownership are subsets of both documented and undocumented ownership. Table 3.1 presents one of these subsets—*documented ownership*, which refers to ownership for which there is some kind of title, deed, or written material. Some studies only report ownership without distinguishing whether it is documented.

In general, both overall and within studies, percentages for documented ownership of land are lower as compared with percentages of reported ownership. For example, 8 percent of women and 15 percent of men are reported as landowners in Ghana, but this figure falls to 1 percent and 2 percent, respectively, when the analysis is limited to those with their name on a formal ownership document (Doss et al. 2011).

⁸ We started by reviewing original research on gender and land, followed by papers that cite these studies. We then conducted online searches using keywords for gender and land in Africa (Google scholar, peer-reviewed journals, and websites of universities and research institutes). We also conducted *snowball* citation techniques and sent emails to researchers in the field working on gender and land within various institutions. We do not consider research that stratifies ownership by sex of household head, as these are not representative of individuals.

⁹ In addition to those reported here, we reviewed a number of additional studies that did not meet one or several of the qualifying criteria. For example, the following were not included because they only contained information on landownership by gender of the household head. Others were not included because the data used were collected before 2002.

Table 3.1 Review of published large-scale microlevel estimates on gendered land outcomes in Africa (2002–2013)

Authors (year published)	Country (year data collected)	Sample size	Sampling strategy and characteristics	Type of land surveyed	Indicator ^a	Further description of indicator	Women	Men	Joint	Other	Data source
Ragasa et al. (2012) ^b	Ethiopia (2011)	7,530 households, 31,450 plots	Regionally representative of 4 major regions (Tigray, Amhara, Oromia, Southern Nations Nationalities and Peoples)	Agricultural	3	Plots managed ^c	23	54	23	NR	Central Statistical Agency of Ethiopia Survey
Holden and Tefera (2008) ^b	Ethiopia (2007)	608 households	NR	Any land ^d	1	Involved in investment and production decisions	37.5 before land reform 38.1 after land reform	NR	NA	NA	Norwegian University of Life Sciences
					1	Involved in decisions on use of income from crop production	32.5 before land reform 32.7 after land reform	NR	NA	NA	
Deininger et al. (2007) ^b	Ethiopia (2006)	2,300 households	Nationwide household survey, stratified by agro-ecological zone and region, across 115 villages administered separately to one male and one female respondent per household, typically the head and spouse	Any land ^d	3 ^e	Certificates held	11.12	35.68	51.68	1.52 ^f	Ethiopian Economic Association/ World Bank
Teklu (2005) ^b	Ethiopia (Amhara) (2004)	721,978 landholdings	Land registration data in 885 of 2,972 kebeles in Amhara region. Women over 18 and men over 24 entitled to an allocation	Any land ^d	3	Privately registered land held	28.9	32.5	38.6	NR	Amhara Region Natural Resource and Land Administration Bureau
Doss al. (2011) ^b	Ghana (2010)	2,170 households 3,272 individuals	Nationally representative data on individuals and households, age 18 and older	Agricultural	1	Own land	8	15	NA	NA	Gender Asset Gap Project
					1	Name on document	1	2	NA	NA	
					3	Parcels owned	29	64	3 ^g	4	
					2	Landowners	38	62	NA	NA	
					5	Value of land owned	24	76	NR	NR	
					1	Nonagricultural Own land	8	17	NA	NA	

Table 3.1 Continued

Authors (year published)	Country (year data collected)	Sample size	Sampling strategy and Characteristics	Type of land surveyed	Indicator ^a	Further description of indicator	Women	Men	Joint	Other	Data source(s)
National Statistical Office of Malawi (2010) ^b	Malawi (2006–2007)	25,000 smallholder farming households Total of 2.5 million holdings, 7.7 million parcels, and 7.7 million plots	NR	Any land	3	Plots operated	34 ^h	66 ^{hi}	NR	NR	National Census of Agriculture and Livestock
					4	Average size of parcel ⁱ (hectares)	0.38	0.43	NR	NR	
					4	Average size of plot ^j (hectares)	0.27	0.28	NR	NR	
Hagos (2012) ^{b,k}	Mozambique (2008)	5,968 households 11,164 parcels	Representative of rural zones at provincial and national levels	Any land ^d	3	Plots owned	37	59	1 ^l	3	Trabalho de Inquerito Agricola survey, collected by Ministry of Agriculture
Republique du Niger, Ministry of Agricultural Development & Ministry of Animal Resources (2008) ^b	Niger (2005–2007)	1,627,294 households 10,108,795 individuals	Nationally representative	Any land	5	Managed	7 ^h	93 ^h	NR	NR	Republic of Niger, General Census of Agriculture and Livestock
					4	Average area, out of land managed collectively by household (hectares)	2.3	2.5	NR	NR	
					4	Average area, out of land managed individually by household (hectares)	0.9	1.9	NR	NR	

Table 3.1 Continued

Authors (year published)	Country (year data collected)	Sample size	Sampling strategy and characteristics	Type of land surveyed	Indicator ^a	Further description of indicator	Women	Men	Joint	Other	Data source(s)
Santos, Fletschner, and Daconto (2013) ^b	Rwanda (2011)	355 households 867 individuals	Representative of households participating in Musanze district land registration process, stratified by marriage regime (legal, customary, cohabitating, polygamous, widows). Husband, wife, and additional wife were interviewed.	Agricultural	1	Name on title (sole or joint)	92	97	NA	NA	Women's Land Rights Assessment, Rwanda
					4	Average size of single titled plot in hectares	0.22, 0.33 ^m	0.17	0.19	NR	
					4	Average number of plots with name on title (alone or joint)	2.7	3.0	NR	NR	
Ali, Deininger, and Goldstein (2011) ^b	Rwanda (2010)	3,554 households 6,330 parcels	Sample of rural pilot areas that preceded the national rollout of the Land Tenure Regularization project. Sample included both treatment and control areas in Ruganda, Rwaza, Gatsata, and Mubama districts and was designed to yield numbers of households in each pilot cell equivalent to their share in the total population	Any land	1	Own plot (jointly or alone)	86.9 ⁿ	NR	NA	NA	World Bank Land Tenure Regularization Survey
					3	Parcels owned	42.486	NR	NR	NR	
Jacobs et al. (2011) ^b	South Africa (KwaZulu Natal Province) (2009)	800 households 1,600 individuals	Two sites: KwaDube (rural) and Inanda (peri-urban). Two individual respondents, age 18 and up, per household: household head and a randomly chosen woman ^o	Any land	1	Own land alone (KwaDube) ^p	15	56	NA	NA	Gender Land and Assets Survey ^q
					1	Own land jointly (KwaDube) ^p	7.0	33	NA	NA	
					1	Own land alone (Inanda) ^p	19	50	NA	NA	
					1	Own land jointly (Inanda) ^p	11	30	NA	NA	
					1	Name on ownership document ^r (KwaDube)	5.0	32	NA	NA	
					1	Name on ownership document ^r (Inanda)	10	29	NA	NA	

Table 3.1 Continued

Authors (year published)	Country (year data collected)	Sample size	Sampling strategy and characteristics	Type of land surveyed	Indicator ^a	Further description of indicator	Women	Men	Joint	Other	Data source(s)
Doss et al. (2012) ^b	Uganda (2009)	381 households 770 individuals	One district chosen in each of three regions of the country (Kapchorwa, Kibale, Luwero). In each district, four villages were chosen, and households were randomly sampled. Only rural communities sampled	Agricultural	3 ^s	Parcels owned	18	26	52	4.0	Pathways to Asset Ownership: Land Tenure and Beyond Project sample survey, through USAID Assets and Market Collaborative Research Support Program
					3	Documented parcels held	19	73	7.0	1.0	
					1	Own land	14	20	NA	NA	
					1	Name on document	10	13	NA	NA	
					2	Landowners	49	51	NA	NA	
5	Value of land owned	48	52	NR	NR						
Kes, Jacobs, and Namy (2011) ^b	Uganda	539 households 674 individuals	Representative of mailo land tenure system. Two individuals per household interviewed: household head (male or female) and randomly selected woman nonhousehold head ^p	Any land	1	Own land alone	17	43	NA	NA	Gender Land and Assets Survey ^t
					1	Own land jointly	20	53	NA	NA	
					1	Name on document ^r	13	48	NA	NA	
UBOS (2010) ^b	Uganda (2008–2009)	3.6 million households representing 19.3 million individuals ^u	Surveyed small and medium-size agricultural households across all 80 districts of the country	Agricultural	2	Crop plot managers	43.2	56.8	NA	NA	Uganda Census of Agriculture

Table 3.1 Continued

Authors (year published)	Country (year data collected)	Sample size	Sampling strategy and characteristics	Type of land surveyed	Indicator ^a	Further description of indicator	Women	Men	Joint	Other	Data source(s)
Deininger and Castagnini (2006) ^y	Uganda (2001)	430 households (126 peri-urban, 304 rural)	Five districts, representing Uganda's main regions. Half the sample drawn from households affected by land conflicts in the past year; the other half randomly selected.	Agricultural and livestock use	3	Plots owned	9.76	46.81	21.14	22.3 ^w	Economic Policy and Research Council/World Bank survey
Sebina-Zziwa et al. (2003) ^{b,k}	Uganda (1980–2002)	80,000 land records	Estimated 65% of all lands in Uganda	Mailo (freehold) and leasehold	3	Titles held	16	63	3.0 ^x	18 ^y	Ministry of Lands

Source: Authors' compilation based on studies cited in column 1.

Notes: NR = not reported. NA = not applicable. "Women" refers to sole female ownership, unless otherwise noted through a footnote. "Men" refers to sole male ownership, unless otherwise noted through a footnote. "Joint" refers to joint ownership between any two or more people, unless otherwise noted through a footnote. "Other" ownership refers to any individual or group of people not already mentioned for that given entry, unless otherwise noted through a footnote. All percentages are self-reported unless otherwise noted. In addition to those reported here, we reviewed a number of additional studies that did not meet one or several of the qualifying criteria: studies that collected data before 2002 were excluded, as were studies that did not include data on individual-level land ownership (for example, those including only data disaggregated by sex of household head).

^a Indicators: 1—Percentage of women/men who are landowners/managers; 2—Percentage of landowners/managers who are women/men; 3—Percentage of plots owned/managed by women/men; 4—Mean area or value of women's/men's owned/managed land; 5—Percentage of area or value owned/managed by women/men. ^b Working paper or other unpublished manuscript. ^c Both headship and plot decisionmaking (proxied by the response to the question, "Who in the household has the right to decide what to grow on this parcel?") were used to determine plot manager. ^d No information is given on whether agricultural land/all land is surveyed; so we make the assumption that all land is included. ^e Figures reported by the female respondent. ^f This figure represents the answer "don't know whose name is on certificate". ^g This figure refers to joint couple. ^h These statistics are authors' calculations, using data provided in the paper. ⁱ Parcel refers to "a piece of land that has been allocated to any member of the household, whether used for farming or not. It includes grazing land, woodlot, orchard, and the land where the household has built its dwelling unit." ^j Plot refers to "part of a parcel that contains a different crop or crop mixture or is operated by a different person in the same household." ^k Data from authors. ^l This figure refers to family ownership. ^m First figure refers to all women. Second figure excludes widows. ⁿ Refers to female head/spouse. ^o In the South African sites, the sample was primarily male and female household heads, female partners of male heads, and daughters of heads of either sex, with fewer mothers, in-laws, and sisters. For the Uganda study, in many cases, female-headed households did not have another eligible woman to be the randomly chosen female respondent. In Uganda, the sample was primarily male household heads, their partners, and female household heads, with very few daughters, mothers, in-laws, or sisters. ^p No combined statistic for both sites is given. ^q This study also collected measures of decisionmaking that did not correspond with any of the five indicators. The study included a measure of decisionmaking ability over each plot of land for women and men in each of the two sites, where 0 = no role, 0.5 = some input but decision made by other, and 1 = primary/joint decisionmaker. For women, this measure was 0.23 in KwaDube and 0.20 in Inanda. For men (male heads), this measure was 0.38 in KwaDube and 0.44 in Inanda. ^r This refers to any written documentation for land, including titles, rental agreements, receipts, permission to occupy orders, and so on. ^s These levels are reported by one respondent. The authors note that overall levels change very little if individual respondents' claims of ownership are used instead. ^t This study also collected measures of decisionmaking that did not correspond with any of the five indicators. The study included a measure of decisionmaking ability over each plot of land for women and men in the study site, where 0 = no role, 0.5 = some input but decision made by other, and 1 = primary /joint decisionmaker. The measure for women (heads of household) was 0.5; for men, it was 0.53. ^u This is an estimate of the number of individuals covered by the survey. ^v Published in peer-reviewed journal. ^w Includes landlords. ^x This figure refers to married couples. ^y This figure is a combination of the following categories: joint man and woman (2 percent), institution (9 percent), administrator (4 percent), joint man and man (2 percent), joint woman and woman (1 percent).

It is notable that for every study and every instance of Indicator 1 where both male and female statistics are presented, the percentages specific to women are smaller as compared with those for men.

The second most commonly reported of the five indicators is Indicator 3—percentage of plots owned/managed by women/men (11 measures across ten studies). Within Indicator 3, nine of the measures report on percentage of land *owned*, one reports on the percentage of land *operated*, and one reports on the percentage of land *managed*. Nine of the measures present statistics on percentage of joint *ownership/management*, which ranges from a small percentage (1 percent) in Mozambique to more than half (52 percent) in Uganda.

The third most commonly reported indicator is Indicator 4—average plot area/value (six measures across three studies). In all instances except for one of the two measures presented in Santos, Fletschner, and Daconto (2013), women *own/manage* a smaller average area of land than do men.¹⁰ With this exception, we again see a persistent trend in which women have smaller plots than men, on average; however, differences are not as dramatic as they are for other indicators. Of the agricultural censuses included, Malawi (2010) and Niger (2008) present statistics on plot size. The Niger agricultural census distinguishes between individually managed land and collectively managed land. Although in Niger, men's plots are more than 100 percent larger than women's for individually managed land, the gap is much smaller for household collectively managed land. In Malawi, the differences are similarly small. No measures of the average value of the plot are presented for any of the studies.

The fourth most commonly reported indicators are Indicator 2 and Indicator 5. Indicator 2—percentage of landowners who are women/men (three measures across three studies). For women, statistics range from 38 percent in Ghana to 49 percent in Uganda, whereas for men they range from 51 percent in Uganda to 62 percent in Ghana.

Indicator 5—the share of land area or value owned/operated/managed by women/men is also reported three times across three studies). Only two studies (Doss et al. 2011; Doss et al. 2012) reported the percentage of the estimated land *value* owned at 24 percent and 48 percent for women in Ghana and Uganda, respectively. In both of these studies, the value of jointly owned land was divided equally, and a share was attributed to each owner. The other study reporting Indicator 5 (Niger 2008) estimates the percentage of land managed by men and women, showing that women manage only 7 percent of land while men manage the remaining 93 percent.

Based on the country groupings of studies reviewed, some discussion of country-level results is possible. Rwanda displays the highest levels of women's landownership statistics overall—both reported ownership and documented ownership—when both sole and joint ownership are considered. Uganda displays comparatively high levels of women's landownership; however, these figures differ among the five studies included. Doss et al. (2012) found that 14 percent of women and 20 percent of men reported owning land, either individually or jointly; Kes, Jacobs, and Namy (2011) estimated these levels to be 17 percent and 43 percent when only sole ownership was considered; and Deininger and Castagnini (2006) found that approximately 10 and 47 percent of plots are owned by women and men, respectively, based on sole ownership only. At least part of these differences may be due to the fact that all of these studies are based on subnational samples, representing regions within the country.

Ethiopia has comparatively gender-equitable levels of landownership statistics, which may be a function of recent government land policies—specifically, community land registration programs that provide for joint registration. For example, Teklu (2005) analyzed data in which approximately 29 percent of the registered land was found to be held by women and 32 percent by men. The remaining 39 percent was held jointly. Less gender-equitable levels of landownership and management are found in South Africa and Niger (Jacobs et al. 2011; Niger 2008).

Although the representativeness of the samples varies, thus presenting an obstacle to generalizable conclusions, several trends do emerge: (1) Regardless of indicator and country, in the majority of cases, women are disadvantaged compared with men in regards to *reported* landownership,

¹⁰ In Santos, Fletschner, and Daconto (2013), the average size of women's titled plots is 0.22 hectare (0.33 when widows are excluded from the sample), and the average size of men's titled plots is smaller (0.17 hectare).

documentation of ownership, operation, management, and decisionmaking. (2) There is a wide range in the magnitude of the gender gap, depending on country, region, type of land, definition of *landholding*, and inclusion of joint ownership, even within the same country. (3) When included, joint ownership is a common occurrence across Africa, comprising a substantial percentage of landholding; however, joint ownership does not necessarily mean that men and women have equal rights over the land. (4) Few studies include sex-disaggregated information on area or value of landholdings; however, when it is reported, it points to the same pattern, whereby women have less land and of lower value as compared with men.

This review also confirms a number of gaps in the availability of gender-land statistics. First, information is available on only 8 of the 53 African countries, pointing to large geographical gaps in data coverage (a theme returned to later in the discussion).¹¹ Second, only one of the 16 studies reviewed is published in a peer-reviewed source, which points to a gap in the peer-reviewed literature on gendered land statistics. Although this may be indicative of a lack of studies that meet journals' publication standards, it may also arise from the dearth of sex-disaggregated data of sufficiently good quality to merit analysis and publication in peer-reviewed outlets. Finally, many of the articles notably lack a description of or attention to the identity of the survey respondent, a clear definition of landownership, and the type of land selected for inclusion. Knowing both who reported ownership levels and which land is considered is important for understanding the statistics presented within those studies.

¹¹ The figure of 53 countries includes the island nations of Cape Verde, São Tomé and Príncipe, Madagascar, the Comoros, the Seychelles, and Mauritius. The figure fluctuates depending on whether nations such as Somaliland or Western Sahara are included.

4. NEW EVIDENCE FROM NATIONALLY REPRESENTATIVE DATA IN AFRICA

Food and Agriculture Organization: Gender and Land Rights Database

Among the most commonly cited statistics on gendered landownership are those that come from the FAO Gender and Land Rights Database,¹² an online database that provides country-level information on gender and landownership compiled from a variety of sources,¹³ primarily agricultural censuses. The database includes statistics across six categories and is arguably the primary source of gender-related institutional data on gender and land available globally.¹⁴ Table 4.1 displays figures drawn from the final category—land-related statistics.

A number of important issues should be noted when interpreting these or other statistics produced by the FAO database. First, although it is a major step toward compiling nationally representative statistics on gender and land, since agricultural censuses are typically conducted once every ten years, much of the data available on land-related statistics is dated. Of the 17 countries with available data in Africa in the database, 10 were excluded from the current analysis because the primary data were collected before 2002.¹⁵

Second, many of the agricultural censuses do not define a landholder as an owner. Instead, according to the FAO, the holder is defined as a “person who makes major decisions regarding resource use and exercises management control over the agricultural holding operation. The holder has technical and economic responsibility for the holding and may undertake all responsibilities directly, or delegate responsibilities related to day-to-day work management to a hired manager” (FAO 2007, 3.36). Therefore, the agricultural censuses provide measures of management rather than of ownership. Information on the holder or manager may be the most appropriate for considerations of agricultural productivity and providing services to farmers. However, a holder is not the same as an owner, and thus this database is not appropriate for making generalizations about the extent of women’s landownership, which are often made by advocacy and policy organizations.

The absolute numbers of women landholders and of total landholders for eight countries with data available from 2002 are used to calculate the percentage of women landholders as compared to men. The data do not allow for joint holding of plots or parcels or include communally held land. The sample sizes for the total number of landholders surveyed ranges from a low of 44,450 in Cape Verde to a high of 11,507,442 in Ethiopia. Although the percentage of women landholders ranges substantially from a low of 3.1 percent in Mali to a high of 50.5 percent in Cape Verde, the mean percentage across the eight countries is approximately 23.8 percent. The data are presented as unweighted, as reflective of national census data does not necessitate the use of survey weights.

¹² For more information, see www.fao.org/gender/landrights/home/en/.

¹³ Botswana data are from the Botswana Agricultural Census 2004. Cape Verde data are from the FAO World Census of Agriculture 1994. Ethiopia data are from the FAO World Census of Agriculture 2001–2002. Gambia data are from the Department of Planning, Department of State for Agriculture Report of the Agricultural Census of The Gambia 2001–2002. Madagascar data are from the FAO Stat *Principaux résultats du Recensement agricole 2004–2005*. Mali data are from *Recensement Agricole 2004–2005*. Data from Comoros are not included in the FAO database; instead, those data are from related FAO World Census of Agriculture documents (FAO n.d). Data from Tanzania (2002–3003) are included in the FAO database, although the authors use more recent data from the 2007–2008 census (Tanzania, Ministry of Agriculture et al. 2012). For more information, see www.fao.org/economic/ess/ess-wca/wca90-country0/en/.

¹⁴ The categories are national legal frameworks, international treaties and conventions, customary law, land tenure and related institutions, civil society organizations, and selected land-related statistics.

¹⁵ In total, 10 countries were excluded because data were collected before 2002 (Algeria [2001], Burkina Faso [1993], Cote d’Ivoire [2001], Democratic Republic of Congo [1990], Lesotho [1999–2000], Malawi [1993], Mozambique [1999–2000], Senegal [1998–1999], Uganda [1991], and Zambia [2000]).

Table 4.1 Percentage of landholders who are women

Country (Year)	Number of women landholders	Number of total landholders	Percentage of landholders who are women
Botswana (2004)	17,576	50,690	34.7
Cape Verde (2004)	22,461	44,450	50.5
Comoros (2004)	17,094	52,464	32.6
Ethiopia (2001–2002)	2,149,675	11,507,442	18.7
Gambia (2001–2002)	5,731	69,140	8.3
Madagascar (2004–2005)	371,158	2,428,492	15.3
Mali (2004–2005)	24,636	805,194	3.1
Tanzania (2007–2008)	1,575,129	5,838,523	27.0
Total			23.8

Source: Data for all countries but Comoros and Tanzania are taken from the FAO Gender and Land Rights Database. Data for Comoros are from related FAO World Census of Agriculture documents. Data from Tanzania are from a more recent agricultural census (2007–2008) than the one included in the database. Percentages are authors' own calculations. Figures are unweighted, as sample reflects national census data.

Notes: Figures are unweighted, as sample weights are not provided in the database. Only countries with data from 2002 and after are included. In the 2007–2008 Tanzanian census, the question asked is slightly different as compared with other countries; it asks whether female members of the household own or have a *customary* right to land.

Demographic and Health Surveys

The DHS are cross-country, population-level household surveys administered by host country governments with technical assistance from ICF International and other agencies under the MEASURE DHS project.¹⁶ Over the past 25 years, DHS have collected more than 300 surveys in more than 90 countries and represent a primary source of statistics on population, health, and nutrition, among others, from developing countries. Starting in 2009, select DHS started collecting information on individual landownership. Agricultural landownership is collected at the household level, with the question, “Does any member of this household own agricultural land?” At the individual level, information on individual ownership of any type of land is collected from each eligible woman (every woman age 15–49) and each eligible man (every man age 15–49/54/59, depending on the country) in the sample households. At the individual level, typically men and women are asked separately, “Do you own any land either alone or jointly with someone else?” Responses of no ownership, sole ownership, joint ownership, or both sole and joint ownership are allowed. Therefore, all DHS land statistics are nationally representative for households and for women and men in the relevant age groups. Because they are nationally representative, these statistics include urban households that do not own agricultural land.

Table 4.2 displays weighted results from the 10 countries that collected any landownership information at the individual level.¹⁷ The individual-level statistics are disaggregated by gender and include whether the individual owns any land (either sole ownership or joint ownership) and whether the individual owns any land alone (sole ownership).

¹⁶ For more information, see www.measuredhs.com.

¹⁷ Of data collected after 2002, three countries did not collect any land statistics at either the household level or the individual level: Chad (2004), Guinea (2005), and Mozambique (2003). Fifteen countries did not collect any land statistics at the individual level: Benin (2006), Congo [Brazzaville] (2005), Congo [DRC] (2007), Ghana (2008), Kenya (2008–2009), Liberia (2007), Madagascar (2008–2009), Mali (2006), Namibia (2006–2007), Niger (2006), Nigeria (2008), Sao Tome and Principe (2008–2009), Sierra Leone (2008), Swaziland (2006–2007), and Zambia (2007). Three countries were not available in the public domain or restricted access at the time of drafting this analysis: Cape Verde (2005), Eritrea (2002), and South Africa (2003). Finally, 2 of the 11 countries included in the table do not include questions on individual male landownership: Malawi (2010) and Tanzania (2010).

Table 4.2 Landownership, by households, women, and men

Country (year)	Household		Women			Men		
	Sample size households	Percentage of households owning any agricultural land	Sample size women	Own any land (sole or joint)	Own any land (sole only)	Sample size men	Own any land (sole or joint)	Own any land (sole only)
Burkina Faso (2010)	14,422	79	17,071	32	12	7,304	54	43
Burundi (2010)	8,589	86	9,372	54	11	4,280	64	50
Ethiopia (2011)	16,693	73	16,503	50	12	14,107	54	28
Lesotho (2009)	9,385	53	7,624	38	7	3,317	34	9
Malawi (2010)	24,818	80	15,399	48	23	NA	NA	NA
Rwanda (2010)	12,540	81	13,666	54	13	6,328	55	25
Senegal (2010–2011)	7,902	47	15,688	11	5	4,929	28	22
Tanzania (2010)	9,592	77	10,137	30	8	NA	NA	NA
Uganda (2011)	9,029	72	8,667	39	14	2,292	60	46
Zimbabwe (2010–2011)	9,756	63	9,171	36	11	7,480	36	22
Total	–	71	–	39	12	–	48	31

Source: Demographic and Health Surveys.

Notes: NA = not available. All descriptives use sample weights provided in the DHS. In Tanzania, the household ownership data included a “don’t know” option. Indicators for most countries had low percentages of missing values (from 0 to 31 observations). Land indicators for individual ownership in Malawi were only asked to currently married or partnered women, resulting in missing information for 7,575 women.

At the household level, reported agricultural landownership ranges from a low of 47 percent in Senegal to a high of 86 percent in Burundi. The mean unweighted percentage of household landownership across the 10 countries is approximately 71 percent. Across all countries included in the analysis, a higher percentage of men than women own land, both in terms both of owning land alone or jointly and of only owning land individually.¹⁸ The mean unweighted percentages of female sole or joint ownership and sole ownership only are 39 and 12 percent, respectively. For men, the mean unweighted percentage for both sole and joint ownership is 48 percent, and for sole only is 31 percent. In all countries, the percentage of women owning any land (sole and joint) is more than double the percentage of women owning land alone. Although the same general pattern holds for men, the difference between the two figures is proportionally smaller as compared with that for women. Comparing across countries, the highest levels of female landownership (sole or joint) are found in Burundi and Rwanda (54 percent), whereas the lowest levels are found in Senegal (11 percent), followed by Tanzania (30 percent). The highest levels of male landownership (sole or joint) are found in Burundi (64 percent) and Uganda (60 percent), whereas the lowest levels of any male landownership are found in Senegal (28 percent), followed by Lesotho (34 percent).

In five of the eight countries for which there are data for both men and women, the percentage of men who are landowners is higher than comparable figures for women. Only in Lesotho are the percentages higher for women as compared with men (38 percent for sole or joint ownership for women as compared with 34 percent sole or joint ownership for men). In two countries, Rwanda and Zimbabwe, the figures for men and women are roughly comparable.

Living Standard Measurement Surveys: Integrated Surveys on Agriculture

The LSMS-ISA is a joint US\$19 million effort led by the World Bank and funded by the Bill and Melinda Gates Foundation to provide high-quality, nationally representative data over time on agriculture and living conditions in seven countries in Africa. The initiative seeks to use innovative methods in data collection and indicator development in order to advance the knowledge base linking agriculture and poverty reduction in the region. Household and agricultural surveys collect detailed information on gender-specific ownership and decisionmaking and labor contributions to household cultivation efforts, allowing more nuanced, descriptive, and complex analyses of gender. In addition, the LSMS-ISA collect land area, value, and detailed titling indicators, allowing for estimates beyond simple indicators of ownership. The data are publicly available.¹⁹

This analysis includes data from six countries: Ethiopia, Malawi, Niger, Nigeria, Tanzania, and Uganda.²⁰ Data for each country include information from the most recent year for which the data are publicly available. A household questionnaire, agricultural questionnaire, and community questionnaire were administered in each of the six countries. The agricultural questionnaire collects detailed plot-specific data on control over household resources, participation in programs and activities, and asset ownership for gender-disaggregated analysis; it also collects detailed information on landholdings, such as plot size (both farmer estimate and global positioning system area measurements), tenure status and titling, and plot value (farmer estimate in local currency). Landownership data are representative of sampled households, but not of total land in the country, because the LSMS-ISA uses population-based sampling and is not a land census.

Questionnaire structure, questions asked, and response codes for basic land characteristics vary across countries, although there are common questions and core modules. For example, the definition of what qualifies as “agricultural land” in the data collection exercise varies. In Tanzania and Malawi,

¹⁸ One exception is Zimbabwe, where levels of ownership are equal for men and women (36 percent) when sole and joint landownership is considered. However, when only sole ownership is considered, the overall pattern holds—nearly double the percentage of men own land as compared with women (22 percent versus 11 percent).

¹⁹ Further information on sampling, data collection instruments, and ongoing research outputs can be found on the LSMS-ISA webpage (<http://go.worldbank.org/OQQUQY3P70>).

²⁰ At the time of analysis, data from Mali were not available.

separate data were collected on plots that were owned or accessed in two different agricultural seasons, whereas others did not distinguish between seasons. In addition, each agricultural questionnaire collected data on the tenure status of agricultural plots, with country-specific response codes. In all countries, with the exception of Nigeria, an additional question asked about whether the plots in question had titles or documentation, and three (Niger, Tanzania, and Uganda) solicited the form of documentation. We use the term *documented ownership* rather than *titled ownership*, because data are available not only on formal land titles but also on other types of documents, such as customary certificates, certificates of sale, or inheritance letters, which are considered formally documented land.

Variations in how landownership is assigned also exist between countries. Although some country questionnaires (for Ethiopia, Malawi, Tanzania, and Uganda) allowed enumerators to record two household members per owned plot (allowing for analysis of joint ownership), others (Niger and Nigeria) allowed them to record only one household member. Thus, for the latter two countries, the data cannot indicate whether any land is owned jointly. Data on management, ownership, and access of plots²¹ were collected in slightly different ways in three different countries. For example, accessed plots could be those cultivated by the household under a rental agreement, gift, or loan. Further details on differences in land definitions, questionnaire structure, land documentation indicators, ownership assignment, treatment of outliers, and calculation of area measures for all LSMS-ISA countries are included in Appendix Table A.1. Sampling weights are utilized in all analysis.

Figure 4.1 presents the plot-level results for landownership based on area measurements for each country. The pie charts present, by sex, the proportion of land that is owned (and for some countries, which proportion of that land is documented or undocumented) or accessed, out of the total land area surveyed for the LSMS-ISA. Figure 4.1 shows that, of all agricultural land of surveyed households (hereafter referred to as *household land*), Tanzania has the highest proportion that is reported as owned (documented and undocumented, 91 percent), followed by Uganda (88 percent), Niger (87 percent), Ethiopia (84 percent), Malawi (78 percent), and Nigeria (9 percent).²² It is worth noting here that, due to the proportion of clan and family inherited land in Nigeria, for which the ownership indicator was not collected, there is a small percentage attributed to individual household ownership.²³ In all of these countries, of the (undocumented and documented) land owned, men's sole ownership of land is higher than women's sole ownership of land. The highest rate of male ownership (documented and undocumented) as a proportion of all household land (Indicator 5) is found in Niger (54 percent), followed by Tanzania (41 percent), Malawi (32 percent), Uganda (30 percent), and Nigeria (9 percent). For women, these statistics are highest in Malawi (31 percent), followed by Uganda (16 percent), Tanzania (15 percent), Niger (8 percent), and Nigeria (less than 1 percent). Joint ownership of land (land owned by women and men together), whether documented or undocumented, is highest in Uganda (42 percent), followed by Tanzania (36 percent), Niger (25 percent), and Malawi (14 percent). These figures mean that, when comparing sole ownership measures (undocumented and documented), in Nigeria, men, on average, own 99 times as much land area as compared to women; however, these ratios are lower in other countries (6.9:1 in Niger, 2.8:1 in Tanzania, 1.9:1 in Uganda, 1.1:1 in Malawi).

Figure 4.1 also shows that men solely own a greater share of documented land than that owned solely by women in terms of area measures. However, overall relatively little land is documented. The share of total household land that is documented solely in men's names is 19 percent in Ethiopia, followed by Uganda (6 percent), Tanzania and Niger (both 5 percent), and Malawi (less than 1 percent). The comparable share of household land that is solely documented in women's names is highest in

²¹ The "ownership indicator" in the Appendix (Methodology for LSMS-ISA Statistics) identifies which plots are considered owned and which are considered accessed.

²² The proportions represented in Figures 4.1 and 4.2 are rounded, based on Tables 4.3 and 4.4, and thus do not consistently sum to 100 percent. In the case of Ethiopia, plots with undocumented ownership do not have associated sex-disaggregated ownership information; thus, Ethiopia is omitted from this discussion.

²³ In this case, management indicators as reported in Tables 4.3 and 4.4 can be used as an alternative to ownership. In addition, ownership could be proxied by the ability to sell the land, which will be explored in future revisions of the paper. See the Appendix for more information on construction of indicators.

Ethiopia (6 percent), followed by Uganda (3 percent), Tanzania (1 percent), and Malawi and Niger (both below 1 percent). In Ethiopia, land that is documented jointly, under both men's and women's names, is 17 percent of household land area, whereas it is 10 percent of household land area in Uganda, 5 percent in Tanzania, 3 percent in Niger, and less than 1 percent in Malawi. Therefore, the gap between women and men in area of sole ownership of documented land is largest in Niger (12:1), followed by Tanzania (4.1:1), Ethiopia (3:1), Malawi (2.1:1) and Uganda (2:1).

Figure 4.2 presents the plot-level results for landownership based on value measurements for each country, except Ethiopia. Similar to Figure 4.1, the pie charts present, by gender, the proportion of value of land owned (and for some countries, which proportion of that value is for documented or undocumented land) or accessed, out of the total value of all household land. Figure 4.2 shows that Uganda has the highest proportion of value of owned land by anyone in the household (96 percent), followed by Tanzania (90 percent), Malawi (88 percent), and Nigeria (6 percent). In all countries, of the undocumented and documented land owned, the value of land owned solely by men is higher than (or equal to, in the case of Malawi) the value of land owned solely by women. As a proportion of the value of all household land (Indicator 5), men solely own 41 percent of the value of land in Tanzania, followed by Malawi (34 percent), Uganda (33 percent), and Nigeria (6 percent). These same statistics for the value of land owned solely by women reveal a high of 34 percent in Malawi, followed by Tanzania (16 percent), Uganda (15 percent), and Nigeria (0.6 percent). For the value of land owned by men and women jointly as a percentage of the total value of all household land (documented or undocumented), statistics range from 49 percent in Uganda to 34 percent in Tanzania and 20 percent in Malawi. Niger does not provide information on the value of land that is not owned.

Similar to Figure 4.1, Figure 4.2 demonstrates that the share of the value of documented land owned solely by men is higher than the share of the value of documented land owned solely by women. The value of documented land accounts for a small proportion of the value of all household land. The value of the share of household land (both owned and accessed) that is documented solely under men's names ranges from less than 1 percent in Malawi to 10 percent in Uganda. In contrast, the value of the share of land documented solely in women's names ranges from less than 1 percent in Malawi and Niger to 5 percent in Uganda.

Tables 4.3 and 4.4 present the detailed plot-level results for landownership by LSMS-ISA country for area and value measures, respectively. The first column indicates the country, year, and type of land examined (owned or accessed), and the remaining columns present the total number of parcels and area or value measure in the sample, followed by statistics for women, men, and joint area or value measures. These statistics differ from those presented in the pie charts, because the pie charts use as the denominator all of household surveyed land.

Table 4.3 shows that across countries, among household-owned land, men solely own a higher proportion of land (documented and undocumented) as compared with that owned solely by women. The highest percentage of male ownership among land owned by the household is found in Nigeria (99 percent), followed by Niger (62 percent), Tanzania (44 percent), Malawi (42 percent), and Uganda (34 percent). For women, these statistics are highest in Malawi (40 percent), followed by Uganda (18 percent), Tanzania (16 percent), Niger (9 percent), and Nigeria (1 percent). Joint ownership of household-owned land is common in Uganda (48 percent), followed by Tanzania (39 percent), Niger (29 percent), and Malawi (18 percent). In addition, if we consider average parcel area among individuals who report solely owning land (documented or undocumented), in Nigeria, men, on average, own 4.4 times as much absolute land area as compared with women; however, these ratios are lower in other countries (1.7:1 in Niger, 1.5:1 in Tanzania, 1.3:1 in Uganda, and 1.2:1 in Malawi). Across countries, men solely own a substantially higher proportion of household documented land as compared with women only. The proportion of men's sole ownership of documented land, as a proportion of all household documented land, ranges between highs of 60 percent and 45 percent in Niger and Tanzania, respectively, to lows of 35 percent and 32 percent in Malawi and Uganda, respectively. Women's sole ownership of documented land, as a proportion of all household documented land, ranges between highs of 17 percent and 16 percent in Malawi and Uganda, respectively, to 11 percent in Tanzania and 5 percent in Niger. Joint

documented ownership is highest in Uganda (52 percent), followed by Malawi (47 percent), Tanzania (44 percent), and Niger (34 percent). When we consider average parcel area among the sample of women and men who solely own documented land, in Uganda and Tanzania men own approximately 1.7 as much documented land, on average, as women, compared with lows of 1.3:1 in Niger, 1.2:1 in Malawi, and 1.1:1 in Ethiopia.

In terms of the management of all household land (owned and accessed), men solely manage between three and nearly seven times as high a proportion of land as women manage in Malawi and Nigeria, respectively. These differences are magnified when considering the proportions of sole management of owned land only (for example, the ratio in Nigeria is 49:1). Men also solely manage a larger absolute average area of owned and accessed land as compared with sole management by women in both countries. However, in Uganda, data on management of the output of owned land show that women solely manage a slightly higher proportion of the output from owned land than men solely manage (24 percent of output from owned land managed by women compared with 21 percent by men). It should be noted that for management of output of either owned or accessed land in Uganda, the number of plots managed by women are higher than those managed by men; however, these plots have a lower absolute average area than those managed by men. Among management indicators for accessed land, men solely manage a larger area as compared to women in Malawi and Nigeria; yet, a lower proportion of area in Uganda. Use right indicators are only available in Uganda and are higher for men than for women, in terms of both proportion of the area of accessed land and the average absolute area of accessed land.

Sex-disaggregated results on the value of land (Table 4.4) are slightly less consistent as compared to area; however, they tell the same basic story. In all countries except Malawi, men by themselves own (documented or undocumented) a higher proportion of the value of household owned agricultural land as compared to that solely of women only, with men in Nigeria holding as much as 10 times the proportion of value of owned land than that held by women. In Malawi, men and women hold equal proportions of the value of owned land (39 percent each). In terms of jointly owned land, men and women together hold between 23 percent (Malawi) and 51 percent (Uganda) of the value of owned land. The absolute average value of owned land is higher for men than for women across all five countries, although the absolute average value of land that is owned jointly in Malawi, Niger, and Uganda is higher than the average value of owned land held by either women only or men only in these three countries. Across all four countries for which it is measured, men own a higher proportion of the value of documented land than do women, with a particularly large difference in the proportion of value of documented land between men and women in Niger (25:1). Jointly, men and women hold the highest proportion of value of documented land in Uganda (49 percent) and Malawi (43 percent), followed by Tanzania (31 percent) and Niger (21 percent). In Malawi and Nigeria, men solely manage a significantly higher proportion, as well as a higher absolute average land value, as compared with women solely, in terms of not only the value of managed owned and managed accessed land but also the amount disaggregated by value of managed owned land and value of managed accessed land. The exception is the value of managed owned land in Nigeria, where the absolute average value of managed owned land is higher for women than for men. In Uganda, men and women who solely manage output from owned plots both hold 21 percent of the land value and jointly hold 58 percent of the value of output from the owned lands they manage. The proportion of the value of output from accessed land managed solely by women in Uganda is higher (24 percent) than that managed solely by men (22 percent).

Figure 4.1 The area of accessed or owned land (by gender) as a proportion of the total area of all household land (in acres)

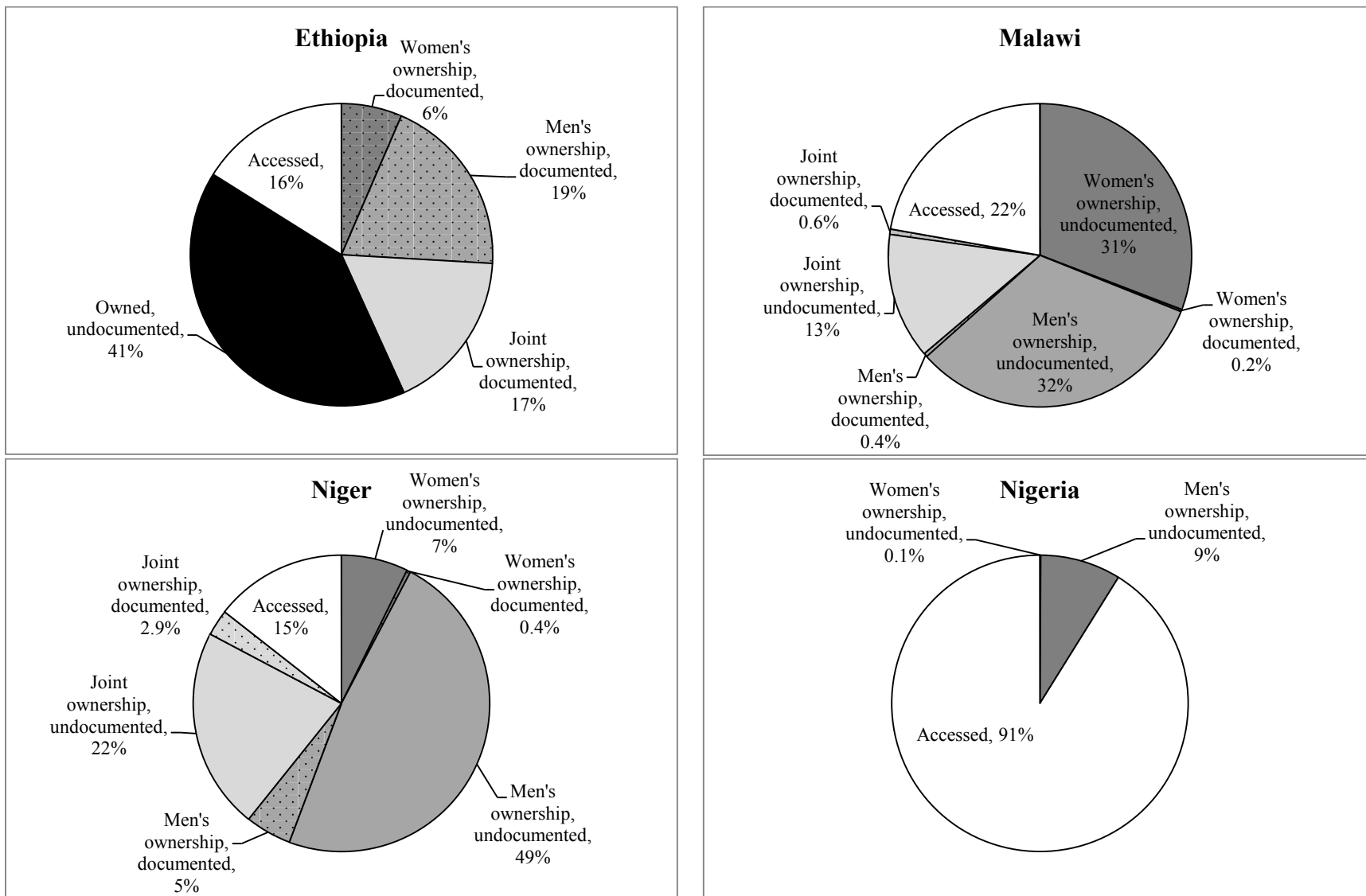
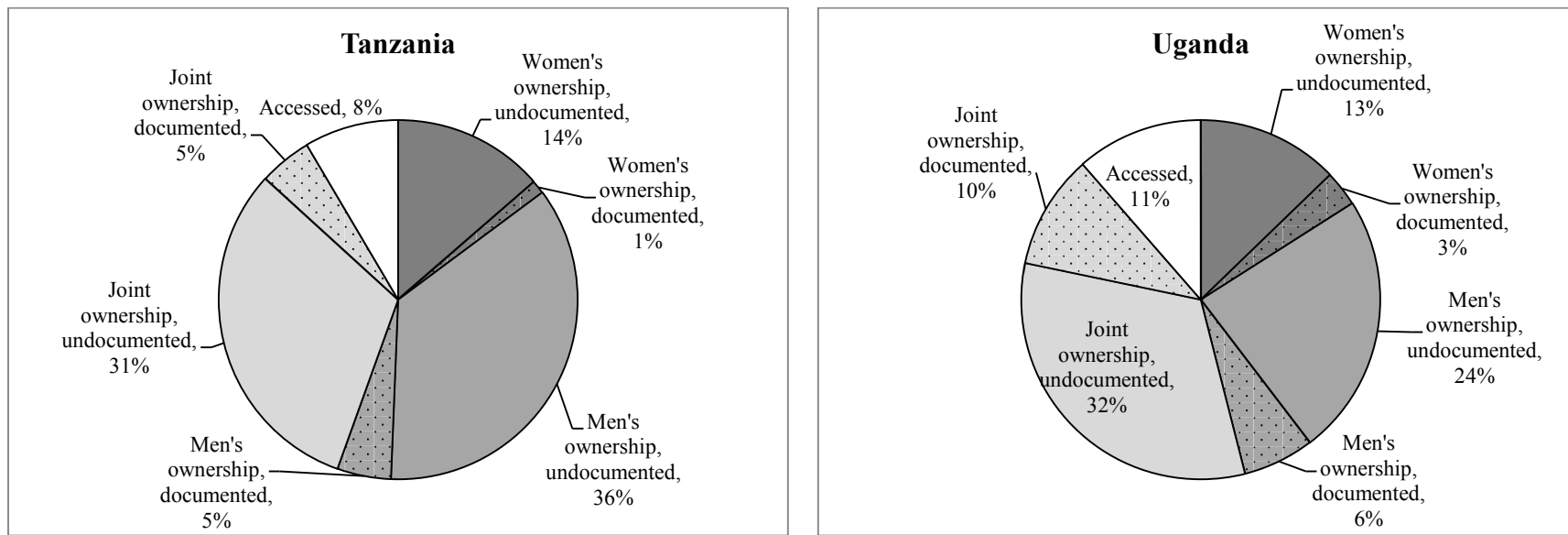


Figure 4.1 Continued



Source: Data from Living Standards Measurement Study—Integrated Surveys on Agriculture (LSMS-ISA) Ethiopia (2011–2012), Malawi (2010–2011), Niger (2011), Nigeria (2010), Tanzania (2010–2011), and Uganda (2009–2010).

Notes: All proportions are calculated from the statistics in Table 4.3, which use weighting provided in the ISA. All area measures are in acres. Proportion area figures represented are rounded based on Table 4.3 and thus do not consistently sum to 100 percent. In the case of Ethiopia, plots with undocumented ownership do not have associated sex-disaggregated ownership information.

Figure 4.2 The value of accessed or owned land (by gender) as a proportion of the total value of all household land (in local currency)

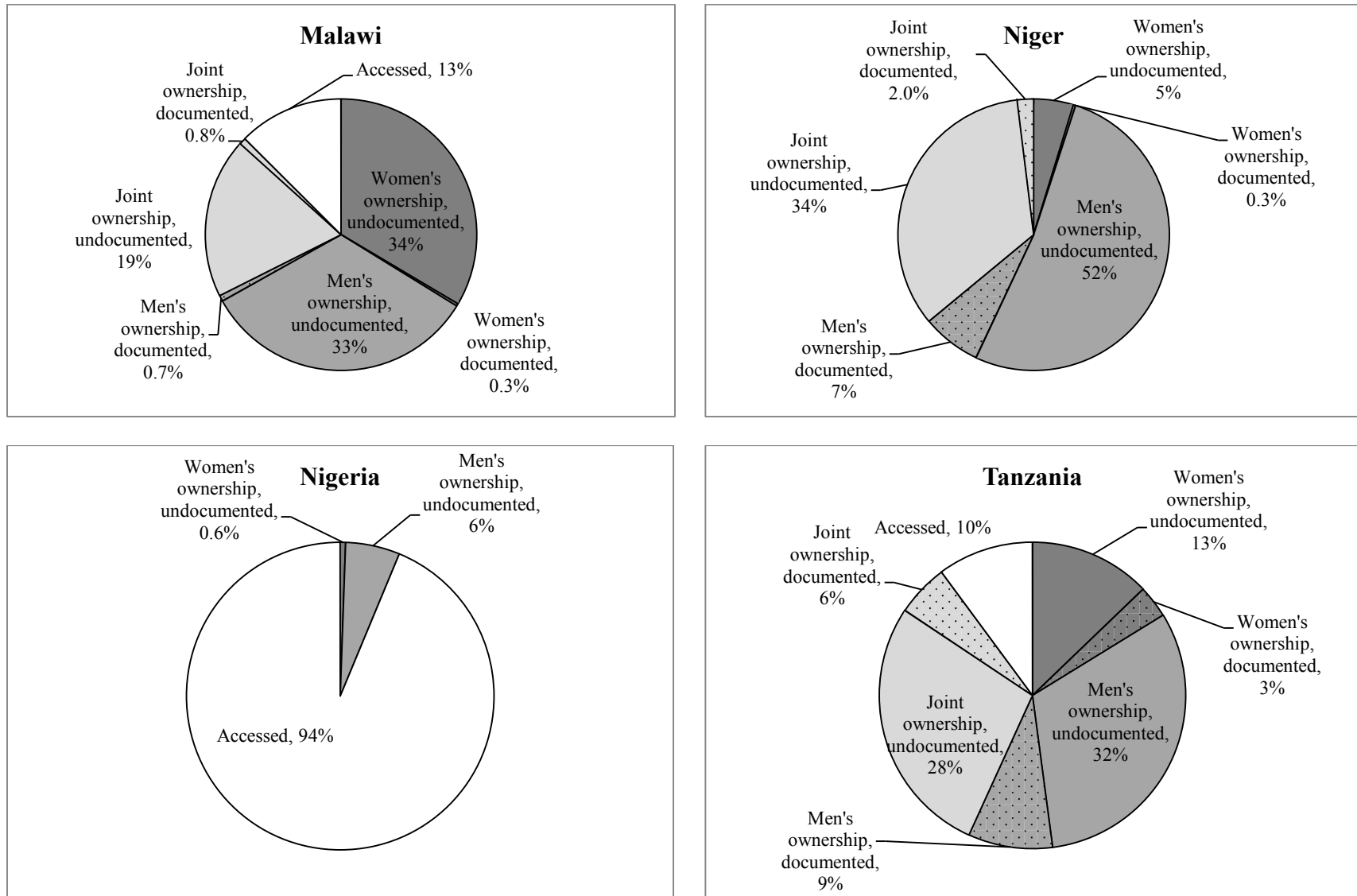
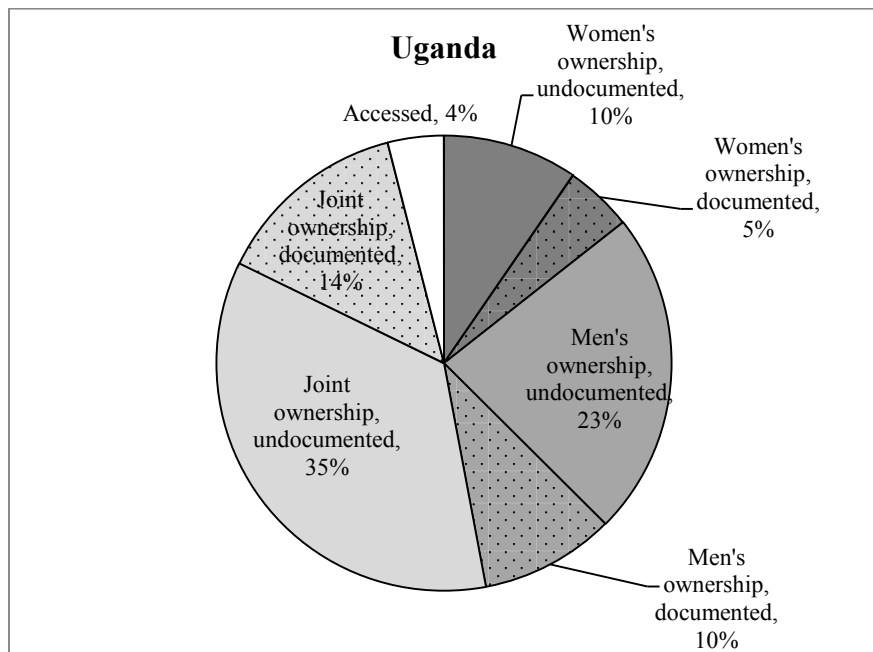


Figure 4.2 Continued



Source: Data from Living Standards Measurement Study—Integrated Surveys on Agriculture (LSMS-ISA) Malawi (2010–2011), Niger (2011), Nigeria (2010), Tanzania (2010–2011), and Uganda (2009–2010).

Notes: All proportions are calculated from statistics in Table 4.4, which use weighting provided in the ISA. All value measures are in local currency. Proportion area figures represented are rounded based on Table 4.4 and thus do not consistently sum to 100 percent. In the case of Ethiopia, no associated value information was collected.

Table 4.3 Landownership and access area measures

Country and type of land	Total number of parcels				Total area	Average area			Proportion held		
	Total (sample size)	Women	Men	Joint		Women	Men	Joint	Women	Men	Joint
Ethiopia (2011–2012)											
Documented ownership	3,443	585	1,572	1,286	3,457	0.92	1.01	1.11	0.15	0.45	0.40
Malawi (2010–2011)											
Ownership	15,593	6,646	6,052	2,895	14,009	0.83	0.98	0.91	0.40	0.42	0.18
Documented ownership	208	43	72	93	213	0.90	1.09	1.11	0.17	0.35	0.47
Management (owned + accessed)	19,977	5,194	14,783	N/A	17,990	0.84	0.93	N/A	0.24	0.76	N/A
Management (owned)	15,586	4,123	11,463	N/A	14,003	0.84	0.93	N/A	0.25	0.75	N/A
Management (accessed)	4,391	1,071	3,320	N/A	3,987	0.85	0.93	N/A	0.23	0.77	N/A
Niger (2011)											
Ownership	5,302	685	3,012	1,605	18,974	2.29	3.84	3.52	0.09	0.62	0.29
Documented ownership	450	29	298	122	1,860	3.14	4.12	5.41	0.05	0.60	0.34
Nigeria (2010)											
Ownership	375	28	347	N/A	864	0.56	2.44	N/A	0.01	0.99	N/A
Management (owned + accessed)	5,780	1,052	4,728	N/A	9,757	1	1.78	N/A	0.13	0.87	N/A
Management (owned)	386	42	344	N/A	874	0.63	2.43	N/A	0.02	0.98	N/A
Management (accessed)	5,394	1,010	4,384	N/A	8,883	1.01	1.72	N/A	0.14	0.86	N/A
Tanzania (2010–2011)											
Ownership	5,103	1,110	2,146	1,847	12,864	1.83	2.67	2.57	0.16	0.44	0.39
Documented ownership	553	108	250	195	1,502	1.47	2.49	3.17	0.11	0.45	0.44
Uganda (2009–2010)											
Ownership	4,127	856	1,297	1,974	8,898	1.71	2.27	1.99	0.18	0.34	0.48
Documented ownership	832	157	229	446	1,995	1.94	3.37	2.11	0.16	0.32	0.52
Management or control of output (owned)	4,065	1189	722	2,154	8,120	1.61	2.58	2.02	0.24	0.21	0.55
Use rights (accessed)	1,457	457	361	639	1,147	0.60	0.91	0.70	0.25	0.30	0.45
Management or control of output (accessed)	1,454	562	248	644	1,148	0.63	0.84	0.75	0.32	0.21	0.47

Source: Data from Living Standards Measurement Study—Integrated Surveys on Agriculture (LSMS-ISA) Ethiopia (2011–2012), Malawi (2010–2011), Niger (2011), Nigeria (2010), Tanzania (2010–2011), and Uganda (2009–2010).

Notes: N/A = not available. All statistics use weighting provided in the ISA. All area measures are in acres. Proportion areas are rounded to two decimal points; therefore, total proportion area does not always appear to sum to 100 percent.

Table 4.4 Landownership and access value measures

Country and type of land	Total number of parcels				Total value	Average area			Proportion held		
	Total (sample size)	Women	Men	Joint		Women	Men	Joint	Women	Men	Joint
Malawi (2010–2011)											
Ownership	15,650	6,683	6,062	2,905	662,973	39	44	53	0.39	0.39	0.23
Documented ownership	212	40	80	92	11,732	49	61	56	0.17	0.40	0.43
Management (owned and accessed)	17,987	4,770	13,217	N/A	758,311	37	45	N/A	0.23	0.77	N/A
Management (owned)	15,643	4,152	11,491	N/A	662,620	38	45	N/A	0.23	0.77	N/A
Management (accessed)	2,344	618	1,726	N/A	95,691	32	40	N/A	0.23	0.77	N/A
Niger (2011)											
Ownership	3,816	506	2,162	1,148	1,368,347	132	300	392	0.05	0.59	0.36
Documented ownership	303	24	230	49	127,490	153	290	262	0.03	0.75	0.21
Nigeria (2010)											
Ownership	378	29	349	N/A	108,354	267	297	N/A	0.09	0.91	N/A
Management (owned and accessed)	5,644	1,039	4,605	N/A	1,729,151	278	317	N/A	0.17	0.83	N/A
Management (owned)	382	43	339	N/A	107,099	347	286	N/A	0.14	0.86	N/A
Management (accessed)	5,262	996	4,266	N/A	1,622,052	275	320	N/A	0.18	0.82	N/A
Tanzania (2010–2011)											
Ownership	5,082	1,101	2,149	1,832	6,377,203	1,013	1,327	1,267	0.18	0.45	0.37
Documented ownership	543	104	250	189	1,266,465	2,018	2,288	1,752	0.19	0.50	0.31
Uganda (2009–2010)											
Ownership	3,902	776	1,272	1,854	17,700,000	3,038	4,467	4,563	0.15	0.34	0.51
Documented ownership	799	147	223	429	5,197,525	4,537	7,123	5,440	0.17	0.34	0.49
Management or control of output (owned)	3,842	1,088	710	2,044	17,400,000	2,896	4,916	4,680	0.21	0.21	0.58
Use rights (accessed)	612	118	189	305	738,243	1,118	1,064	1,297	0.17	0.29	0.54
Management or control of output (accessed)	612	172	131	309	741,443	1,135	1,171	1,227	0.24	0.22	0.54

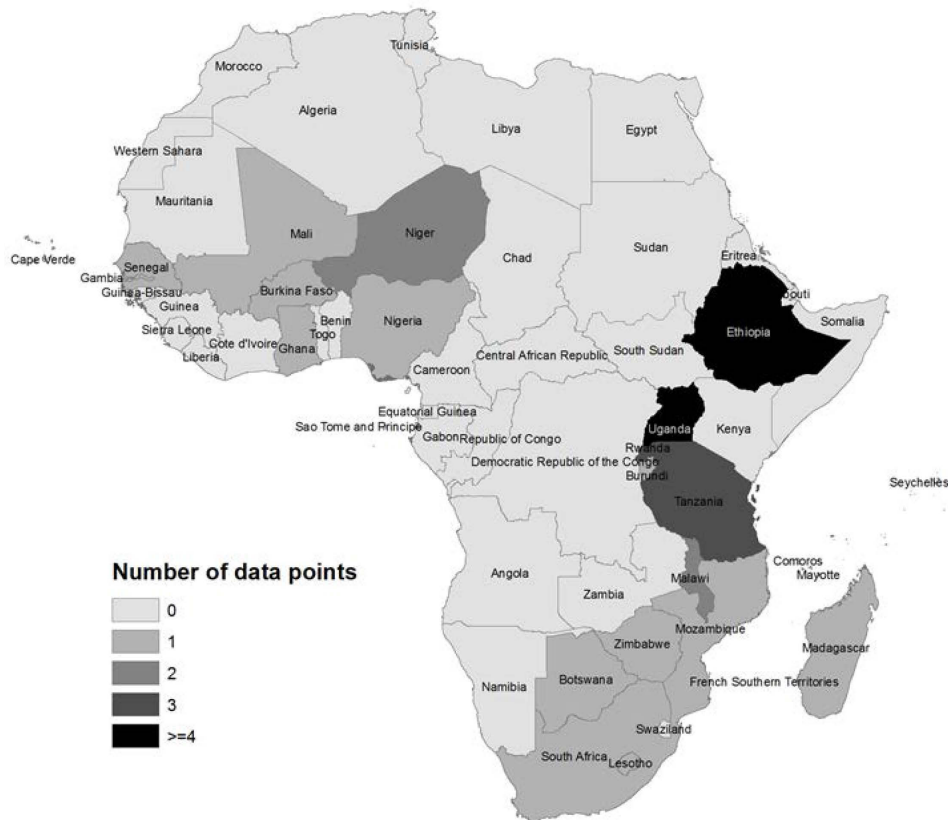
Source: Data from Living Standards Measurement Study—Integrated Surveys on Agriculture (LSMS-ISA) Malawi (2010–2011), Niger (2011), Nigeria (2010), Tanzania (2010–2011), and Uganda (2009–2010).

Notes: N/A = not available. All statistics use weighting provided in the ISA. Local currencies are reported as follows: 1,000s of Malawian kwacha; 1,000s of CFA francs for Niger; 1,000s of Nigerian naira; 1,000s of Tanzanian shillings; and 1,000s of Ugandan shillings. No value measures available for Ethiopia. Further methodological details are provided in Appendix Table A.1. Proportion areas are rounded to two decimal points; therefore, total proportion area does not always appear to sum to 100 percent.

5. SUMMARY AND RECOMMENDATIONS

We began this effort by asking the question, Can we produce a reliable data-driven statistic on landownership for women in Africa? The answer turns out to be more complex than simply yes or no. There exist virtually no recent, comparable, nationally representative data across African countries that contain information on women’s landownership and control or management. Therefore, in a world of imperfect and scarce data, we undertook a review of existing estimates, as well as an analysis of large-scale comparable data, using FAO’s Gender and Land Rights Database, DHS, and the LSMS-ISA. This exploration reveals that many gaps remain, in terms of both country coverage and quality of measurements available. For example, if we map our data points from the statistical analysis and from the review of microstudies (assigning one data point for each country per study), we observe that large geographic areas in northern and central Africa have virtually no estimates (Figure 5.1). In addition, of the 19 countries represented, only 6 have two or more data points for triangulation.

Figure 5.1 Geographic representation of data points for gender-land analysis included in this study



Source: Authors.

It is clear that statements such as “less than 2 percent of the world’s land is owned by women” or “women own approximately 15 percent of agricultural landholdings in Africa” are gross oversimplifications and are not substantiated by any of the available data. Yet, across countries, the pattern that women own less land than men, regardless of how ownership is conceptualized, is remarkably consistent. Further, in many cases, the gender gaps are quite large.

The various analyses presented in this paper provide new insights into the gendered patterns of landownership. Our best estimates from a review of 16 large-scale microstudies indicate that women are

disadvantaged relative to men in nearly all measures of landownership and bundles of rights; however, the gender gap varies widely. These statistics are typically more equitable for management indicators, or for land with use or access rights only; they are less equitable for indicators based on reported or documented ownership. An eight-country analysis from the FAO's Gender and Land Rights Database shows that women account for an average of 24 percent of agricultural landholders (although this ranges from 3.1 percent in Mali to 50.5 percent in Cape Verde). Data from 10 DHS surveys show that as a country-level average, 39 percent of women own land individually, and 12 percent of women own land jointly, in contrast to 48 and 31 percent of men, respectively. Analysis of LSMS-ISA from six countries shows that of the total land area owned or accessed by households, women solely own (documented and undocumented) a high of 31 percent in Malawi, followed by Uganda (16 percent), Tanzania (15 percent), Niger (8 percent), and Nigeria (less than 1 percent). Comparatively, men solely own, on average, 99 times as much land area as women in Nigeria, and between 1.1 to 6.9 times as much land area as land solely owned by women in the other countries.

These findings, as well as the analysis process, point to the following conclusions and recommendations for improving research and policy on women's landownership in Africa.

First, for any analyses of the gendered patterns of landownership, it is critical to clearly define both the definitions of *ownership* and the indicators being used. Without this, comparisons cannot be made across studies, making it impossible to discern overall patterns. The variations in methodology, even within the same group of surveys, make producing comparable estimates from existing research and datasets a challenge. Thus, standardizing definitions and methodology is important when collecting primary data, and differences in methodology should be made explicit when replicating or comparing studies. This recommendation applies not only to a generation of simple statistics on women's landownership, but also for more complex analyses linking landownership to human development, economic outcomes, or impact evaluations of titling schemes. For example, if one were interested in reviewing the evidence on how women's landownership may lead to improved empowerment outcomes, it would be important to pay attention to the types of land and ownership included in these studies.

Second, any assessment of gender inequality depends on the comparison group. When considering the percentage of women who own land, this must be compared with the percentage of men who own land. Likewise, when considering the percentage of land that is owned by women, it is critical to identify how jointly owned land is treated. Assessments of inequality will differ, depending on whether women's landownership is being compared with men's ownership only or with other joint ownership. For example, in Uganda, although women own only 18 percent of the land individually, they own another 48 percent jointly with men (Table 4.3).

Third, which measures are collected and how they are defined affect both the evidence on gendered landownership and the policies based on this evidence. This is particularly true for documentation of ownership. Although it would be ideal to develop a standardized definition of *titled* or *documented* land, in reality, the legality or security of land in different contexts varies considerably; thus, definitions and data that most closely resemble the country context should be used whenever possible. Understanding both the central tendencies and the outliers in women's landownership can tell more about where programs may be most beneficially targeted, as well as indicating promising approaches to reverse large inequalities between women and men in landownership.

Finally, the methods of collecting individual-level land data need to be much more standardized. Surveys should routinely ask who within the household owns the land and should allow for the inclusion of multiple names, as this will facilitate analysis of both individual and joint ownership. In addition, researchers should systematically test whether the identity of the respondent in these types of surveys significantly affects the validity and consistency of individual responses within the household (for example, Fisher, Reimer, and Carr 2010).

Although the evidence base on impact evaluations of land and property rights interventions has increased in recent years, evidence on the gender-differentiated impacts of land property rights interventions that is based on longitudinal data or that moves beyond simple associations is still scarce. Several recent reviews have attempted to summarize levels, linkages, and programmatic options for

strengthening women's land rights (Rodgers and Menon 2013). Although these overviews contribute to the understanding of promising approaches, they fall short of including the methodological rigor needed to identify causality in studies being reviewed. Moreover, it is questionable whether much of the older literature from the early 1990s is still relevant, given the evolution of land tenure systems owing to economic growth, structural transformation, and property rights interventions. Because policies and programs to redress inequalities in landownership are typically designed and implemented at the country level, global and regional statistics on gender inequalities in landownership, despite being attractive as an advocacy tool, will not provide the information required to design appropriate policy interventions. Rigorous, well-defined, and contextually relevant measurement of gender disparities in ownership and control of land, implemented in population-representative surveys that are embedded within countries' statistical systems, will be essential to future efforts to reduce gender gaps in bundles of rights associated with landownership.

APPENDIX: SUPPLEMENTARY TABLE

Table A.1 Methodology for Living Standards Measurement Study–Integrated Surveys on Agriculture (LSMS–ISA) statistics

Category	Ethiopia (2011–2012)	Malawi (2010–2011)	Niger (2011)	Nigeria (2010)	Tanzania (2010–2011)	Uganda (2009–2010)
Definition of surveyed land	“List all parcels of land owned or rented in (both cultivated and noncultivated)” [Post-Planting Questionnaire, Section 2]. Further, “A parcel can have one or more cultivated or uncultivated fields [manual].”	“During the [REFERENCE SEASON], did you OR any member of your household own any land OR cultivate any land?” Further, “A plot is a continuous piece of land on which a unique crop or a mixture of crops is grown, under a uniform, consistent crop management system. It must be continuous and should not be split by a path of more than one meter in width. Plot boundaries are defined according to the crops grown” [Agriculture Questionnaire, AG-MODULE C].	“For the list of parcels, include those that belong to the household, those that the household cultivates, and those that are not cultivated (fields at rest or loaned to other households). Then make a list of all the parcels that the household works and that do not belong to it, including all the parcels used in the rainy season and the contre season” [Ag Questionnaire 1.4].	“Please list for me all the plots that you or anyone in your household owned or cultivated since the new year” [Agricultural Questionnaire, Post-Planting, Flap B, Plot roster/Fertilizer acquisition].	“Please list all plots anyone in your household owned or cultivated during the 2010 long rainy season” [Agriculture Questionnaire, Section 2A]. Further, “Please list any additional plots owned or cultivated by anyone in the household during the short rainy season [year] (use year from Q11)” [Agricultural Questionnaire 2B].	“We would like to ask some questions about all the land for which the household has ownership, including grazing and fallow land during the last completed season (1st season: Jan–June 2009) and the current cropping season (2nd season: July–Dec 2009). Please include land belonging to this household that was rented or lent out to another household. During the last completed cropping season (1st season of 2009: Jan–June) and the current cropping season (2nd season of 2009: July–Dec), has any member of your household owned any agricultural land, including woodlots, forest land, and land rented or lent out to others?” [Agriculture Questionnaire, Section 2A]. Further, “During the last completed cropping season (1st Season of 2009: Jan–June) and the current cropping season (2nd season of 2009: July–Dec), has your household had access (use rights) to agricultural land, including woodlots and forest land belonging to someone else?” [Agriculture Questionnaire, Section 2B].

Table A.1 Continued

Category	Ethiopia (2011–2012)	Malawi (2010–2011)	Niger (2011)	Nigeria (2010)	Tanzania (2010–2011)	Uganda (2009–2010)
Questionnaire format	Questionnaire includes parcel roster, which collects ownership information of each parcel (AG-Section 2), and field roster, which collects area measurements of each field within a parcel (AG-Section 3). Because ownership information is only collected at the parcel level, area measurements for fields are aggregated up to parcel level for analysis. Both rosters are administered to any household member who indicates he or she is a landholder. Therefore, some parcels were recorded twice within any given household. In the case there was conflicting information recorded regarding ownership status or gender of owner, the parcel was omitted from the analysis. This resulted in 86 parcels dropped across 52 households (a total of 0.9% of the analyzed sample).	Questionnaire includes <i>plot roster</i> for rainy season (AG-MOD C) and dry season (AG-MOD J), and <i>plot details</i> for the rainy season (AG-MOD D) and dry season (AG-MOD K). Plots listed in the rainy and dry season plot rosters (C and J) were appended. Plots listed in the rainy and dry season plot details modules (D and K) were also appended. Plot roster data and plot details data were both checked for duplicates, missing plot IDs dropped in J and K, and plot roster data and plot details data were then merged. Questionnaire addresses owned land, owned titled land, and managed land (both owned and accessed). Analysis also includes management of owned land only and management of accessed land only.	Questionnaire only collects indicators for owned land. Data drawn from Section 1 of the Agriculture and Livestock Questionnaire. Questionnaire addressed owned land and titled (owned) land.	Plot roster (AG-Section 11); Land inventory (AG-Section 11b). Questionnaire addresses ownership and management of land. Analysis hence includes ownership of land, management of owned land, management of accessed (not owned) land, and management of all land.	Questionnaire includes <i>plot roster</i> for <i>long</i> rainy season (AG-Module 2A) and <i>short</i> rainy season (AG-Module 2B); plots listed in the roster in the long rainy season and short rainy season were appended. <i>Plot details</i> were recorded for the long rainy season (AG-Module 3A) and short rainy season (AG-Module 3B); plots listed in plot details in the long rainy season and short rainy season were merged. Plot roster data (appended Modules 2A and 2B) and plot details data (merged Modules 3A and 3B) were then merged. Questionnaire addresses owned land and titled (owned) land.	Questions on land are divided into two sections: SECTION 2A: <i>current</i> landholdings (land for which the household has ownership including grazing and fallow land—includes woodlots, forest land and land rented or let out to others) during last completed (January–June 2009) and current (July–December 2009) cropping seasons, and SECTION 2B: Land that the household has access to through <i>user</i> rights (agricultural land including woodlots and forest land belonging to someone else) in last completed (January–June 2009) and current (July–December 2009) cropping seasons. Questionnaire addresses owned land, titled (owned) land, management of outputs for owned and accessed (non-owned) land, and use rights for accessed land.

Table A.1 Continued

Category	Ethiopia (2011–2012)	Malawi (2010–2011)	Niger (2011)	Nigeria (2010)	Tanzania (2010–2011)	Uganda (2009–2010)
Ownership indicator (household level)	<p>Question: How did your household acquire this [PARCEL]?</p> <p>Response/matching code: Granted by local leaders (1); Inherited (2); Rent (3); Borrowed for free (4); Moved in without permission (5); Other (6). <i>Plot is considered <u>owned</u> for (1) and (2); plot is considered <u>accessed</u> for (3)–(6).</i></p>	<p>Question: How did your household <u>acquire</u> this plot?</p> <p>Response/matching code: Granted by local leaders (1); Inherited (2); Bride-price (3); Purchased with title (4); Purchased without title (5); Leasehold (6); Rent short-term (7); Farming as a tenant (8); Borrowed for free (9); Moved in without permission (10); Other (11). <i>Plot is considered <u>owned</u> for (2)–(5); plot is considered <u>accessed</u> for (1) and (6)–(11).</i></p>	<p>Question: What is the tenure of the plot?</p> <p>Response/matching code: Owned (1); Rent (2); Mortgage (3); Loan (4); Other (5). <i>Plot is considered <u>owned</u> for (1); plot is considered <u>accessed</u> for (2)–(4).</i></p>	<p>Question: How was this [PLOT] acquired?</p> <p>Response/matching code: Outright purchase (1); Rented for cash or in-kind goods from other households (2); Used free of charge (3); Distributed by community or family (4). <i>Plot is considered <u>owned</u> for (1); plot is considered <u>accessed</u> for (2)–(4).</i></p>	<p>Question (Section 3A and 3B): What was the ownership status of this plot in the [long/short] rainy season 2010?</p> <p>Response/matching code: Owned (1); Used free of charge (2); Rented in (3); Shared—Rent (4), Shared—Own (5). <i>Plot is considered <u>owned</u> for (1) and (5); plot is considered <u>accessed</u> for (2)–(4).</i></p>	<p>Question (Section 2A): "How did you acquire this parcel?"</p> <p>Response/matching code: Purchased (1), Inherited or received as gift (2), Leased-in (3), Just walked in (cleared) (4), Do not know (5), Other (specify) (6). <i>Plot is considered <u>owned</u> for 1, 2, 4-6.</i> Question (Section 2B): "During the last completed cropping season (1st Season of 2009: Jan-June 2009) and the current cropping season (2nd Season of 2009: July-Dec 2009), has your household had access (use rights) to agricultural land including woodlots and forest land belonging to someone else?" Response/matching code: 1=YES, 2=NO (>>SECTION 3). <i>Plot is considered <u>accessed</u> for (1).</i></p>
Owner indicator (individual level)	<p>Question: Under whose name(s) is the certificate issued for this [PARCEL]?</p> <p>Response/matching code: 2 household roster ID codes allowed per plot.</p>	<p>Question: Who in the household owns this [PLOT]? LIST UP TO 2 JOINT OWNERS FROM HOUSEHOLD ROSTER.</p> <p>Response/matching code: 2 household roster ID codes allowed per plot.</p>	<p>Question: What is the ID number of the owner of this parcel?</p> <p>Response/matching code: 1 household roster ID code allowed per plot, <u>or</u> "Entire household" (98).</p>	<p>Question: Who is the owner of this [PLOT]?</p> <p>Response/matching code: 1 household roster ID code allowed per plot.</p>	<p>Question (same for Sections 3A and 3B): Who in the household owns this plot?</p> <p>Response/matching code: 2 household roster ID codes allowed per plot.</p>	<p>Question: Who has the ownership/use rights to this parcel?</p> <p>Response/matching code: 2 household roster ID codes allowed per plot.</p>

Table A.1 Continued

Category	Ethiopia (2011–2012)	Malawi (2010–2011)	Niger (2011)	Nigeria (2010)	Tanzania (2010–2011)	Uganda (2009–2010)
Documentation indicator	<p>Question: Does your household have a certificate for this [PARCEL]?</p> <p>Response/matching code: 1 = Yes, 2 = No. <i>Land is considered <u>documented</u> for (1).</i></p>	<p>Question: How did your household <u>acquire</u> this plot?</p> <p>Response/matching code: Granted by local leaders (1); Inherited (2); Bride-price (3); Purchased with title (4); Purchased without title (5); Leasehold (6); Rent short-term (7); Farming as a tenant (8); Borrowed for free (9); Moved in without permission (10); Other (11). <i>Land is considered <u>documented</u> for (4).</i></p>	<p>Question: What kind of title do you have on this parcel?</p> <p>Response/matching code: Land title (1); Customary certificate (2); Certificate of sale (3); Other document (4); None (5). <i>Land is considered <u>documented</u> for (1)–(4).</i></p>	N/A	<p>Question (same for Sections 3A and 3B): What type of title did your household have for this plot?</p> <p>Response/matching code: Granted right of occupancy (1); Certificate of customary right of occupancy (2); Residential license (3); Village government–witnessed purchase agreement (4); Local court–certified purchase agreement (5); Inheritance letter (6); Letter of allocation from village government (7); Other government document (8); Official correspondence (9); Utility or other bill (10). <i>Land is considered <u>documented</u> for (2)–(9).</i></p>	<p>Question: Does this parcel have a formal certificate of title or customary certificate of ownership or certificate of occupancy issued by and registered with government authorities?</p> <p>Response/matching code: Certificate of title (1); Certificate of customary ownership (2); Certificate of occupancy (3); No document (4). <i>Land is considered <u>documented</u> for (1)–(3).</i></p>
Management indicator	N/A	<p>Question: Who in the household <u>makes the decisions</u> concerning <u>crops</u> to be planted, <u>input use</u>, and the <u>timing</u> of cropping activities on this [PLOT]?</p> <p>Response/matching code: 1 household roster ID code allowed per plot. <i>The questionnaire has no possibility for joint management.</i></p>	N/A	<p>Question: Who in the household manages this [PLOT]?</p> <p>Response/matching code: 1 household roster ID code allowed per plot.</p>	N/A	<p>Question: Who manages/controls the output from this parcel among household members?</p> <p>Response/matching code: 2 household roster ID codes allowed per plot. <i>This question is asked in both Section 2A (current landholdings) and Section 2B (landholdings that households have access to through use rights).</i></p>

Table A.1 Continued

Category	Ethiopia (2011–2012)	Malawi (2010–2011)	Niger (2011)	Nigeria (2010)	Tanzania (2010–2011)	Uganda (2009–2010)
GPS area	Farmer estimates reported in different units (hectares, square meters, timad, boy, senga, kert, and other); all are converted into acres. GPS used for 87% of total area; farmer estimate used for 13% of total area.	Farmer estimates reported in acres, square meters, or hectares; square meters and hectares are converted to acres. GPS used for 96% of total area; farmer estimate used for 4% of total area.	Farmer estimates and GPS measurements reported in square meters; both are converted to acres. GPS used for 76% of total area; farmer estimate used for 23% of total area.	Farmer estimates reported in different units (heaps, ridges, stands, plots, acres, hectares, square meters, other); GPS measured in square meters. All are converted to acres, according to the conversions appropriate for six geographical zones. GPS used for 90% of total area; farmer estimate used for 10% of total area.	GPS and farmer estimates both reported in acres. GPS used for 78% of total area; farmer estimate used for 22% of total area.	For current landholdings (owned plots, Section 2A): Both farmer estimate and GPS are reported in acres. GPS is used for 70% of total area; farmer estimate is used for 30% of total area. For holdings to which the household has access to through use rights (accessed plots, Section 2B): GPS used for 52% of area; farmer estimate used for 48% of area. Top 1% of values trimmed (>10,000,000 Ugandan shillings); number of observations trimmed: 3.
Treatment of outliers (area and value measurements)	Top 1% of GPS measures trimmed (> 6.63 acres); number of observations trimmed: 90. Top 1% of farmer estimates trimmed (> 14.99 acres); number of observations trimmed: 101. No value measures available.	Top 1% of GPS measures trimmed (> 4 acres); number of observations trimmed: 190. Top 1% of farmer estimates trimmed (> 4 acres); number of observations trimmed: 179. Top 1% of value measures trimmed (> 400,000 Malawian kwachas); number of observations trimmed: 168.	Top 1% of GPS measures trimmed (> 143,593 square meters); number of observations trimmed: 50. Top 1% of farmer estimates trimmed (> 100,000 square meters); number of observations trimmed: 57. Top 1% of value measures trimmed (> 4,000,000 CFA francs).	Top 1% of GPS measures trimmed (> 16.02921 acres); number of observations trimmed: 53. Top 1% of farmer estimates trimmed (> 432 acres); number of observations trimmed: 58. Top 1% of value measures trimmed (> 6,000,000 naira); number of observations trimmed: 57.	Top 1% of GPS measures trimmed (> 24.19 acres); number of observations trimmed: 48. Top 1% of farmer estimates trimmed (> 20 acres); number of observations trimmed: 46. Top 1% of value measures trimmed (> 27,000,000 Tanzanian shillings); number of observations trimmed: 60.	For current landholdings (owned plots, 2A): Top 1% of GPS measures trimmed (> 28.8 acres); number of observations trimmed: 29. Top 1% of farmer estimates trimmed (> 30 acres); number of observations trimmed: 34. Top 1% of values trimmed (> 100,000,000 Ugandan shillings); number of observations trimmed: 30. For holdings to which the household has access to through use rights (accessed plots, 2B): Top 1% of GPS measures trimmed (> 4.28 acres); number of observations trimmed: 7. Top 1% of farmer estimates trimmed (> 6 acres); number of observations trimmed: 12. GPS used for 52% of area; farmer estimate used for 48% of area. Top 1% of values trimmed (> 10,000,000 Ugandan shillings); number of observations trimmed: 3.

Table A.1 Continued

Category	Ethiopia (2011–2012)	Malawi (2010–2011)	Niger (2011)	Nigeria (2010)	Tanzania (2010–2011)	Uganda (2009–2010)
Identifier mismerges	Ownership ID (5 plots had no associated ID match).	Ownership ID (10 plots had no associated ID match); Manager ID (5 plots had no associated ID match).	Ownership ID (15 plots had no associated ID match).	0 mismerges	0 mismerges	For current landholdings (owned plots, Section 2A): Ownership ID (3 plots had no associated ID match). For holdings to which the household has access to through use rights (accessed plots, Section 2B): Ownership ID (2 plots had no associated ID match).

Source: Authors' compilation based on survey data..

Note: N/A = not available.

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