

## Article

# Do Land Rights Unlock Women's Participation? Insights from Smallholder Farming in Mbeere South, Kenya

Alexander Njue Muthee<sup>1</sup>, Dr Nason Vundi<sup>2</sup>, Dr. Antony Wando Odek<sup>3</sup>

1. PhD Student, Department of Development Studies, St. Paul's University, Limuru, Kenya
  2. Senior Lecturer, Department of Development Studies, St. Paul's University, Limuru, Kenya
  3. Senior Lecturer, Department of Development Studies, St. Paul's University, Limuru, Kenya
- \* Correspondence: pdslmr404916@spu.ac.ke<sup>1</sup>, nvundi@spu.ac.ke<sup>2</sup>, aodek@spu.ac.ke<sup>3</sup>

**Abstract:** Women provide most of the labor in smallholder farming, yet their control over land remains limited. riculture is done by women while their ownership of land is constrained. This research sought to establish the relationship between the rights to land and women's in. It specifically focused on land access, ownership documentation, control over farming decisions, and awareness of legal rights. Using a descriptive, mixed-methods design, 310 women were sampled from a population of 1,562 through stratified and simple random sampling. Data came from questionnaires, key informant interviews, and focus groups. Quantitative data were analyzed with descriptive statistics, cross-tabulations, and ordinal regression; qualitative data were analyzed thematically. Results show 60.2% of women had full land access, but only 5.5% had sole ownership. All women with full rights awareness and 80.7% of independent decision-makers had high participation. Significant associations were found ( $\chi^2$  up to 53.074,  $p < 0.01$ ). Regression results highlight that limited decision-making ( $\beta = -1.605$ ,  $p = 0.005$ ) and low rights awareness ( $\beta = -18.762$ ,  $p < 0.001$ ) reduce participation. The study finds that secure land rights, decision-making autonomy, and knowledge of entitlements strongly shape engagement, while gaps in control and awareness keep many women from fully participating in farming.

**Keywords:** Land rights, Women's participation, Smallholder farming, Decision-making, Kenya.

## 1. Introduction

Women make up a large percentage of the total agricultural labor globally, however, they also have limited access to land and ownership, as well as few rights to make decisions about their farms. There are approximately 43% of agricultural labor is performed by women globally [1], [2]. Women rarely have formal titles to the land they farm and have very little authority over the farming they do. In many parts of the world, even if the law provides for legal recognition of women's land rights, they do not have meaningful control of the land [3]. Women are working the fields and making daily decisions, while they are also the worker of the farm. However, many times women are not consulted and do not have a voice in the decisions made at the household and community levels. These gaps negatively affect agricultural productivity and reduce household's income, while also making it harder for women to respond to financial and climate-related shocks [4].

In sub-Saharan Africa, the barriers to women's land and agricultural rights are more significant. Women do not frequently have formal ownership of the land they farm and are not included in decision-making about farming operations by male relatives to whom they may have some relationship. Women also have limited access to credit, savings and extension services, and many women do not know their rights to land [1]. Even where laws exist to protect women's rights, weak enforcement and cultural barriers the right to

**Citation:** Muthee, A. N, Vundi, N & Odek, A. W. Do Land Rights Unlock Women's Participation? Insights from Smallholder Farming in Mbeere South, Kenya. International Journal on Economics, Finance and Sustainable Development (IJEFS) 2026, 8(1), 351-363 .

Received: 10<sup>th</sup> Jan 2026  
Revised: 21<sup>th</sup> Feb 2026  
Accepted: 14<sup>th</sup> Mar 2026  
Published: 10<sup>th</sup> Apr 2026



**Copyright:** © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>)

participate fully in agricultural decision-making. Programs that provide support to women without addressing the social systems and structures that maintain barriers to women's decision-making often will increase short-term income, but they do not help women increase their agency or decision-making capacity [5].

Community interventions that provide small loans, training or investments assume that women will be making decisions about farming. These types of interventions often fail to empower women because they lack secure land access, documentation and controlling interest over their farming operations. Although they may benefit from increased income, these women are still dependent on someone else for the decisions regarding how to farm their household. It is essential that women be aware of what rights they have to own land. If they do not have this awareness, then there is no way that these programs can be leveraged to provide meaningful opportunities for women or translate into long-term increases in productivity [6], [7].

Women are responsible for a large portion of the labor that is used to farm smallholders in Kenya. Women are responsible for many activities including but not limited to: preparing land for farming, planting seeds, weeding and planting, harvesting crops and selling harvested crops. In Mbeere South Sub-County, approximately 98% of women do not have formal land titles in Kenya. Most farming decisions are made by men in Mbeere South Sub-County. While these trends may continue throughout rural Kenya, there is no systematic way of measuring women's access, formal title to land, decision making power, and an understanding of land rights. This study will measure these dimensions of women's land rights as well as how extension services and agricultural investments may influence women's participation in farming.

The rest of this article is organized in the following manner. Firstly, the literature review and theoretical background are discussed. After that, the methodology for conducting research and data analysis is provided. The results are presented in the section of results, and their discussion is done based on the theory of empowerment and previous studies. The final part is conclusion drawn from the findings and actionable recommendations.

## **2. Materials and Methods**

### **Literature Review**

#### **Theoretical Framework**

The Access to Productive Resources theory addresses the gap in understanding how women use access to productive resources to affect outcomes like crop production, household income and food security by examining the way that women access resources through legal means, thereby having some level of control over their use [8], [9]. The Access to Productive Resources theory provides a framework for assessing how women utilize productive resources and how that reflects their access to productive resources through social norms and male-dominated institutions. Women may farm land and grow crops without formal documentation, for example, as well as be limited by gender by the type of crops that they are allowed to plant, which results in them not having the same level of access to productive resources as men, resulting in women not having the real power to influence decision making because of their inability to convert access into actual control of productive resources. The Access to Productive Resources framework can help determine the true barriers to women's realization of power through control of land and productive resources through an examination of land ownership, control, and awareness.

This framework, however, does not take into consideration the role of local governments in administering, enforcing and regulating the rights of women regarding productive resources. To overcome this limitation in the Access to Productive Resources research, community norms and leadership have been added as variables if the research were to also include an assessment of the factors contributing to the lack of land tenure for women in smallholder farming communities. The GAD framework focuses on the

discrimination and inequality between men and women; the Access to Productive Resources framework focuses on whether access to productive resources results in real control.

The two frameworks establish a basic framework which enables researchers to study land rights within smallholder agricultural systems. GAD presents a model which shows how social institutions and power structures determine the chances that people will succeed or face difficulties. The Access to Productive Resources framework shows whether women's access translates into real control over the land they farm. The study uses these perspectives to examine how four land rights elements which include access ownership documentation and control over farming decisions work with awareness of entitlements to affect women's agricultural participation in Mbeere South.

### **Empirical Literature Review: Land Rights and Women's Participation in Farming**

Women's participation in agriculture is closely associated with land, though not straightforward. Land rights tend to attract different definitions depending on the context. Some focus on formal ownership or title. Others look at use rights, decision-making, or perceived control. These differences affect what each study finds. Most research looks at smallholder farmers in rural settings, where land supports both income and social position. Outcomes also vary. This is because some studies measure yield or income. Others focus on agency, bargaining power, or food security. This study brings these strands together to examine how land rights relate to actual participation in farming.

People consider actual ownership rights to be crucial but research findings show inconsistent results. Goli et al. demonstrate that established ownership rights bring stronger negotiation power which enables revenue producing activities [10]. The research conducted by Kehinde et al. demonstrates that farmers who obtain both land rights and access rights will enhance their food security while their agricultural production will increase [11]. Other research demonstrates a pattern that differs from existing studies. Schling and Pazos found that neither ownership rights nor income control or credit access indicators connect with each other although crop diversity improves. Land use practices depend on ownership rights of land [12]. People with decision-making authority hold more power than those who possess title deeds. The study considers that distinction to be its main focus.

Control and decision-making show more consistent results. Doss and Meinzen-Dick (2020) argue that access, use, control, and ownership do not always overlap. A woman may farm land without owning it. Another may hold a title but have little say in how the land is used. Kehinde et al. also link decision-making power and income control to better agricultural outcomes [11]. Many studies combine these elements, which makes results hard to compare. This study separates them to examine their individual effects.

Awareness about rights forms yet another dimension. According to Santpoort et al, there are numerous women who lack awareness about their legal rights [13]. In line with Owoicho et al, this awareness is influenced by education, economic status, and societal culture. Context plays an important role [14]. While even when access is present, dominance is maintained by men because of cultural practices such as inheritance rights. The concept of collective ownership too can undermine women's ability to exercise their rights since it involves being in an influential position in a patriarchal system.

There is no commonality in research methods, which makes comparisons difficult. While quantitative researches, for instance, Kehinde et al, provide modeling of tenure types, they may ignore informal agreements [11]. On the other hand, small-scale researches, for example, Goli et al, offer in-depth analysis of decision-making processes [10], yet Quasi-experimental work like Schling and Pazos focuses on outcomes such as crop diversity rather than participation [12]. Qualitative studies, including Santpoort et al. [13], show how negotiation happens within households but do not support broad comparisons. In many cases, participation is inferred from income or productivity rather than measured directly. This creates gaps in understanding actual engagement.

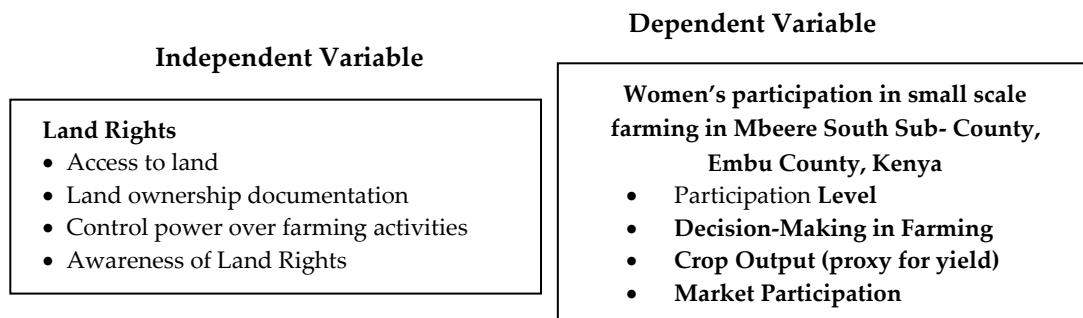
Access is necessary, but it does not explain participation on its own. Owoicho et al. show that women with limited control still participate less, even when they have access [14]. The control of resources serves as a more accurate predictor than any other measure of productivity. The ownership of resources helps businesses gain bargaining power, yet it does not guarantee their capacity to use resources equitably. The total results of a system depend on the combination of access control, user control, system awareness and the existing social environment. The two women who possess identical access rights show completely different levels of active involvement.

The literature contains multiple unresolved areas. Researchers have seldom studied the relationship between access and ownership and control and awareness. The research lacks multivariate models which separate their different impacts. The majority of studies show that ownership does not guarantee active participation. The research fails to consider contextual elements. Customary systems dominate in certain regions which make formal land market laws unsuitable. The research excludes certain groups who include widows and unmarried women as subjects. The study closes research gaps by measuring all dimensions and establishing direct links to participation.

Land rights work in layers. Access allows entry. Ownership supports that access. Control determines how land is used. Awareness allows women to act on their rights. Social norms and institutions shape each layer. The degree of participation is determined by the interaction among these layers. Considering any of the layers in isolation creates a partial view. The current research investigates all of the above layers concurrently to offer more insight into the participation of women in smallholder farming within Mbeere South's context.

#### Conceptual Framework

The study was guided by a conceptual framework that modeled women's economic empowerment as the dependent variable.



**Figure 1.** Conceptual Framework for the Study

Source: Author (2025)

In this study, women's participation in small-scale farming in Mbeere South is treated as the outcome. It is measured using participation levels, decision-making, crop output, and market involvement. Land rights form the main explanatory factor. These include access to land, ownership documentation, control over farming decisions, and awareness of rights.

GAD theory simple explains why there is an inconsistency between the existence of legal rights and effective power. It states that societal and institutional systems determine which people possess actual power, despite the presence of formal legal rights [15], [16]. The female can own or gain access to land resources but still not be able to make choices concerning their usage. The Access to Productive Resources theory provides another perspective on the issue. It divides access into access and control, stating that gaining access to resources is not equivalent to exercising control over resource utilization [8], [17]. Decisions related to planting, inputs application, and income allocation are made by

others, usually at the household level. Thus, mere access cannot serve as an explanation of participation.

Land rights are broken into four parts: access, documentation, control, and awareness. All three are important, yet all three are not enough. Women can have rights and yet be hindered by societal pressures or ineffective implementation within the community. Participation is a result of how all three intersect in reality. Putting these perspectives together makes it easier to understand the discrepancy between rights and use. It also highlights the difference between access and actual control, which is important for understanding women's participation in agriculture.

### **Methodology**

The research used mixed methods to examine how land ownership rights and extension services and investment activities affect women's smallholder farming participation in Mbeere South Sub-County of Embu County Kenya. The research centered on exploring how the availability of land, having documentation of ownership of land, management decisions regarding agriculture, and knowledge about land rights influence participation rates, decision-making, agricultural production, and involvement in marketing. A descriptive research approach was selected for the research since the approach helps to uncover real-life occurrences and relationships between the variables. This means that the research will help to understand what is happening in women's farms without trying to manipulate variables (Kothari, 2004). Mbeere South Sub-County was selected because of the prevalence of smallholder farming and related issues facing women in the area.

The study involved 1,562 women between 24 and 45 years old who worked on small farms and participated in making farm decisions. The selected age range included women who spent their time making decisions about agriculture and household responsibilities [18], [19]. The researchers used two sampling techniques namely stratified random sampling and simple random sampling to obtain participants from five different Mavuria Mbeti South Mwea Makima and Kiambere wards. Sample size was 310 and this was determined using Krejcie and Morgan's table [20]. Random selection methods were used to choose eligible women from lists that local administrators and community groups provided to them which helped decrease selection bias.

The study employed purposive sampling to select key informants who included agricultural extension officers, land registry officials, local chiefs, county agriculture officers, rural credit officers, and NGO/CBO representatives who possessed knowledge about land governance and policy and agricultural investment programs that impacted women. The researchers gathered data through semi-structured questionnaires which collected information about demographic details and land access and extension service utilization and agricultural investment and policy execution and participation results. The survey received additional information through key informant interviews and focus group discussions (FGDs). The FGDs investigated decision-making processes and group interactions and obstacles which surveys could not identify. The sessions followed open-ended guides to obtain thorough answers which lasted 30 to 60 minutes according to the rules established by Dawadi et al [21]. The study used secondary data from government reports and previous studies and official statistics to establish context and validate its findings.

The sample included 310 females; of those, 286 provided responses, which equates to a response rate of 92.3%. This high response rate decreases the likelihood of non-response bias and increases the ability to produce reliable data [22]. Constructs used for analysis of the survey results also showed high internal consistency, with a Cronbach's  $\alpha$  of 0.879, which is above the minimum acceptable limit of 0.70 [23]. Descriptive statistics, cross-tabulations and ordinal regression were used to analyze the quantitative portion of the survey. Ordinal regression was the appropriate type of analysis to use because participation is an ordered categorical outcome. Due to the categorical nature of most of

the variables, cross-tabulations were utilized to substitute for correlation analysis and allowed for greater identification of association across wards [24]. The qualitative data were thematically analyzed, with codes developed based on the original research objectives and utilized direct quotes from the study participants to demonstrate these same patterns as well as any disagreements among participants.

All provisions under ethics were adhered to in the conduct of this research. Ethical approval was granted by the Institutional Review Board, the National Commission for Science, Technology and Innovation, as well as by the Mbeere South Sub County. Prior to completing the survey, written informed consent was obtained from each participant, informing them that they were participating in a voluntary research activity and they could withdraw from the study at any time without penalty. Participants were given unique identifiers to maintain their anonymity and confidentiality. Research assistants were trained prior to data collection regarding ethical behavior, neutrality and consistent data collection procedures. This ensured participant rights were protected and the findings accurately reflected actual experiences without coercion or manipulation of responses.

### 3. Results and Discussion

#### Introduction

The findings of this research are reported in three major stages in this section. First, there is an overview of the descriptive statistics that cover the variables of interest. Next, bivariate analysis using cross tabulation analyzes the relationship between these variables and women's involvement in smallholder agriculture. Finally, multivariate analysis using ordinal regression is employed to estimate the effect of the variables on participation level.

#### Demographic Characteristics

The study surveyed 286 respondents to provide context for women's participation in small-scale farming. The detailed distribution is presented in Table 1.

**Table 1.** Demographic Characteristics of Respondents

Variable	Category	Frequency (n)	Valid Percent (%)
Age	18–25	24	8.4
	26–35	36	12.6
	36–45	120	42
	46–55	106	37.1
Marital Status	Single	40	14
	Married	216	75.5
	Divorced	7	2.4
	Widowed	23	8
Education Level	Primary	186	65
	Secondary	68	23.8
	Tertiary/University	32	11.2
Years in Farming	1–3	55	19.2
	4–6	37	12.9
	>6	194	67.8

The age distribution showed that most participants belonged to the 36–55 years age range while only a small number of participants fell within the 18–25 age group. Most respondents were married (75.5%), with small proportions single (14.0%) or widowed (8.0%); divorced or separated participants were negligible. 65% of people completed primary school, while 23.8% finished secondary education and 11.2% reached tertiary education qualifications. 67.8% of participants demonstrated extended farming experience because they worked more than six years in the field, while 12.9% worked between four and six years and 19.2% worked between one and three years. The analysis uses age and

farming experience to determine expertise levels, while education shows agricultural knowledge accessibility and usage abilities and marital status helps understand household labor patterns.

### Descriptive Analysis of Land Rights

Land rights were assessed using four indicators: access to land, type of legal documentation held, decision-making authority over farming activities, and knowledge of legal rights. Access to land was measured based on the security of land use, ranging from temporary to full and continuous access. Legal documentation distinguished between no documentation, shared ownership, and sole ownership. Decision-making authority was captured as no involvement, shared decisions, or independent decision-making. Knowledge of legal rights was measured through self-reported awareness, ranging from no knowledge to full knowledge of entitlements. These indicators were designed to assess whether women not only physically access land but also exercise control and hold legally recognized rights.

Table 2 summarizes the distribution of respondents across three key dimensions: access to land, land ownership documentation, and decision-making power in farming activities.

**Table 2.** Land Access, Documentation, and Decision-Making

Variable /Question	Categories	Frequency	Percent
<b>Access to land:</b> How secure is your access to land for farming?	I sometimes use land temporarily	31	10.7
	I mostly have access but with restrictions	84	29.1
	I have full and continuous access	174	60.2
	Total	289	100
<b>Legal documents:</b> What type of legal document do you hold for the land you farm?	I sometimes use Land Temporary	98	33.9
	Shared ownership document	175	60.6
	Sole ownership document	16	5.5
	Total	289	100
<b>Decision-making:</b> Who makes decisions about the farming activities you carry out?	Others decide entirely	46	15.9
	I share decisions but have limited input	160	55.4
	I make all decisions independently	83	28.7
	Total	289	100

Variability in access to land exists among respondents where 60.2% of respondents have full and continuous access to land; 29.1% report access to land subject to restrictions; 10.7% rely upon temporary access to land; and therefore the majority of women have consistent access to the land for agricultural purposes; however, a sizeable portion does not enjoy unrestricted access to the land. Disparities also exist between ownership documentation and access to land. Five percent (5.5% or 4 respondents) of respondents own the land individually, six percent (60.6% or 49 respondents) of respondents share ownership of the land, and thirty-one percent (33.9% or 29 respondents) of respondents do not possess any official documentation related to their ownership of the land. The discrepancy between the high level of reported access to land and the low level of documented ownership, serves to illustrate an area of concern that physical possession of

land may not provide any legally verified or secured right to land, thereby limiting a woman's ability to authorize her use of the land (and so the long-term investment in agricultural enterprises).

Similarly, there is a lack of clear authority regarding decision-making in relation to agricultural production. A majority of respondents (55.4%) reported that they participated in decision-making similarly, but lacked adequate input; 28.7% reported that they make independent decisions; 15.9% of respondents reported being completely excluded from agricultural decision-making. The lack of authority exhibited in decision-making by the respondents further demonstrates that although women may have access to land, there are restrictions on decision-making that effectively control women's ability to develop plans, implement those plans, and realise economic returns from their agricultural enterprise.

The table generally indicates that although the level of accessibility to the land is high amongst women agriculturalists in Mbeere South, there is a problem regarding land ownership and decision-making powers. This shows clearly that any program intended to enhance women's involvement in agriculture should consider both accessibility and ownership rights as well as decision-making processes.

#### Access to Bivariate Analysis of Land Rights and Women's Participation

This section looks at how land rights relate to women's participation in small-scale farming in Mbeere South Sub-County, based on the study's conceptual framework. Land rights were examined using four indicators: access to land, ownership documentation, control over farming decisions, and awareness of legal rights. Participation, the dependent variable, was captured through four activities. These include involvement in farm work, role in crop decisions, crop output, and participation in markets. Responses across these areas were combined into a single index. The index was then grouped into three levels: Low (7–10), Moderate (11–13), and High (14–16). This created an ordered scale for comparing participation across different land rights conditions. The index calculation process becomes straightforward because all indicators were assigned identical weights.

As the variables in this research are categorical, the crosstabulation technique was used to describe their distribution. The chi-square method was adopted to examine any relationships that may exist between the land rights and the level of participation. The findings have been presented in Table 3 below.

**Table 3.** Crosstab of Land Rights Indicators and Women's Participation Levels

Indicator	Category	Participation Level			Total n (%)	$\chi^2$ (df, p-value)
		Low n (%)	Moderate n (%)	High n (%)		
Land access security	Temporary access	8 (25.8)	0 (0.0)	23 (74.2)	31 (100.0)	24.080 (4, 0.000)
	Restricted access	8 (9.5)	16 (19.0)	60 (71.4)	84 (100.0)	
	Full access	24 (13.8)	7 (4.0)	143 (82.2)	174 (100.0)	
Land documenta tion	No documents	24 (24.5)	8 (8.2)	66 (67.3)	98 (100.0)	40.149 (4, 0.000)
	Shared ownership	8 (4.6)	15 (8.6)	152 (86.9)	175 (100.0)	
	Sole ownership	8 (50.0)	0 (0.0)	8 (50.0)	16 (100.0)	
Decision- making	Others decide	8 (17.4)	15 (32.6)	23 (50.0)	46 (100.0)	53.074 (4, 0.000)
	Shared decisions	16 (10.0)	8 (5.0)	136 (85.0)	160 (100.0)	
	Independent decisions	16 (19.3)	0 (0.0)	67 (80.7)	83 (100.0)	
	No knowledge	8 (14.8)	8 (14.8)	38 (70.4)	54 (100.0)	
Few rights	24 (14.2)	15 (8.9)	130 (76.9)	169 (100.0)		

Indicator	Category	Participation Level			Total n (%)	$\chi^2$ (df, p-value)
		Low n (%)	Moderate n (%)	High n (%)		
Knowledge of land rights	Most rights	8 (18.2)	0 (0.0)	36 (81.8)	44 (100.0)	
	Full knowledge	0 (0.0)	0 (0.0)	22 (100.0)	22 (100.0)	

The study shows that all land rights indicators connect to women's participation but their connection to participation shows different patterns. Women who have complete land access rights show 82.2 percent high participation levels which decrease to 74.2 percent when they have only temporary access. The results show that access rights need to consider more factors than existing land documentation to assess their impact. Women who share decision-making authority with others show the strongest connection to land access rights ( $\chi^2 = 53.074$ ,  $df = 4$ ,  $p = 0.000$ ) which shows that women who participate in shared decision-making process together with those who make their own decisions hold the top participation rates while women who participate in shared decision-making process together with those who make their own decisions hold the top participation rates. Women who possess land rights knowledge show higher levels of participation ( $\chi^2 = 14.187$ ,  $df = 6$ ,  $p = 0.028$ ) because 70.4% of women who lack knowledge achieve high participation rates while 100.0% of women who possess complete knowledge reach the same result. The difference between the adjacent knowledge categories remains small because people need to recognize themselves at the highest level of understanding.

Qualitative data reinforce these patterns. Participants emphasized that secure access enables planning and investment: *"When I own the land or have full access, I can plan my crops and invest in inputs without fear of losing it"* (R001, field data, 2025). Autonomy in decision-making was repeatedly highlighted: *"Even if I have access to the land, if my husband decides everything, I cannot implement my ideas fully"* (R012, field data, 2025).

Overall, the results indicate that decision-making authority and knowledge of rights are stronger determinants of participation than access or documentation alone. Compared to prior studies, these findings confirm that formal titles and autonomy are critical for participation (Goli et al., 2025; Kehinde et al., 2021), while informal or perceived ownership is insufficient. They also challenge assumptions that access alone drives engagement, demonstrating that participation is heavily mediated by control and awareness within the local cultural and institutional context.

#### **Multivariate Analysis of Land Rights and Women's Participation**

In order to measure women's involvement in small-scale agriculture an index was created by combining responses assessing the frequency and extent of their participation in agricultural activities as well as their role in making decisions about crop selection, use of inputs and marketing. Using these values total scores that were then designated as either Low, Moderate or High were calculated for the purposes of running an ordinal logistic regression analysis to test for associations between land equity characteristics and the probability of women achieving higher levels of participation. The 'independent variables' included women's access to land, type of document concerning ownership rights, decision making authority over land and knowledge of legal rights. This methodology allows us to estimate how each of the land equity measures affect the probability that women will achieve higher levels of participation. The results of the regression analysis are summarized in Table 4.

The analysis indicates that decision making authority (log-odds = -1.605,  $p = 0.005$ ) and knowledge of legal rights (log-odds = -18.762,  $p < 0.001$ ) are the most significant contributors for women achieving higher levels of participation. Women who have no control over the decisions made regarding their land are less likely to be found in the higher level of participation categories than those who have full control. Women who do not have a reasonable amount of knowledge about their rights concerning the land they

own, are substantially less likely (than those who have a reasonable amount of knowledge) to reach the higher participation categories. The effect from access to land appears to be slightly positive if they have the ability to use the land. However, if a woman's access to land has restrictions, it is more likely to be a negative effect, but this was not statistically significant ( $p = 0.141$  and  $p = 0.077$ ) respectively.

Data collected through qualitative means support these conclusions. Interviewees pointed out that a woman's ability to exercise control land and knowledge her rights is necessary for true involvement: "I can have access and own this piece of land, but because I do not have any ability to choose what I can plant on it or to whom I can sell it, I do not consider myself part of that land anyway," and "When you are aware of your rights, you have no fear in making decisions concerning your use of the land."

Formal land rights do not necessarily translate into engagement; access or ownership without decision-making authority and knowledge of one's rights will not result in any form of meaningful participation.

**Table 3.** Ordinal Logistic Regression of Land Rights on Women's Participation Levels

Land Rights Indicator	Category	Estimate	Std. Error	Wald	df	Sig.	95% CI (Lower – Upper)
Access to land (Q5)	Sometimes use temporarily	0.886	0.603	2.16	1	0.141	-0.295–2.068
	Mostly access with restrictions	-0.699	0.395	3.13	1	0.077	-1.473–0.076
	Full and continuous access (Ref)	0	–	–	–	–	–
Legal documents (Q6)	No documents	18.635	3499.7 81	0	1	0.996	-6840.81– 6878.08
	Shared ownership document	19.999	3499.7 81	0	1	0.995	-6839.45– 6879.44
	Sole ownership document (Ref)	0	–	–	–	–	–
Decision-making (Q7)	Others decide entirely	-1.605	0.571	7.89	1	0.005	-2.725–-0.486
	Share decisions with limited input	0.674	0.477	2	1	0.157	-0.260–1.608
	Make all decisions independently (Ref)	0	–	–	–	–	–
Knowledge of rights (Q8)	Do not know any rights	-18.762	0.59	1009.69	1	0	-19.919–-17.604
	Know a few rights	-20.236	0	–	1	–	-20.236–-20.236
	Know most rights	-2.112	3499.7 81	0	1	1	-6861.56– 6857.33
	Know all rights (Ref)	0	–	–	–	–	–

These findings further define previous literature relating to Participation only being related to Access or Tenure Security as they show that Agency (ability) and Knowledge of your Rights drives Participation far more than access/documentation [10], [13]. Ownership does not provide any significant ability towards Participating; however, it must be accompanied with the authority to make a decision about how the property will

be used to have an impact on Participation. Therefore, weak or unstable estimates for access or legal documentation indicate that these cannot stand alone as indicators of Meaningful Participation.

### **Synthesis of the Findings and Theoretical Interpretation**

The findings show that Land rights in isolation do not always lead women into small-scale farming in Mbeere South. Although 60.2% of the female respondents have access to land, fewer percentages own lands solely (5.5%) and make decisions about how to use the land (28.7%) or comprehend their rights (7.6%). Decision-making and understanding land rights emerge as powerful explanatory factors for high levels of participation while formal land access and documentation are weak explanatory factors. This study is consistent with the idea from GAD theory that the structure of social institutions, rather than legal rights alone, determines the level of involvement in development [25]. The theory highlights structural barriers, but does not consider differences among women in terms of their age, marital status, or social class. Another problem with GAD is that it does not treat the intersections between gender inequality and other resources, like access to extension services.

Access to productive resources, on the other hand, expands upon the above notion by distinguishing between mere access and actual power, indicating that women who have knowledge, independence, and favorable social structures can translate their land use to results such as harvest and income [9]. There are limitations to the application of this theory, which do not account for such aspects as local governance and enforcement problems and cultural constraints in women's access.

In general, the review indicates that there is a need for empowerment that goes beyond access itself, agency, practical control, and awareness of the rights involved are important. If policies only emphasize access or certification, then the end result might be only symbolic compliance rather than empowerment, requiring deliberate integration of various tools and interventions.

## **4. Conclusion**

The study analyzed how land rights, extension services, and agricultural investment as well as the timely implementation of policies/good governance factors contribute to women's participation. Data analysis revealed that women who have decision-making control and are knowledgeable about their land rights will participate more significantly than those who do not. On the other hand, having formalized access, being registered with ownership papers or nominal participation in programs/institutions provides no substantial contribution to participation. Qualitative data confirms that women's autonomy and knowledge of their rights impact their ability to access and utilize resources for farming successfully. Formalized access may exist on paper but proves meaningless when not implemented correctly or relevant to the women's habitat.

This shows that there are tangible results that arise as a result of women being able to use their agency and make well-informed decisions on the utilization of the resources for agricultural activities and receiving agricultural aid. The availability of inputs alone is not sufficient. The provision of inputs/training/finance without the empowerment of the women rarely results in female participation. When programs only focus on formal access or coverage, they will create an appearance of effectiveness while neglecting many of the ability's women have to be successful. The ongoing structure of power in social and home life continues to prevent women from being able to act independently, despite being given access to resources.

From a theoretical viewpoint, the findings confirm the GAD (Gender and Development) theory that intra-household/structural power relations will determine if having access to resources results in participation. In the same manner, the authors agree with the Access to Productive Resources approach because the resource needs to be applicable in an appropriate manner and time frame in order to influence the ability and desire of the woman to take part in that specific activity. Consequently, both theories assist

in understanding why access to land ownership will not automatically translate to participation by the women, unless the women have control over decisions pertaining to that piece of land and also knowledge concerning their ownership of it.

There are limitations that need to be noted. The descriptive design of the research limits the ability to establish causation and to assess longitudinal effects of participation decisions. In addition, self-reported participation and decision-making may present potential biases in the data; however, cross-referencing the data obtained through interviews and focus groups minimizes this issue somewhat. Since the study only involved women involved in agriculture, women who had never been exposed to either the program or land were excluded from participation. Findings could be different for women who are more constrained socially or even by land restrictions. It is worth noting that findings from Mbeere South may not apply elsewhere.

Overall, from the study findings, one can conclude that having only the land rights is not sufficient for fostering participation. There needs to be an integration of rights and empowerment, timely provision of functional resources, and contextualized training in order to achieve participatory processes in agriculture. Research in future could investigate comparative approaches to the topic, household-level negotiations facilitation, and combinations of resources access, skill development, and empowerment. Otherwise, the formal land rights will remain symbols.

## REFERENCES

- [1] R. M. Fanelli, "Bridging the gender gap in the agricultural sector: Evidence from European Union countries," *Soc. Sci.*, vol. 11, no. 3, p. 105, 2022, doi: 10.3390/socsci11030105.
- [2] V. Khandker, V. P. Gandhi, and N. Johnson, "Gender perspective in water management: The involvement of women in participatory water institutions of Eastern India," *Water (Basel)*, vol. 12, no. 1, p. 196, 2020, doi: 10.3390/w12010196.
- [3] I. Gaddis, R. Lahoti, and H. Swaminathan, "Women's legal rights and gender gaps in property ownership in developing countries," *Popul. Dev. Rev.*, vol. 48, no. 2, pp. 331–377, 2022, doi: 10.1111/padr.12493.
- [4] N. Bose and S. D. Moore, "Variable Region Sequences Influence 16S rRNA Performance," in *Microbiologyspectrum*, vol. 11, no. 3, 2023, p. e0125223. doi: 10.1128/spectrum.01252-23.
- [5] C. Perera *et al.*, "Impact of social protection on gender equality," *Campbell Systematic Reviews*, vol. 18, no. 2, p. e1240, 2022, doi: 10.1002/cl2.1240.
- [6] H. Mwenesi *et al.*, "Rethinking human resources and capacity building needs for malaria control and elimination in Africa," *PLOS Global Public Health*, vol. 2, no. 5, p. e0000210, 2022, doi: 10.1371/journal.pgph.0000210.
- [7] O. B. Saluja, P. Singh, and H. Kumar, "Barriers and interventions on the way to empower women through financial inclusion," *Humanit. Soc. Sci. Commun.*, vol. 10, no. 1, pp. 1–14, 2023, doi: 10.1057/s41599-023-01640-y.
- [8] A. R. Quisumbing, K. Sproule, E. M. Martinez, and H. Malapit, "Tradeoffs among dimensions of women's empowerment," *Food Policy*, vol. 100, p. 102001, 2021, doi: 10.1016/j.foodpol.2020.102001.
- [9] C. Doss and R. Meinzen-Dick, "Land tenure security for women: A conceptual framework," *Land use policy*, vol. 99, p. 105080, 2020, doi: 10.1016/j.landusepol.2020.105080.
- [10] I. Goli *et al.*, "Toward tenure security: The relationship between women's land ownership, formal land title documents and their empowerment," *Land use policy*, vol. 148, p. 107389, 2025, doi: 10.1016/j.landusepol.2024.107389.
- [11] M. O. Kehinde, A. M. Shittu, A. G. Adeyonu, and M. G. Ogunnaike, "Women empowerment, land tenure and property rights, and household food security among smallholders in Nigeria," *Agric. Food Secur.*, vol. 10, no. 1, p. 25, 2021, doi: 10.1186/s40066-021-00297-7.
- [12] M. Schling and N. Pazos, "Effective land ownership, female empowerment, and food security: Evidence from Peru," *World Dev.*, vol. 181, p. 106680, 2024, doi: 10.1016/j.worlddev.2024.106680.
- [13] R. Santpoort, G. Steel, A. Mkandawire, C. Ntauazi, E. H. Faye, and F. Githuku, "Bottom-up strategies to secure rural women's land rights," *Front. Sustain. Food Syst.*, vol. 5, p. 697314, 2021, doi: 10.3389/fsufs.2021.697314.
- [14] A. Owoicho, S. O. Sennuga, J. Bamidele, B. Osho-Lagunju, and F. O. Alabuja, "Analysis of gender issues in access to land among farmers in Nigeria," *Journal of Media & Management*, vol. 5, no. 2, pp. 2–8, 2023, doi: 10.47363/JMM/2023(5)150.

- [15] S. N. Amin and C. Girard, "Empowerment or alienation? Teaching gender and development in postcolonial contexts," *Dev. Pract.*, vol. 34, no. 7, pp. 857–867, 2024, doi: 10.1080/09614524.2024.2344524.
- [16] C. O. Moser, "From gender planning to gender transformation: Positionality, theory and practice in cities of the Global South," *International Development Planning Review*, vol. 43, no. 2, pp. 205–229, 2021, doi: 10.3828/idpr.2020.9.
- [17] C. R. Doss, R. Meinzen-Dick, A. Pereira, and R. Pradhan, "Women's empowerment, extended families and male migration in Nepal: Insights from mixed methods analysis," *J. Rural Stud.*, vol. 90, pp. 13–25, 2022, doi: 10.1016/j.jrurstud.2022.01.003.
- [18] E. Simelton, T. M. Duong, and E. Houzer, "Migration, gender roles and risk reduction in Vietnam," *Sustainability*, vol. 13, no. 7, p. 4081, 2021, doi: 10.3390/su13074081.
- [19] B. Masquelier *et al.*, "Global, regional, and national mortality trends in youth aged 15–24 years between 1990 and 2019," *Lancet Glob. Health*, vol. 9, no. 4, pp. e409–e417, 2021, doi: 10.1016/S2214-109X(21)00023-1.
- [20] R. V Krejcie and D. W. Morgan, "Determining sample size for research activities," *Educ. Psychol. Meas.*, vol. 30, no. 3, pp. 607–610, 1970.
- [21] S. Dawadi, S. Shrestha, and R. A. Giri, "Mixed-methods research: A discussion on its types, challenges, and criticisms," *Journal of Practical Studies in Education*, vol. 2, no. 2, pp. 25–36, 2021, doi: 10.46809/jpse.v2i2.20.
- [22] R. T. Sataloff and S. Vontela, "Response rates in survey research," *Journal of Voice*, vol. 35, no. 5, pp. 683–684, 2021, doi: 10.1016/j.jvoice.2020.12.043.
- [23] M. D. Fetters and J. F. Molina-Azorin, "The Journal of Mixed Methods Research starts a new decade: Principles for bringing in the new and divesting of the old language of the field," *J. Mix. Methods Res.*, vol. 15, no. 1, pp. 3–10, 2021, doi: 10.1177/1558689820977233.
- [24] Y. Hu and L. Plonsky, "Statistical assumptions in L2 research: A systematic review," *Second Lang. Res.*, vol. 37, no. 1, pp. 171–184, 2021, doi: 10.1177/0267658319877433.
- [25] C. Chigwedere and J. Moran, "Further development of the intolerance of uncertainty model of GAD: A case series," *The Cognitive Behaviour Therapist*, vol. 15, p. e2, 2022, doi: 10.1017/S1754470X21000374.