TITLE: New pathways for women's empowerment in pastoralist Maasai households, Tanzania

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ABSTRACT: Despite the extensive scholarship on women's empowerment and gender equality in the Global South, few studies have examined how changing livelihoods create new challenges and opportunities for women seeking access to intra-household decision-making. Here we examine pastoralist Maasai women's access to a range of household-level decisions that span more longstanding and more recent aspects of changing social and economic life. Our team conducted a mixed-methods data collection in 10 Maasai communities in northern Tanzania in 2018 and 2022. We (1) interviewed groups of women and men (n=18) to identify key types of household decisions and the factors affecting women's access to them; and (2) conducted a survey of married women (n=321) to identify individuals' perceptions of access to intra-household decision-making and other characteristics. We applied an information theoretic approach to model selection of fitted cumulative link mixed effects models. Our findings show that newer sources of human, social, and physical capital for women, including school-based education, land tenure, and community group membership, are associated with access to more contemporary decision types, including income generation, children's schooling, and children's health care. Alternatively, we find fewer pathways to decision-making for more longstanding decision types, including livestock management and children's marriage. Notably, agricultural land has a complex relationship with decision-making wherein basic access to land is associated with lower access to decision-making, but land tenure is associated with greater access. This study shows how marginalized women can leverage changing social and economic contexts to gain greater access to intra-household decision-making.

1. INTRODUCTION

Despite progress, efforts to empower women and promote gender equality (WHO, 2015) around the world face many challenges. These can include poverty (Francis East and Roll, 2015), climate change (Alston, 2014), access to education (Longwe, 1998) and health care (Pratley, 2016), partnerships with men (Slegh et al., 2013), and entrenched views (Odok, 2020) among other things. Focus on these concerns, by scholars and practitioners, has expanded greatly in the past few decades (Desai et al., 2022), but gaps in research remain. One under-researched topic relates to the evolving social and economic contexts within which women seek power. The patterns and processes of gendered social relations, which in many cases are rooted in longstanding patterns of economic life, can shift, gradually or quickly, as livelihoods shift and create new challenges and new opportunities for everyone, including women (Ellis, 2000). Relatedly, empowerment has been described as a process of change (Desai et al., 2022), but less attention has been paid to how this process of change is embedded within larger contexts of social change. More directly, if women's empowerment can be viewed as a function of resources, agency, and achievements (Kabeer, 1999; Kabeer, 2005), we must do more to take stock of how these factors can shift along continuums from more longstanding to more contemporary aspects of life.

Pastoralist and agro-pastoralist groups exemplify those who face the challenges of living in rural areas in the Global South. Pastoralists, especially, are well adapted to low-density areas where environmental resources are distributed across considerable physical distance. Similarly, agriculture is well suited to rural spaces, where land costs are low. Low population densities, however, can mean reduced access various types of infrastructure, including schools and health facilities, compared to more urban areas. Together, small communities, reliance on natural

resources, and limited access to services strongly shape pastoralist and agro-pastoralist livelihoods and social relations.

With this study, we focus on Maasai pastoralists of northern Tanzania - a traditionally patriarchal group with strong customary patterns of gendered social relations and low levels of women's empowerment, which has nonetheless experienced a great deal of social and economic change in the past two decades. We examine Maasai women's perceived access to intrahousehold decision-making (IHDM), a common measure of women's autonomy in studies of empowerment in the Global South (Desai et al., 2022; Nhamo et al., 2018; Laszlo et al., 2020), and identify the factors that are significantly associated with this perceived access. Within this pastoralist context of longstanding patriarchy, shifting livelihoods, and ongoing development, we address the following research questions: (RQ1) What types of household decisions can Maasai women access? (RQ2) What factors are associated with women's access to each type of decision?

2. BACKGROUND

2.1. Empowerment and women in the Global South

Scholarship on women's empowerment in the global south often highlights the many ways the word is defined, discussed, and applied by both academic and development communities (Cornwall, 2016). Speaking to the Division of Community Psychology of the American Psychological Association in 1981, Julian Rappaport introduced the concept of "empowerment" to provide language for a nascent area of scholarship focused on the "communities and naturally occurring helping systems that evolve in families, neighbourhoods, and social networks in which people find meaning in life and a psychological sense of

community" (Rappaport, 1977, viii). Framing it in the broadest terms, he later defined empowerment as a process by which "people… gain mastery over their lives" (Rappaport, 1984, 3). Since this time, many scholars across a range of fields have built on this idea.

For academics and development practitioners alike, empowerment has become a term with many meanings (Cornwall, 2016), though ideas have coalesced around a general sense that it is a multi-dimensional and dynamic process leading to transformational change in social relations (Batliwala, 2007). Writing of this transformation, Parpart et al. (2003) highlighted a broad divergence between those who see revolutionary change as necessary to "make the world a better, more equitable place" (2003, 5) and those who emphasize an more evolutionary transformation. These approaches also reflect shifting, or expanding, conceptualizations of power from one centred on structures and resources, to a more fluid, relational view of power associated with control over knowledge and discourses (Parpart et al., 2003). Encompassing these, scholars have produced some broad conclusions. Kabeer points out that, by its nature, empowerment is related to power, which she described as "the ability to make choices" (2005). Distilling further, Cornwall (2016) notes that empowerment is a journey travelled along different pathways.

From these and other conceptual framings (Mosedale, 2005) a great volume of scholarship, leveraging a wide range of methodological tools, has proliferated, and been capably summarized elsewhere (Desai et al., 2022; Priya et al., 2021). In their review of the challenges of measuring women's economic empowerment (WEE) in intrahousehold settings, Laszlo et al. (2020) highlight the ubiquity and importance of IHDM as an indicator of WEE in the Global South, especially in the domains of household resources, labor, and family planning. Going

forward, we discuss the scholarship on IHDM as a common proxy for empowerment and review recent studies on shifting Maasai livelihoods and women's empowerment.

2.2. Intra-household decision-making as a proxy for empowerment

IHDM, a central component in processes of women's empowerment, is important in the attainment of other development goals (Shrestha et al., 2020), in challenging unequal social norms and practices, what Kabeer calls 'achievements' (2005), and is an end in itself.

Accordingly, the scholarship on IHDM, specifically quantitative and mixed-methods studies, can be reasonably divided into studies that: (1) treat IHDM as a factor that supports other outcomes (i.e., IHDM as an independent variable), or (2) as an outcome itself driven by other factors (i.e., IHDM as a dependent variable). In other words, we organize our review of the literature by first focusing on studies that seek to examine how IHDM is produced and then on studies that seek to examine what IHDM produces.

Many studies, especially those focused on women's empowerment as instrumental for various development objectives, treat IHDM as an independent variable, or driver of specific outcomes (Desai et al., 2022). A comparative study using data from the Demographic Health Survey Program for Guinea, Mali, Namibia, and Zambia, Upadhyay and Karasek (2012) examined IHDM as one of three empowerment measures to understand its effect on family planning measures. In Guinea, they found that IHDM was associated with women having a smaller ideal number of children. However, in Namibia and Zambia, IHDM was associated with having more children than desired. Mixed results like these raise a number of questions about the critical importance of understanding local contexts, the various roles spouses can play within and

across ethnic groups, and the challenges inherent to large comparative studies (Desai et al., 2022; Seymour and Peterman, 2018).

Inherent to, but often obscured in, studies that treat IHDM as a driver of outcomes are tensions surrounding women's *access* to decisions. Sometimes referred to as intra-household bargaining, these tensions may be spousal disagreement (Annan et al., 2021) or domestic violence (Diallo and Voia, 2016). One implication here is that longstanding and systemic patriarchy, among other things like lower access to education, likely undermine women's own perceptions of their access and power. Addressing this concern, scholars have focused on "critical consciousness" and described how empowerment must include a shift in women's self-perception as decision-makers (O'Hara and Clement, 2018). This highlights the value in asking women directly about their perceptions of access to decision-making, and examining the contributing factors associated with these perceptions.

Studies focused on IHDM as an outcome, or dependent variable, have identified several factors, across scales, that tend to support women's access to IHDM. First, certain large development programs, like the Bolsa Familia cash transfer program in Brazil (de Brauw et al., 2014), or the Mahatma Gandhi National Rural Employment Guarantee Scheme in India (Tagat, 2020), have been found to support women's IHDM for decisions associated with family planning, children's education and children's health care. Relatedly, policy to promote joint titling of land in Peru was found to support women's access to IHDM (Wiig, 2013). Second, individuals' traits are commonly found to be important drivers of IHDM, specifically women's age, education and income-generating activities (Anderson et al., 2017; Bertocchi et al., 2014). Last, women's participation in community groups, including collective savings and investment groups, micro-credit groups, and unions has been found to support their access to IHDM,

especially with decisions related to health care and finances (Dutt et al., 2016).

Notably, and despite the ubiquity of scholarship that discusses the often contingent and precarious nature of women's empowerment in the Global South, as well as the diverse pathways of empowerment and disempowerment that women face, we identified no quantitative studies of women's IHDM that highlighted non-linear effects, wherein the relationship between two variables is contingent on the value of one of the variables. We return to this idea the discussion section.

2.3. Maasai livelihoods and women's empowerment

Despite women's important role in pastoralist livelihoods, gender inequalities in relation to resource rights and labour burdens are common in pastoralist settings around the world including in Maasailand (Hodgson, 2001; Stewart-Phelps et al., 2013). Men tend to control key productive assets namely land and livestock (Yurco, 2018). However, due to fragmentation of pastoral rangelands (Nelson et al., 2010) alongside shifting ecological, economic and political circumstances (Goldman and Riosmena, 2013; McCabe et al., 2020; Nnko et al., 2021), and changing aspirations (Woodhouse and McCabe, 2018), Maasai pastoralists have greatly diversified their livelihoods over the last two decades (Leslie and McCabe, 2013), and embraced new technologies (Baird and Hartter, 2017; Summers et al., 2020). In several cases, scholars have documented how new strategies have been adopted by Maasai and hybridized with their longstanding patterns of economic production (Butt, 2014; McCabe et al., 2010) and social organization (Baird and Gray, 2014).

These shifts also hold implications for women's roles, resources and empowerment (Westervelt, 2018). Women have historically held power in the domestic sphere, but have taken

on new roles in livestock production, including milk and crop sales, petty trade, and wage labour on and off farms (Loos and Zeller, 2014; Wangui, 2014; Yurco, 2024a). And as men have migrated for wage-labour (McCabe et al., 2014), women have had the opportunity, and burden, to contribute to households in new ways (Smith, 2015). Ultimately, women's increased economic agency in households can have transformative effects on beliefs and actions related to, for example, gender-based violence (Goldman and Little, 2015), however some scholars remain sceptical of the transformative power of women's new economic roles amidst entrenched masculine prerogatives (Smith, 2015; Wangui, 2014). And while several studies have examined women's agency in Maasai communities (see alsoYurco, 2024b; Hodgson, 2005), few have examined IHDM using multivariate methods (Goldman and Little, 2015; Dutt et al., 2016).

To better understand Maasai women's empowerment, specifically their perceived access to IHDM within this palimpsest of old and new, we leverage a conceptual model presented by Summers et al. (2020), which integrates perspectives from Kabeer (2005; 1994) and Duncombe (2014) and was designed to examine Maasai women's empowerment. This approach views IHDM as a product of social relations, both structures and processes, and forms of capital, including resource-based, network-based, and cognitive-based assets (Summers et al., 2020).

3. METHODS

3.1. Study site

We conducted this study in 10 communities in Simanjiro and Longido Districts in northern Tanzania. Figure 1 shows five communities south of Arusha, in Simanjiro District, and five communities to the north, in Longido District. These communities are well suited to examine the effects of women's characteristics on their access to IHDM in shifting social and

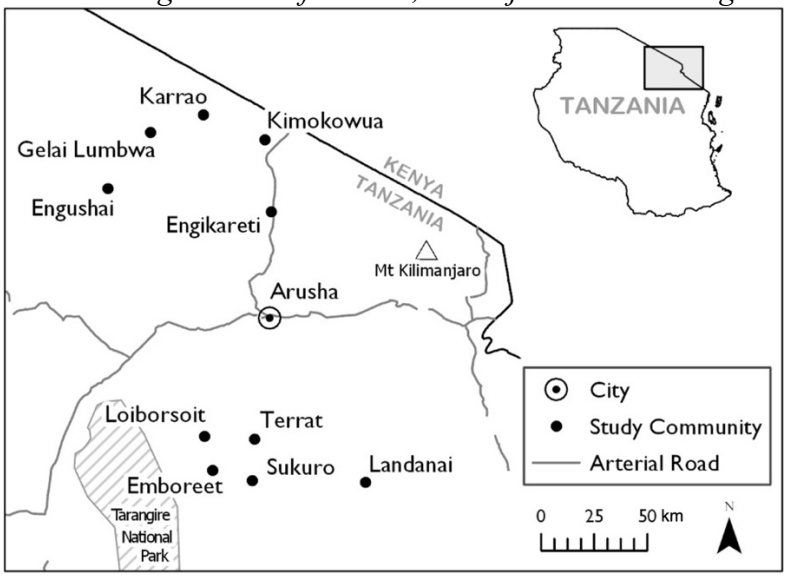
economic contexts. First, these rural districts are predominantly ethnically Maasai, which serves to reduce variation along cultural lines (Mackenzie et al., 2014). Second, Maasai have a strongly patriarchal society compared to other groups (Hodgson, 1999; Spencer, 2004). Maasai men often take multiple wives (i.e., polygyny) and generally control most household livelihoods and decision-making. Notably, recent studies have elucidated how women can have agency with certain decisions, especially around domestic duties (Hodgson, 2001), including aspects of livestock management (Yurco, 2024a), labor (Wangui, 2014) and land (Goldman et al., 2016). Third, livelihood diversification is widespread (Baird and Leslie, 2013; Smith, 2015). Fourth, multiple factors have emerged in the past two decades that appear to support women's empowerment, including the expansion of Christianity (Baird, 2015; Hodgson, 2005), women's collectives (Summers et al., 2020), and formal schooling (Baird, 2014).

Mobile phones, which have spread rapidly through the study area in recent years, have been found to support novelty (Baird et al., 2021) and women's endeavours in some cases (Summers et al., 2020), including agriculture . Specifically, in their study of women's access over mobile phones, Summers et al. (2020) found that: (1) access is fluid with many women gaining and losing access cyclically; (2) phones can reinforce inequalities between men and women and even spur inequalities across women; and (3) that phones are associated with multiple pathways to empowerment and disempowerment for women. Women in rural agricultural communities in southern Tanzania have also benefitted phones (Quandt et al., 2021). For these reasons, we include phone access as a key variable in our analyses.

Differences between districts are also apparent. Agriculture is more common in Simanjiro where rainfall is typically higher than in Longido, though inconsistent (Fox et al., 2019). Accordingly, tensions between agriculture and longstanding pastoralist livelihoods have been

evident in Simanjiro and beyond for many years (McCabe et al., 2010; Nelson et al., 2010). Also, Simanjiro generally has better cellular signal than Longido.

Figure 1. Map of the study are in northern Tanzania with study village centroids (Longido district villages north of Arusha; Simanjiro district villages south of Arusha).



3.2. Data collection

Our data collection proceeded in several steps. First, we conducted semi-structured group interviews with women and men in 2018 to identify broad categories of household decisions, whether women had access to these decisions, and other topics. We did separate interviews with groups of women (n=9) and groups of men (n=9). Groups ranged in size from 3 to 13.

The ethics of data collection and the positionality of the researchers were considered throughout the study design and data collection processes. Specifically, we sought to minimize the effect of various power dynamics on data quality. In each case, interview participants were recruited by local Maasai research assistants (female and male), each fluent in English, Swahili, and Maa. For interviews with groups of women, female research assistants served as translators for European and American female researchers, in worked with rural populations in Tanzania

since 2014 and 2015, respectively. For interviews with groups of men, male research assistants served as translators for American male researchers, who have conducted research in the Simanjiro study communities since 2005 using mixed ethnographic and survey-based methods to examine social and economic change.

Interviewees embodied a range of lived experiences, including women and men of different ages, household wealth statuses, and, for women especially, degrees of agency in the household and community. Key questions addressed what types of decisions households face, whether women have access to these and how norms associated with IHDM are shifting.

Second, we designed and piloted a structured survey of women. We conducted our survey of women in 10 study communities across two districts, Simanjiro and Longido, in northern Tanzania. This yielded a sample of 321 women. In each district, we surveyed women who were the wives of men who have participated in longer term research projects run by our team. The sample in Simanjiro, which was started in 2005 and has been added to intermittently, is based on a quota sampling strategy to create a representative sample (Bernard, 2017). Local leaders have helped us to identify the following: (1) households from different administrative units, in proportion to the size of the unit; (2) household heads, typically husbands, from each Maasai age-set (i.e., cohorts that men are organized into after circumcision; an important and longstanding aspect of Maasai social organization), and (2) households representing a spectrum of wealth statuses, proportional to local distributions of wealth where herd size is used as an observable and reliable indicator of wealth. The sample in Longido was drawn randomly from village registries in 2017 for a related project. In each sample household, trained female Maasai enumerators surveyed one wife opportunistically between September and December 2018. "Households" referred to as *olmarei* in Maa, the Maasai language, include a household head and

his dependents, which may include multiple wives, and their children, grandchildren, parents, siblings and even non-relatives residing with the family (Homewood et al., 2009). This survey included sections on household demographics and livelihoods, phone use, social networks, reciprocal exchange, and decision making. Our analyses here focus on decision making and the factors associated with it.

Third, authors TDB and JTM returned to the study site in 2022 to conduct further qualitative interviews with separate groups of women and men to follow up on our early statistical findings, especially surrounding women's access to land and its effect on decision making (n=11).

3.3. Data analysis

First, we calculated simple descriptive statistics to show the frequency of women's access to decision making in the study population (RQ1). Second, we used cumulative link mixed models and an information theoretic approach to model selection to explore the factors associated with women's access to different household decisions (RQ2). Third, we analysed the content of follow-up group interviews to confirm the appropriateness of our modelling approach and the veracity of our statistical findings. All statistical analyses were carried out in RVX.X and all qualitative analysis of group interview transcripts were carried out using Atlas.ti.

3.3.1. Variables

Through our initial group interviews in 2018, we identified ten broad types of household decisions. These decision types became key measures on our survey and ultimately dependent variables in our statistical modelling. Notably, these decision types are consistent with cross-

country comparable measurements of IHDM as a component of women's empowerment in East Africa (Miedema et al., 2018). Table 1 presents descriptions of each decision type.

Table 1. Description of intra-household decisions (dependent variables)

Decision	Description
Agriculture	Decisions regarding agricultural labour (i.e., what, who, when), crops, and timing.
Child school	Decisions regarding children's attendance at school. (Despite laws that require all children to attend school, enforcement can be weak, and some Maasai children are withheld to attend to herding and other duties.)
Child health care	Decisions regarding children's health care.
Group participation	Decisions regarding women's participation in local community groups, especially savings and loan groups, including livestock groups (*vikundi vya mifugo*), village community banks (*vicoba*), and merry-go-rounds (v*ibati*).
Income	Decisions regarding women's ability to participate in income generating activities such as selling milk, agricultural produce or domestic items and working on farms, and to control the money from this work.
Travel from HH	Decisions regarding women's abilities to travel away from the household (HH).
Number of children	Decisions regarding how many children to have and when.
Livestock	Decisions regarding selling livestock for family needs. (While husbands "allocate" livestock to wives and her children, who care for and get milk from them, husbands often retain the power to take animals back, reallocate and/or sell them.)
Child marriage	Decisions regarding children's arranged marriages, specifically who children will marry.
Domestic duties	Decisions regarding the maintenance of the homestead, including home building, firewood gathering, cooking, milking, and childcare.

With the survey we asked respondents about each decision type and whether, generally, those decisions were made by: (1) their husband; (2) themselves; (3) jointly; (4) their husband but wife influences; or (5) someone else. Respondents were asked to select the most applicable of these five options. Due to low responses in some of the categories across some of the decisions, specifically the frequency of "husband but wife influences" and "someone else" we collapsed the levels in response variables from five to three, renaming them low, medium, and high to represent access to decision making. Table 2 presents this conversion from survey to model categories for our dependent variables.

Table 2. Conversion of survey decision categories to model categories for dependent variables

Survey categories	Model categories of women's access to decisions
Husband makes decision	Low
Someone else makes decision	Low
Husband, but wife influences	Medium
Joint decision	Medium
Wife makes decision	High

Table 3. Justifications for independent variables

Independent variable	Variable type[1]	Description	Justification
1. Any education (0/1)	Asset (cognitive-based)	Respondent has any level of formal, school-based education	• Girls' education perceived by women as important for gaining 'independence' (Woodhouse and McCabe, 2018). • Education is important in Maasai cultural change, particularly economic empowerment of women, rights over livestock, and involvement in merry-go-round schemes (Westervelt, 2018). Formal education significant in personal agency (Goldman and Little, 2015).
2. Income (0/1)	Asset (resource-based)	Respondent earns income separately from husband through small business, etc.	• Economic independence is linked to having a voice in decisions (Woodhouse and McCabe, 2018), but may not transform gendered power relations (Smith, 2015). • Wives' participation in wage labour affects men's support for women's empowerment in Tanzania (Lawson et al., 2021).
3. Access to agricultural land (0/1)	Asset (resource-based)	Respondent has access to land for agricultural use	• Land rights shown to empower women to reduce poverty and domestic violence (Goldman et al., 2016).
4. Have land title (0/1)	Asset (resource-based)	Respondent has formal 'title' or certificate for land, issued by village office	
5. Member of community group (0/1)	Asset (network-based)	Respondent is a member of a community group	• Women's engagement with community groups is associated with personal agency (Goldman and Little, 2015). Women's educational spaces are related to empowerment (Takayanagi, 2016).
6. Attended group meeting last month (0/1)	Asset (network-based)	Respondent attended a group meeting in the 4 weeks preceding the survey	
7. Own phone (0/1)	Asset (resource-based)	Respondent owns a mobile phone	• ICTs are connected to development (Baird and Hartter, 2017; Lewis et al., 2016). • Few women engaging in new relationships and activities through mobile phones but fluctuating, limited and dependent on household social relations (Summers et al., 2020).
8. Age	Social relation	Age of respondent	• Older Maasai women have more power than younger women (Hodgson, 1999).
9. Number of children	Social relation	Respondent's number of children	• For both women and men, having more children is associated with higher levels of prestige (Hodgson, 2001).
10. Number of sons	Social relation	Respondent's number of sons.	• Having sons important for security aspect of wellbeing (Woodhouse and McCabe, 2018).
11. Wife #	Social relation	Respondent's ordinal number of husband's wives (e.g., 1st, 2nd, etc.)	• First wives tend to have authority over others (Woodhouse and McCabe, 2018). • Older Maasai women have more agency/power than younger women (Hodgson, 1999). • Favorite wife (*endida*), typically a temporary distinction, often youngest/newest, can have greater access to HH decisions, but may have less individual autonomy (Summers et al., 2020).
12. Total # of wives	Social relation	Total number of wives for respondent's husband.	
13. Total # of wives: Wife #	Social relation	Interaction term for Wife # and Total # of wives	
14. TLU/HH size	Asset & social relation	Number of Tropical Livestock Units (measure that accounts for differences across species) divided by total household size. Proxy for HH wealth.	• Research across the Global South has found that economic development can spur women's empowerment (Duflo, 2012). HH wealth is also commonly controlled for in studies of Maasai (Homewood et al., 2009) and associated with livelihood diversification (Baird and Leslie, 2013).

[1]Variable types derived from conceptual model of empowerment for Maasai women (Summers et al., 2020).

We selected fourteen independent variables for our modelling based on theoretical (i.e., deductive) and empirical (i.e., inductive) justifications. Table 3 defines these independent variables, categorizes them into variable types informed by our conceptual model of decision-making, and provides scholarly justifications for their inclusion.

Beyond the justifications offered in Table 3, these independent variables map to a conceptual model of women's empowerment presented by Summers et al. (2020) to better understand Maasai women, which integrates Kabeer's social relations approach (2005; 1994) with a version of the common sustainable livelihoods approach adapted to address the widespread use of mobile phones (Duncombe, 2014). Accordingly, independent variables numbered 1-7 in Table 3 represent various types of capital or assets, including resource-based, network-based and cognitive-based assets. Variables 8-13 represent aspects of social relations. And variable 14, a proxy for household wealth, integrates aspects of social relations and capital. Ultimately, and consistent with Summers et al (2020), we view social relations and forms of capital as important antecedents of household decision making for Maasai women.

3.3.2. Descriptive statistics

To better understand the frequency of women's access to household decision making (RQ1) and related factors, we calculated means for the whole sample, and by district, as well as a means test to identify significant differences between districts.

3.3.3. Modelling

Prior to modelling, missing data were treated in two stages. First, we examined missing data across all dependent and independent variables looking at counts, pareto charts, and missing

data intersections across variables. From this we identified a suitable cut off and excluded all respondents where responses were missing for more 9 or more variables out of the total 34 variables (26.47%), leaving a final sample of 311. Second, any remaining missing data were imputed by chained random forests using the MissRanger package (Stekhoven and Bühlmann, 2012; Van Buuren and Groothuis-Oudshoorn, 2011; Wright et al., 2016).

To understand the factors associated with women's access to different household decisions, we adopted an information theoretic approach to model selection of fitted cumulative link mixed effects models where village was treated as a random effect to account for spatial variation in the response variables. First, we fitted the maximal model which included all the independent variables (see Table 3). Second, we ran candidate models comprising all possible combinations of the explanatory variables using the MuMln package (Barton, 2010; Grueber et al., 2011). Third, we selected top models with a delta AIC <7. Last, we performed model averaging and extracted.

3.3.4. Qualitative analyses

Qualitative analyses of group interview responses proceeded in multiple steps leveraging both qualitative content analysis and grounded theory methodologies (Cho and Lee, 2014). First, interviews from 2017 were analysed using a qualitative content analysis approach (Flick, 2022), wherein deductive and inductive coding was used to identify: (1) key types of household decisions (RQ1), and; (2) characteristics of household members that shape women's involvement in these decisions (RQ2) – issues that have been discussed and theorized in the scholarship on women's empowerment in the Global South. Deductive codes related especially to factors that became independent variables in our quantitative analyses (see Table 3). Inductive codes related

more to decision types specific to Maasai lives in this study area (see Table 1). Ultimately, these decision types became formal questions on our standardized survey, and dependent variables in our analyses. Second, group interviews from 2022 were analysed from a grounded theory approach to examine how Maasai women's access to, and control of, land affects their participation in household decisions (RQ2) and area for which little previous scholarship exists. Specifically, we inductively coded nine group interviews transcripts, focusing on how women can receive and/or lose land allocations, how they can secure land tenure, what roles sons play, and how access and ownership impact decision making. Last, our interpretation of interview responses was supported by insights gained through many years of working with these study communities.

4. RESULTS

Tables 4 and 5 present basic descriptive statistics for our dependent and independent variables, respectively. Table 4 shows that women in Simanjiro District tend to have better access to IHDM than women in Longido District, with the largest differences associated with decisions related to agriculture, children's education and health care, and family planning. Table 5 shows that women in Longido District are significantly more likely to earn income, be a member of a community group, and belong to a larger household than women in Simanjiro District. Conversely, women in Simanjiro are significantly more likely to have access to land, title to land, and belong to a household with more livestock and more livestock per capita than women in Longido. Curiously, while women in Longido are more likely to belong to a community group, they have significantly less access to *the decision* to belong to a group than Simanjiro women.

Table 4. Descriptive statistics of dependent variables

Dependent variables	Total, N=311	Longido, n=120	Simanjiro, n=191	Difference[1]	95% CI[12]
Agriculture, n (%)				1.1	0.82, 1.3
Low	197 (63%)	108 (90%)	89 (47%)		
Medium	108 (35%)	12 (10%)	96 (50%)		
High	6 (2%)	0 (0%)	6 (3%)		
Child in school, n (%)				1.2	1.0, 1.5
Low	184 (59%)	108 (90%)	76 (40%)		
Medium	116 (37%)	12 (10%)	104 (54%)		
High	11 (4%)	0 (0%)	11 (6%)		
Child health care, n (%)				1.8	1.6, 2.1
Low	180 (58%)	117 (98%)	63 (33%)		
Medium	114 (37%)	3 (3%)	111 (58%)		
High	17 (6%)	0 (0%)	17 (9%)		
Group participation, n (%)				1.1	0.89, 1.4
Low	144 (46%)	76 (63%)	68 (36%)		
Medium	84 (27%)	42 (35%)	42 (22%)		
High	83 (27%)	2 (2%)	81 (42%)		
Income, n (%)				0.42	0.19, 0.65
Low	109 (35%)	28 (23%)	81 (42%)		
Medium	77 (25%)	33 (28%)	44 (23%)		
High	125 (40%)	59 (49%)	66 (35%)		
Travel from the household, n (%)				0.52	0.28, 0.75
Low	189 (61%)	89 (74%)	100 (52%)		
Medium	107 (34%)	30 (25%)	77 (40%)		
High	15 (5%)	1 (1%)	14 (7%)		
Number of children, n (%)				1.5	1.2, 1.8
Low	202 (65%)	118 (98%)	84 (44%)		
Medium	101 (32%)	2 (2%)	99 (52%)		
High	8 (3%)	0 (0%)	8 (4%)		
Livestock, n (%)				0.56	0.32, 0.79
Low	249 (80%)	111 (93%)	138 (72%)		
Medium	60 (19%)	9 (8%)	51 (27%)		
High	2 (1%)	0 (0%)	2 (1%)		
Child marriage, n (%)				0.11	-0.12, 0.34
Low	188 (60%)	74 (62%)	114 (60%)		
Medium	122 (39%)	46 (38%)	76 (40%)		
High	1 (0.3%)	0 (0%)	1 (>1%)		
Domestic duties, n (%)				0.38	0.15, 0.61
Low	4 (1%)	0 (0%)	4 (2%)		
Medium	9 (3%)	0 (0%)	9 (5%)		
High	298 (96%)	120 (100%)	178 (93%)		

[1]Standardized mean difference; Two sample test for equality of proportions; Welch two sample t-test. [2]CI = Confidence interval

Table 5. Descriptive statistics of independent variables

Variable	Total, N = 311	Longido, n=120	Simanjiro, n=191	Difference[1]	95% CI[12]	p-value[1]
Any education, n (%)	76 (24%)	34 (28%)	42 (22%)	6.3%	-4.3%, 17%	0.3
Any income, n (%)	205 (66%)	95 (79%)	110 (58%)	22%	11%, 32%	<0.001
Access to agricultural land, n (%)	169 (54%)	51 (43%)	118 (62%)	-19%	-31%, -7.4%	0.001
Have land 'title', n (%)	27 (8.7%)	3 (2.5%)	24 (13%)	-10%	-16%, -3.9%	0.004
Member of a community group, n (%)	150 (48%)	72 (60%)	78 (41%)	19%	7.3%, 31%	0.001
Own phone, n (%)	210 (68%)	76 (63%)	134 (70%)	-6.8%	-18%, 4.6%	0.3
Age, Median (IQR)	37 (30, 50)	35 (30, 48)	40 (31, 50)	-2.0	-4.8, 0.82	0.2
Number of children, Median (Range)	4 (0, 10)	5 (0, 10)	4 (0, 10)	0.05	-0.43, 0.53	0.8
Number of sons, Median (Range)	2 (0, 7)	2 (0, 7)	2 (0, 7)	0.08	-0.25, 0.41	0.7
Wife #, n (%)				-0.01	-0.23, 0.22	
1	219 (70%)	82 (68%)	137 (72%)			
2	57 (18%)	26 (22%)	31 (16%)			
3	17 (5.5%)	5 (4.2%)	12 (6.3%)			
4	11 (3.5%)	5 (4.2%)	6 (3.1%)			
5	5 (1.6%)	2 (1.7%)	3 (1.6%)			
6	2 (0.6%)	0 (0%)	2 (1.0%)			
Total # of wives in HH, Median (Range)	2 (1, 10)	2 (1, 10)	2 (1, 8)	0.06	-0.26, 0.38	0.7
TLU, Median (IQR)	23 (11, 49)	17 (8, 37)	29 (15, 54)	-19	-33, -5.8	0.005
Total HH size, Median (IQR)	11 (7, 16)	13 (9, 19)	10 (6, 14)	3.0	0.96, 5.0	0.004
TLU/HH, Median (IQR)	2.2 (1.1, 4.5)	1.3 (0.8, 2.7)	3.1 (1.6, 6.0)	-2.5	-3.8, -1.2	<0.001

[1]Standardized Mean Difference; Two sample test for equality of proportions; Welch Two Sample t-test

[2]CI = Confidence Interval

Table 6. Results of regression analyses

Independent variables	Intra-household decisions									
	Agri-culture	Child School	Child health care	Group participa-tion	Income	Travel from HH	Num. of children	Live-stock	Child marriage	Domestic duties
Any education (0/1)	✓+	✓+	✓+	✓+		✓+		✓+		
Income (0/1)	✓+	✓+	✓+	✓+	✓+					✓+
Access to agricultural land (0/1)			✓-				✓-	✓-	✓-	
Have land title (0/1)			✓+			✓+	✓+			
Member of community group (0/1)		✓+		✓+		✓+	✓+			
Attend group mtg last month (0/1)					✓+					
Own phone (0/1)										
Age				✓+			✓+			
Number of children							✓-			
Number of sons					✓+					
Wife #										
Total # of wives in HH										
Total # of wives: Wife # (Int.)										
TLU/HH size (wealth proxy)										

Table 6 presents the results of our modelling of the association between women's decision making and various individual and household factors (RQ2). Broadly the findings show that access to decision making is characterized by variability. Different decision types are significantly associated with different factors.

Some decision types are associated with several factors, while others are associated with few. For example, women's access to the decision of *number of children* is significantly associated with five independent variables. *Age*, *community group*, and *land title* are each associated with greater access to that decision. Conversely, *number of children*, controlling for age, and *access to agricultural land* are each negatively associated with the ability to participate in the decision of how many children to have. Two decisions are each significantly associated with four independent variables. Women's access to the decision to participate in a community group is positively associated with her having some *education*, her own *income*, *age*, and current membership in a *community group*. And women's access to decisions regarding *children's health* are positively associated with *education*, *income* and having *land title*, and negatively associated with having *access to land*. We address these contrasting and counter-intuitive findings with *access to land* and *land title* below. Three decisions (i.e., *children in school*, *income*, and *travel from household*) are significantly associated with three factors each. The remaining decisions are associated with one or two factors.

While some independent variables are associated with several household decisions, others are associated with few. Women's *education* and *income* are each positively associated with access to six household decisions. Women with some *education* have greater access to household decisions regarding *agriculture*, *children's schooling*, *children's health care*, *participation in community groups*, *travel from the household*, and *livestock* compared to women

who don't have any education. Similarly, women who generate some *income* for themselves, have greater access to household decisions regarding *agriculture*, *children's schooling*, *children's health*, *participation in community groups*, and decisions regarding their own *income* generating activities.

Two other factors, women's membership in a community group and access to agricultural land, were each significantly associated with four household decisions. Women who were members of a community group at the time of the survey had greater access to household decisions regarding *children's schooling*, *group participation*, travel, and *number of children* compared to women who were not members. And women who had *access to agricultural land* had less access to household decisions regarding *children's health*, *number of children*, *livestock*, and *children's marriage*. Having *land title* was positively associated with three decisions. Age was associated with two decisions. Three factors were associated with one decision each. And five factors, including *phone*, were not significantly associated with any decisions.

4.1. Qualitative follow-up

To better understand our statistical findings, especially surrounding *access to land* and *title to land*, which have negative and positive associations with household decisions respectively, we returned to Tanzania in 2022 to conduct focus group interviews with women and men, as described above.

We asked groups if there would be a reason that women would feel that they had less access to household decision making if they had been allocated land, but more access if they had title to land. We received consistent responses during each of our group interviews. Groups shared how a husband can allocate a portion of his land to one of his wives, but it is not until he

accompanies her to the village office to formerly transfer ownership that her access to that land is secure. During the period between receiving the allocation and receiving the certificate, women are in a difficult spot. They are positioned to receive something of great value, a title to land, but this opportunity can be lost if the husband changes his mind. Before the transfer of title, he can "take back" the land from his wife for any reason. After the transfer, the land is hers, unequivocally.

During this interim period between allocation and title, women's access to land is precarious, and their perceptions of their access to household decisions is reduced. Furthermore, husbands understand this. During a meeting with a group of men, one described women's situation aptly, "When you're waiting for something from someone, you need to be careful." Before receiving a land allocation, a woman may feel like she has nothing to lose and will speak her mind in the household. But once she receives an allocation, she has something significant to lose and will refrain from speaking up for fear of upsetting her husband and losing the chance of getting the title. As such, women do not feel that they can contribute to certain household decisions during this period. Our modelling indicates that decisions surrounding livestock, children's health, family planning, and children's marriage are each significantly impacted by this.

Another key question we asked during our follow-up group interviews with men was what incentive they had to support women's land rights. One man's comment exemplified the general response we received: "to prevent fighting between sons and wives." In accordance with the perceived growing scarcity around agricultural land, it was pointed out that if household heads didn't sub-divide and transfer their own land holdings to their family members, "clever children and wives can end up taking land from a quiet one." In essence, husbands make land

allocations and transfer titles to secure a form of peace in the household. Additionally, we learned that many women, once they have secured land title, ultimately transfer it to their sons, but not their daughters. In this way, women's control over land can be ephemeral and largely instrumental, serving as a way station for land transfers between generations of men.

5. DISCUSSION

Taken together, our findings characterize a broad range of decisions that Maasai women may gain access to within their households (RQ1) and identify what individual and household factors are associated with women's access to these decisions (RQ2). Furthermore, they provide support for the idea that women's pathways to greater empowerment within households are broadly diverse in some cases, and quite limited and narrow in others. These findings corroborate and expand on findings in Maasai communities that women maintain decision-making power in certain contexts (Wangui, 2014; Yurco, 2024a; Goldman and Little, 2015) as well as findings elsewhere in the Global South, which have showed how women's access to decision-making is contingent, and often precarious (Cornwall, 2016; Kabeer, 2005).

To render these findings in light of the scholarship on women's empowerment, we discuss several issues below, including: (1) how various factors are significantly associated with certain decisions; (2) how other factors are, importantly, NOT associated with decisions; (3) how our findings appear to hold more explanatory power for more contemporary decision-types compared to more longstanding types; and (4) how access to land plays an especially nuanced role in women's access to several decisions.

5.1. Significant findings

Our findings include several significant associations between various individual and household level factors and women's access to IHDM. For example, access to the decision of whether their children will go to school is greater for women who have some education themselves, participate in income generating activities, and participate in community groups, compared to women who have no education, and do not participate in income generating activities or community groups. These findings are consistent with findings elsewhere (Annan et al., 2021). Access to decisions regarding children's health care is similar, with women's education and income generating activities conferring greater access, but also distinct in that issues surrounding land are important, including access to land and title to land, which have negative and positive associations respectively. Alternatively, women's education and participation in income generating are not associated with their access to the decision of how many children to have. Here access is greater for older women and lower for women who have fewer children. Women who participate in community groups or have a title to land also have greater access to decisions regarding family planning, but women with access to agricultural land, without land title, have less access (more on this below).

Table 6 also shows which independent variables hold explanatory power across a range of decision types and which do not. Women's education and participation in income generating activities are each positively associated with six decision types, highlighting the broad importance of these variables, as other studies have found (Anderson et al., 2017; Bertocchi et al., 2014), including within Maasai communities (Dutt et al., 2016). For example, compared to women with no schooling, women with any level of formal education have greater access to decisions regarding agricultural labour, children's school attendance and health care, their own participation in community groups, their travel outside the household, and decisions regarding

livestock sales. Conversely, the number of children a woman has, or the number of sons, both longstanding measures of female status in Maasai society, are each only associated with a single decision type.

While formal education is important driver of access to IHDM, so too is participation in women's community groups, specifically for decisions around family planning, travel and children's education. In qualitative interviews women reflected on the support provided by *vikundi* and how their relationships become stronger through these groups. A working hypothesis here is that these groups become spaces of shared learning where women can educate each other and/or benefit from non-governmental organization (NGO) trainings and programs, as is the case for women who engage with the NGO MWEDO in Longido District (Goldman and Little, 2015).

A potentially fruitful idea here is that certain decisions, those associated with a larger number of factors, benefit from a type of functional redundancy, which makes access to that decision more stable. In these cases, the function, which could be described as access to a decision, is supported by multiple factors, which means that if any one factor ceased to exist, the function would continue to be supported by the other factors. This idea, common in research on ecosystems, has been leveraged to better understand natural resource management institutions (Simpson et al., 2020; Stern and Baird, 2015; Leslie and McCabe, 2013). For Maasai women, the implication would be that access to certain decisions (e.g., children's schooling or health care) is more stable than access to other decisions (e.g., livestock transactions).

5.2. Insignificant "findings"

The *absence* of significant associations between certain variables is notable. Historically, women's relative status and power have been functions of their age, their position within

polygynous households, and the number and gender of their children (Hodgson, 2001; Spear and Waller, 1993). While individual situations vary, older women, older wives (especially first wives), women with many children, especially sons, and women with powerful sons, each tend to have greater status and influence in their households and in Maasai society, compared to other women. These conventions have been expressed in many group interviews with both women and men in our study site over many years. For these reasons, we included these measures in our modelling, but found few significant associations with decisions. Age is positively associated with decisions about participation in community groups and family planning. And, unsurprisingly, women who have many children are less likely to feel that they have access to decisions about family planning. Last, women who have more sons are more likely to have access to decisions about participation in small-scale income generating activities. Otherwise, we found no associations between these more longstanding measures of women's status and access to decisions.

We had also hypothesized, and women suggested in group interviews, that men's education and age would be important, with younger and more educated men holding more progressive ideas about women's roles. However, in alternative specifications of our model (not reported), these variables held no explanatory power and were omitted from our final models. This was also the case with measures of men's and women's religious affiliation and religiosity, factors whose importance has been implicated in Maasai social change (Baird, 2015; Hodgson, 2005). Perhaps unsurprisingly given recent insights into the role of mobile phones in Maasai life (Summers et al., 2020), we found no associations between phone ownership, which varies throughout the study area, and IHDM. Finally, a proxy for household wealth, measured in Tropical Livestock Units (TLUs) per capita (see Table 3), was also not significantly associated

with any decisions, indicating that longstanding measures of household economics are not central to women's empowerment. Our qualitative interviews suggest these results may be due to wealth privileging some women in the household over others, obscuring a general empowering result in our sample of women.

5.3. Contemporary and longstanding decisions and factors

Over the past two decades, many aspects of Maasai social and economic life have changed, especially in the study area. Livelihood diversification into agriculture, wage-labor migration, and off-farm employment have provided new pathways for Maasai to both preserve longstanding pastoralist traditions and to transcend them (Baird and Gray, 2014; Smith, 2015). Simultaneously, infrastructure including public health clinics and primary and secondary schools has expanded rapidly throughout the study creating better safety nets and new opportunities (Baird, 2014), the virtues of which have been commonly extolled through both the diffusion of Christianity and various development NGOs in Maasailand (Baird, 2015; Goldman and Little, 2015; Hodgson, 2005). Taken together, these shifts have supported women's access to formal education, income generating activities, community savings and loan groups, and land, which can serve as critical types of capital. Furthermore, they have created a host of new topics about which individuals and households must make decisions.

Our findings show that these more recent sources of human, social, and physical capital (education, community groups, income, and land) are associated with more contemporary decisions (e.g., agricultural labour, children's schooling and health care, and generating and controlling income) as well as more longstanding decision-types dominated by men like family planning, livestock transactions, and children's marriage. Conversely, the factors more

historically associated with women's status and power, including their age, their position within hierarchical polygynous households, and the number of children and sons they have, are significantly associated with *few* decisions, both recent and longstanding. Furthermore, our findings reveal that access to decisions surrounding longstanding aspects of women's lives often controlled by men (e.g., livestock) and bodies (e.g., family planning and women's movement) are primarily supported by more recent factors, including formal school-based education, agricultural land tenure, and group membership (especially savings and loan groups), and not by more longstanding indicators of women's status.

The implication here appears to be that the novelty, upheaval and initial instability associated with more recent economic, educational, and social activities, rather than the stability of older patterns, create opportunities for women (Baird et al., 2017; Wangui, 2014). In this case, men's tools of control have included livestock and longstanding patterns of social organization centred around polygyny and masculine authority. Now, women seem to have seized on the more recent developments of formal education, agriculture, the cash economy, and support groups, as well as the new decisions they present to households, to improve their access to decision-making, and their relative power. These are women's new tools.

But while a large proportion of women are using income generating opportunities to gain access to power in their households (Woodhouse & McCabe 2018), there still appear be limits to the empowering effects of market integration, with no significant relationship to longstanding masculine decision-making domains (travel, family planning and livestock). There can be potentially disempowering aspects of women's ability to generate income, insofar as it increases labour burdens (Smith, 2015; Westervelt, 2018; Woodhouse and McCabe, 2018), and our qualitative data suggest that income from women's businesses is largely used to meet children's

needs and to make up for shortfalls in the household (Summers et al., 2020) rather than to invest in new opportunities or pathways to power. Conversely, women's education does appear to support women's access to some of these more longstanding decision types (i.e., livestock and women's travel.)

Importantly, this distinction between older and newer activities and decisions is not intended as support for a dualistic view of Maasai life, past and present. Instead, it is presented as a broad story of development. Our characterizations, which seek to distinguish between a period of this story when livelihoods were more centered around mobile pastoralism, and a period when livelihoods are more economically diverse and with greater access to formal education, health care and NGOs, would be recognizable to our older study participants.

5.4. With land, it depends

Land rights are crucial for women's empowerment (Agarwal, 1994). Furthermore, women's access to land and the process of women gaining rights to land has been shown as important for women's empowerment in Maasai communities (Goldman et al., 2016). Our analysis highlights a further dimension and potential risk of disempowerment during and after this process.

Perhaps one of the most consequential developments for Maasai in the last few decades has been the adoption and expansion of agriculture and the attending shift from commonly to privately held lands (McCabe et al., 2010). This privatization, which began years ago through allocations made by village governments to individuals, typically male household heads, has progressed to a point of scarcity wherein younger men, and also women, are forced to seek allocations from their fathers and husbands, respectively. This sub-division of land typically

involves a trial period where sons or wives are allocated a piece by the father or husband so that he can observe how well they manage it. Later, formal paperwork is signed at the village office transfer the land to its new owner.

Our quantitative and qualitative findings show clearly that this interim period is precarious for women. All things being equal, women with land allocations, but without title, have lower access to several decisions compared to women who have no allocation. However, once title is secured, women again are empowered to contribute, and at a higher level. In this way, the relationship between access to land and access to decision-making power appears to be a U-shaped curve, with the highest levels of decision-making access at very low (i.e., no allocation) and very high (i.e., tenure) levels of access to land.

This phenomenon raises an important question for scholars and practitioners focused on issues of women's empowerment: what other drivers, or potential drivers of empowerment work in this non-linear way, where *some* access is worse than *no* access - and *full* access is superior? Furthermore, this scenario highlights that new routes to empowerment come also with risks that may limit transformative change. With land, men reduce women's power by offering them limited access to a valuable new resource. Women may then gain power when they secure title to the land, but ultimately may surrender this power when they transfer the title to their sons. In this way, male dominated power structures embedded in longstanding gender norms are upheld. In our original interviews, women highlighted the shift in consciousness needed among men and the social barriers to change, with one noting that "if a man is seen giving freedom to women, other men will criticize him." Further research must examine variability in men's views and processes that reinforce or challenge patriarchal beliefs that limit women's empowerment.

5.5. Summary

This study illustrates how, as rural livelihoods shift, rural social relations can too, with strong implications for women's empowerment. Overall, our findings suggest that in terms of policies and interventions, there is no magic bullet to improving women's agency in Maasai communities. Nonetheless, formal education, income, community savings and loan groups, and land tenure are valuable forms of asset-based capital that support women's access to IHDM. Furthermore, our findings resonate with scholarship on women's empowerment that emphasizes its iterative and multi-dimensional nature, and as a journey travelled along different pathways (Cornwall, 2016). Here external support for women's rights over land, and women's support groups are practical routes to improving women's sense of agency that ultimately may work towards the cultural change that is needed for more transformational change toward gender equality (WHO, 2015). Accordingly, shifts in Maasai customs and patterns of inheritance, especially with the ascendance of the agriculture and private land holdings, represent an especially fruitful area for new scholarship.

Last, in seeking to better understand women's *access* to IHDM, our findings surrounding land have highlighted the important distinction between *access* and *control* common in discussions of women's empowerment – and perhaps a valuable insight. With material resources, especially in legal contexts, *access to* and *control of* a resource, like land, may be more distinctive from each other and more rigid compared to immaterial resources, like decisions, in household contexts where they may be less distinctive and more vulnerable. Future research should better examine how *access* and *control* are manifest in different contexts, both material and rhetorical.

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