

Gender-differentiated impacts of tenure insecurity in Malawi's customary tenure systems

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Perceived tenure insecurity can affect farm productivity, but has received surprising little research attention. In Malawi, 22 percent of farmers are concerned about losing their land and 21 percent fear encroachment. Econometric results suggest that perceived tenure insecurity is particularly pronounced among households with previous experience with land loss and land disputes. When fear of involuntary land loss is included in a production function, agricultural output falls by 12 percent for women, but not for men. By comparison, impacts of matrilineal inheritance on tenure insecurity and productivity loss seems modest. The analysis suggests that a systematic tenure regularization program could eliminate tenure insecurity on customary lands in Malawi and pay for itself. Carefully evaluated pilots with attention for the determinants of tenure insecurity for women and men, could help to inform implementation of recently adopted Land Bills.

Introduction

In most African countries, land access continues to be governed by customary tenure systems. These have long been argued to provide high levels of tenure security and flexibility at a cost well below that of 'modern' arrangements. Yet, studies also describe the challenges they face with population pressure: Unclear rules on how to deal with outsiders—migrants or foreign investors—can trigger disputes, undermining investment and productivity.

Land tenure reform aimed at improving tenure security has long been advocated to encourage investment and effectiveness of land use as well as operation of land markets. Moreover, land titling aimed at increasing women's access to land has been found to not only enhance agricultural productivity but also improve their bargaining power within the household.

Yet, bias against women has been found to compromise their tenure security and productive resource use, with women more likely to be affected by disputes and to suffer productivity losses than men. In addition to women's own welfare, this will affect longer-term outcomes if women attach higher values to family needs or children's welfare and thus devote more of the resources at their disposal to these.

Despite its relevance for policy, perceived tenure insecurity has received surprisingly little attention in research. Identifying the determinants of perceived tenure insecurity, assessing the size of productivity impacts of perceived tenure insecurity, and understanding the extent to which they vary by gender allow us to put this into context, and to draw out policy implications, noting that from an economic perspective, interventions programs are warranted only if the impacts of tenure insecurity are larger than the cost of implementing a program to reduce tenure insecurity.

The first goal of this paper is to identify the different determinants of perceived tenure insecurity and to compare their quantitative impacts on agricultural performance. The second goal is to explore gender differences in the determinants of perceived tenure insecurity and the latter's impact on production. This paper will also assess whether investment disincentives due to the inheritance regime are economically meaningful. In Malawi, the gender issue has often been discussed in the context of inheritance regimes. The postulate is that discrepancy between men as prime decision-maker and women's land ownership in matrilineal/matrilocal systems is a key source of tenure insecurity with negative impacts on investment.

Malawi context and issues

The Malawi's customary sector, long characterized by egalitarian of land access and great diversity between different inheritance systems, has come under strain due to population growth, land scarcity and urban expansion that increased prices. Land transactions with outsiders did not only become more frequent but were also frequently challenged ex post, with a possibility of disputes surfacing even after long periods of dormancy.

Since colonial times, Malawi has been characterized by a dualistic land tenure structure with smallholders on customary lands alongside estates geared towards cash crop production, benefiting from implicit subsidies reinforcing this polarity. In the late 1980s, additional estates were carved out of what was deemed unutilized customary land and transferred to aspiring commercial farmers with 21-year leases. The fast expanding estate sector covered almost 800,000 hectares in 1994, but dissatisfaction with such a strict distinction between estates and the customary sector led to a moratorium on lease issuance, together with the launch of a more comprehensive land policy reform process. This culminated in 2016 Parliamentary enactment of new Land Bills that classify land into public (government or unallocated customary land) or private (freehold, leasehold, and customary estates) categories. "Customary estates" is a new tenure type defined as all land owned, held or occupied as private land within a Traditional Land Management Area (TLMA), and which can be registered.

However, substantive concerns have been raised regarding the Bills' failure to acknowledge complex local land tenure realities, in particular (i) recognition of land rental and sales instead of either outlawing them or making them contingent on

Ministerial approval; (ii) potentially adverse gender impacts of registering land in the name of (male) heads and requiring equal inheritance by all children that may conflict with deep-rooted norms or, in matrilineal systems, undermine females' bargaining power; and (iii) a danger of local land committees becoming politicized, even with a gender quota.

Methodology

Our data are from the 2006/07 National Census of Agriculture and Livestock (NACAL) implemented by Malawi's National Statistical Office (NSO) with the Ministry of Agriculture. Household-, individual-, and village-level data collection instruments were administered to a sample of smallholders, stratified by agro-ecological zone and randomly drawn with a target of 10 small (< 2 acres) and 5 medium sized (≥ 2 acres) farms for each enumeration area. The survey collected information on household composition, welfare, food security, assets (incl. livestock), marketing, parcel-level data on land tenure and investment, and plot-level data on inputs and outputs for agricultural production in the 12-month period starting October 2006. Data gaps reduced the sample for our analysis to 17,672 smallholders with complete information and to reduce error from misreporting, we restrict the regression sample for estimating impacts of insecure tenure to parcels operated by the respondent.

Land tenure characteristics

While most smallholder land is customary (77%), more than 20 per cent is under other tenures including freehold. Village level variables highlight Malawi's diversity in terms of inheritance practices and the extent to which land scarcity has increased market activity or given rise to intensification (table 3). 67 per cent of villages follow matrilineal inheritance patterns, 28 per cent a patrilineal one, and 5 per cent others. With 84 per cent and 79 per cent, respectively, matrilineal inheritance prevails in the South—where matrilocality dominates—and the Center—where villages are almost equally split between matri- and patri-locality. It is virtually absent in the North where only 2 per cent of villages report to follow a matrilineal and patrilocal inheritance pattern.

Inheritance remains the main avenue of accessing land in Malawi; two thirds of parcels were acquired in this way, followed by allocation via the village headman (19%), rental (4%), and purchase (2%). Land lease markets are incipient with 6 per cent of households participating, highlighting the increased importance of migration. While most parcels (80%) are owner-operated, only 58 per cent of operators were born in the village. The mean smallholder parcel had been in use for some 12 years and measures 0.61 ha (table 2).

Village land is no longer exclusively used by villagers either as 37 per cent have village land owned by outsiders and 34 per cent rent village land to them (21% where outsiders own and rent village land). Higher outside demand for land is also visible from the fact that 11 per cent and 15 per cent of villages had, in the last 5 years, sold or given land to outsiders, sometimes (14%) failing to respect the village head's authority. Limits on land availability are evident from the fact that only 11 per cent or 31 per cent

of villages still have uncultivated or unallocated land available and that in 11 per cent of villages, households had moved out to escape land shortage.

Land conflict is becoming more frequent: 29 per cent and 20 per cent of villages reported conflict among village families or with neighboring villages, respectively. Some 24 per cent of villages are located within walking distance from estates and in more than a fifth of these cases, land conflicts with neighboring estates are reported.

The data point towards widespread tenure insecurity: 22 per cent and 21 per cent of respondents voice concern that their land may be taken away or encroached upon. In the past decade, 15 per cent of respondent households experienced a land dispute (table 1). For most households, insecure tenure adds to an already precarious situation: 30 per cent and 17 per cent of respondents experienced theft of crops or livestock, respectively, in the last 5 years.

Table 1: Household characteristics

	All	Operator's gender		t-test
	Malawi	Male	Female	
Household characteristics & assets				
Share of female head	0.29	0.06	0.49	***
Share did not eat normally last 7 days	0.28	0.27	0.29	***
Share had main job of non agriculture	0.34	0.34	0.35	
Land tenure & agriculture				
Share feared land would be taken away	0.22	0.24	0.20	***
Share feared land would be encroached upon	0.21	0.22	0.20	***
Share experienced crop theft last 5 years	0.30	0.31	0.30	
Share experienced livestock theft last 5 years	0.17	0.18	0.16	***
Share had disputes over land in the past 10 years	0.15	0.17	0.14	***
If yes, share not resolved	0.14	0.14	0.15	
If yes, share resolved by the household	0.18	0.19	0.17	
If yes, share resolved by elders (husband side)	0.09	0.09	0.08	
If yes, share resolved by elders (wife side)	0.27	0.26	0.29	*
If yes, share resolved by traditional leaders	0.24	0.26	0.22	**
If yes, share resolved by others	0.06	0.05	0.07	
Share had land taken away last 10 years	0.014	0.015	0.012	
Share had land encroached upon last 10 years	0.020	0.018	0.022	*
Share rented out some land	0.06	0.07	0.06	***
Rental (US\$/ha)	20.55	22.03	18.82	
Number of households	15,472	7,368	8,104	

Source: Own computation from 2006/07 NACAL. Last column contains t-tests for difference in manse between males and females (*** p<0.01, ** p<0.05, * p<0.1).

Determinants of perceived tenure insecurity

Our empirical analysis first looks at the determinants of perceived tenure insecurity by exploring the relationship between household-level tenure insecurity and respondent-, parcel-, household-, and village-level attributes. What we highlight in this study are land-related variables. We therefore focus on (i) past experiences of land loss or encroachment as well as land conflicts, supposing that the perception of tenure insecurity is a dynamic process with past experiences shaping the current perception; (ii) participation in land transactions, supposing that the lessors may fear that the transfer is considered to be a signal that their land is no longer needed and, the leases may fear leased-in land being taken back without enforceable contracts; (iii) tenure of the household's parcels rather than the size and the quality of land holding that may be correlated with household wealth; (iv) respondent's attributes more relevant to the concern over land than general risk attitudes; (v) land scarcity at the village level; and (vi) variables associated with the inheritance regimes. Individual-level characteristics such as respondent's gender and age as well as family background such as demographic composition and wealth are used to control for respondent's general risk attitudes.

We find that past encroachment and past loss are both estimated to increase the fear of land being taken away by about 10 per cent irrespective of gender while past encroachment affected the fear of future encroachment more than loss with point estimates of 34 per cent and 7 per cent, respectively and the latter being insignificant for male respondents. In addition, having had disputes in the past is the most important factor (15% to 23%). If other households had moved out due to land conflict (supporting case study evidence of traditional institutions often failing to conclusively resolve disputes), only female respondents had a concern of land loss with an estimate of 7 per cent.

In line with the findings from studies suggesting that traditional systems make it difficult for 'strangers' to acquire land, having borrowed land is estimated to have increased the risk of land loss by 7 per cent without effect on encroachment risk while renting out land increases perceived risk in both areas by 3 per cent. Gender

disaggregation suggests that the impacts are significant for male but not female respondents, presumably because women were less likely to involve in land transactions themselves.

For perceived insecurity of tenure, parcel tenure type and respondent's attributes exhibit gender-differentiated impacts. Female respondents seemed to feel more secured in a familiar environment. Customary land and having been born within the village reduced the fear of land being taken away by 3 per cent and 5 per cent, respectively, with the latter also reducing the fear of land encroachment by 2 per cent. By contrast, having land located outside the village and spending most time on non-agricultural job increased perceived insecurity by 3 per cent and 2 per cent, respectively. Though male respondents were also less likely to report fears in a familiar environment, relevant determinants are more limited.

The presence of estates in walking distance increased the fear of land loss only for male respondent with an estimate of 5 per cent. The interaction between these two variables is positive with a point estimate of 9 per cent for male respondents, suggesting that in the presence of unallocated land, positive effects (e.g. employment) from estates outweighed negative ones.

Impacts on productivity attributed to inheritance regimes

As mentioned earlier, in Malawi, the gender issue has often been discussed in the context of inheritance regimes. To compare our results to impacts attributed to inheritance regimes in the literature, we include indicator variables on prevailing inheritance regimes and their interactions with operator's gender. We find that in matrilineal regimes, male respondents' perceived risk of land loss is increased by 6 per cent. By comparison, the fear of land being encroached upon is lower by 4 per cent

in patrilineal systems for both male and female respondents, suggesting that the inheritance regime is one of several factors, and apparently not the most important, that affect tenure insecurity.

Assuming that the inheritance regime did not change in the period of interest, we can test for its impacts on investment with the dependent variable being whether a household had planted fruit trees, built terraces, or practiced crop rotation. Results from doing so, fail to provide strong evidence to support the notion of matrilineal inheritance regimes being a major cause of low investment: To the contrary, overall likelihood of planting fruit trees is significantly higher in matrilineal systems, though the high likelihood is mainly driven by female operators. Terracing is significantly less

Table 2: Parcel and plot statistics

	All	Respondent gender	
	Malawi	Female	t-test
Parcel characteristics			
Area (ha)	0.61	0.50	***
Years used	11.58	13.66	***
Share of customary	0.77	0.76	***
Share inherited parcel from parents/spouse	0.66	0.63	
Share received parcel from village headman	0.19	0.19	
Share bought parcel	0.02	0.02	
Share rented/borrowed parcel	0.04	0.03	***
Share located in the village	0.77	0.78	**
Share located outside village but same TA	0.23	0.22	**
Owner characteristics			
Share of operator being owner	0.81	0.84	***
Share of female operator	0.38	1.00	
Share of operator born in the village	0.58	0.63	***
Land-related investment			
Share practiced crop rotation	0.13	0.09	***
Share built terrace	0.07	0.07	
Share fallowed last 3 years	0.15	0.14	**
Share operator planted fruit trees	0.18	0.19	**
Share operator planted non-fruit trees	0.08	0.07	**
Plot use			
Plot area (ha)	0.43	0.39	***
Crop area (ha)	0.39	0.35	***
Output and inputs			
Output value (US\$/ha)	304.51	284.07	***
Number of parcels	17,154	6,525	

Source: Own computation from 2006/07 NACAL (regression sample only). Household members working on a plot are defined as engaged in all 4 activities. t-tests for differences in means between males and females (*** p<0.01, ** p<0.05, * p<0.1).

likely in patrilineal systems for both men and women. Finally, for crop rotation, arguably a very short-term measure, investment is indeed lower in matrilineal and 'other' compared to patrilineal systems but gender disaggregation suggests that in both matrilineal—and patrilineal regimes, it is men who invested less.

Impacts of perceived tenure insecurity on productivity

The second aim of our empirical analysis is to quantify the impacts of perceived tenure insecurity on production. We estimate a plot-level production function with perceived tenure insecurity being the key variable of interest. The fear of land loss is estimated to have reduced output by 5 per

cent overall, but we note that this result is driven by female operators whose output declined by 12 per cent as a result of tenure insecurity. However, for males, perceived tenure insecurity in terms of the fear of land loss (as well as land encroachment) has no perceptible impact on productivity.

The data allows us to combine direct and indirect impacts to assess if and to what extent inheritance regimes affects productivity. To obtain such estimates, we add indicator variables for whether or not a household built terrace or practiced crop rotation, the investments that, based on our earlier results is affected by inheritance regimes. Results provide no basis for the conjecture of men in the matrilineal systems or women in the patrilineal systems

being associated with lower levels of productivity, irrespective of the inclusion of indicator variables for investments.

Conclusion and policy implications

Data from Malawi allow us to assess determinants and productivity losses of perceived tenure insecurity by gender. We find that the fear of land loss is high and associated with significant productivity losses for female cultivators. Econometric analysis results support the notion that, irrespective of gender, perceived tenure insecurity was higher for households having experienced land loss, land encroachment, and land disputes in the past decade and lower for households with land owners operating own (customary) land. However, with most of the determinants for perceived tenure insecurity having gender-differentiated impacts, the fear of involuntary loss of land is estimated to incur productivity losses of 12 per cent exclusively for women. The estimated present value of fear-induced productivity losses is estimated to exceed the amount of resources required to implement a low-cost systematic tenure regularization program along the lines of Rwanda at a cost of US\$5–6 per parcel could eliminate insecurity in Malawi, its benefits would be more than sufficient to recoup the costs. The implication for policy is that, even in the customary regime, piloting of approaches to secure tenure especially for women, accompanied by careful design and real-time evaluation, could thus help inform next steps to feed into regulation for Land Bill implementation.

Follow-up research will be of interest to explore ways in which perceived tenure insecurity could be reduced in different settings and to assessing productivity impacts of such interventions. This could improve not only understanding of production relations in Malawi but also help ensure that efforts at tenure regularization address these so as to have the desired impact on productivity and welfare.

Table 3: Descriptive statistics at the village level

	Regression Sample			
	All	North	Center	South
Availability of land				
Share had uncultivated land available	0.11	0.11	0.14	0.08
Share had unallocated land available	0.31	0.42	0.34	0.23
Share had households moved out due to land shortage	0.11	0.07	0.11	0.14
Share outsiders got land without consulting village head	0.14	0.15	0.14	0.15
Share had land sold to outsiders in last 5 years	0.11	0.04	0.13	0.11
Share had land given to outsiders in last 5 years	0.15	0.15	0.16	0.13
Share had land owned by outsiders	0.37	0.33	0.34	0.41
Share had land rented to outsiders	0.34	0.20	0.38	0.36
Share had land taken by the government	0.14	0.19	0.12	0.14
Incidence of land conflict				
Share had land conflicts by village families	0.29	0.28	0.28	0.32
Share had land conflict with neighbouring villages	0.20	0.18	0.20	0.19
Share had estates within walking distance	0.24	0.26	0.26	0.22
Share had land conflict with neighbouring estates	0.05	0.04	0.06	0.04
Inheritance practices				
Share of matrilineal and neolocal	0.04	0.00	0.03	0.07
Share of matrilineal and matrilocal	0.41	0.00	0.32	0.71
Share of matrilineal and patrilocal	0.22	0.02	0.44	0.06
Share of patrilineal and neolocal	0.02	0.01	0.02	0.02
Share of patrilineal and patrilocal	0.26	0.93	0.14	0.10
Share of do not know/other	0.05	0.04	0.06	0.04
Number of villages	4,107	729	1,784	1,594

Source: Own computation from 2006/07 NACAL.

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