LAND DISTRIBUTION IN NORTHERN ETHIOPIA FROM 1998 to 2016:

Gender-disaggregated, Spatial and Intertemporal Variation

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INTRODUCTION

- In agrarian based economies land is the main livelihood base for large rural populations e.g. in Sub-Saharan Africa.
- However with the growing population land for livelihood is becoming very scarce.
- For example, although all rural residents livelihood have a constitutional right to access land for livelihood for free in Ethiopia, population growth makes it too difficult to satisfy this constitutional right.
- Ethiopia has implemented two successive rural land registration and certification reforms since the late 1990s.
- The first reform, First Stage Land Registration and Certification (FSLR&C) is characterized as one of the largest, fastest and most cost-effective land registration and certification reforms in Africa (Deininger et al., 2008).

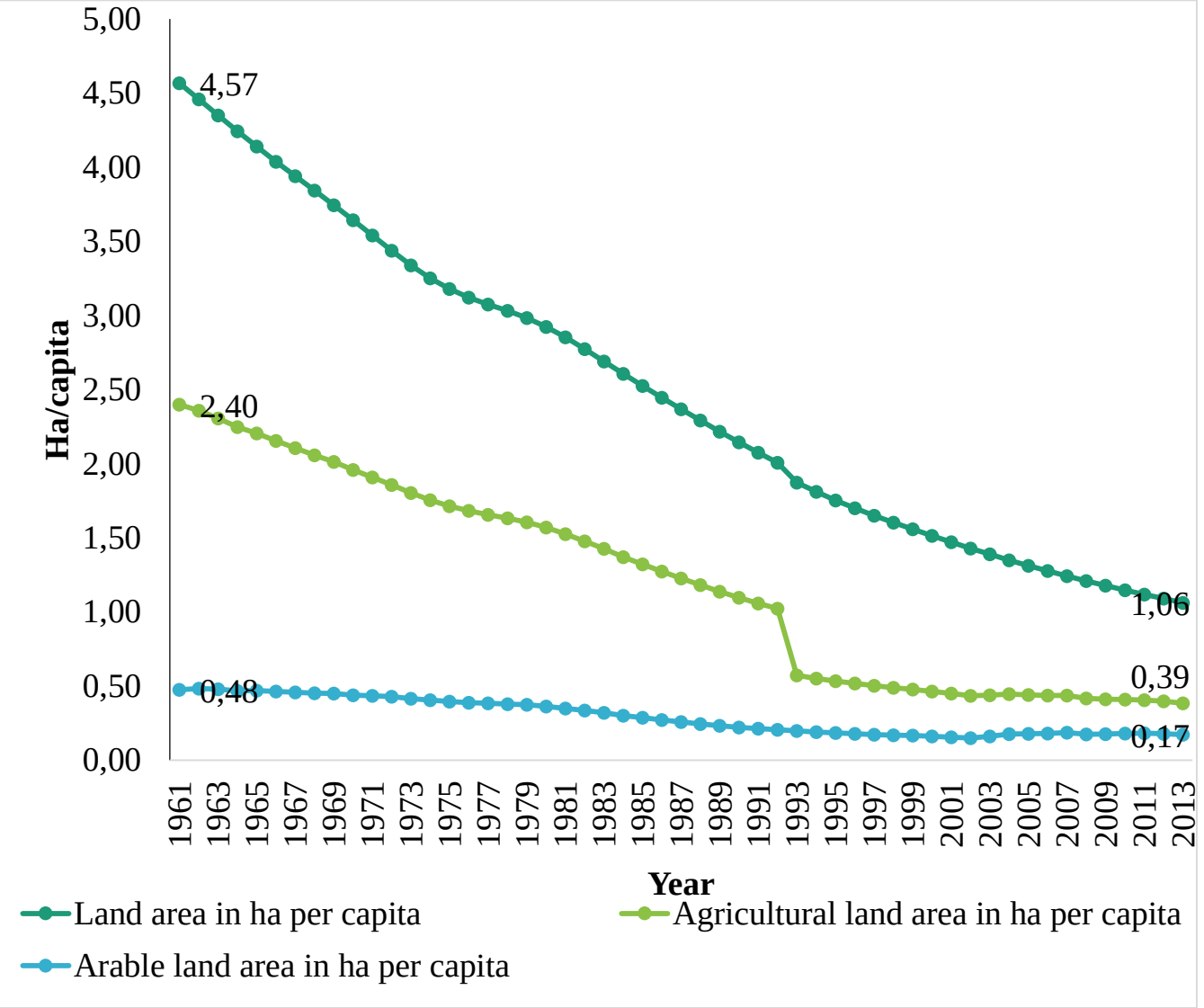


Figure 1:*Trends in Per capita land area in Ethiopia from 1961 to 2013 (Source: FAOSTAT)*

INTRODUCTION

- The SDGs (SDG-Target 1.4) that were agreed upon in 2016 give more emphasis to women's land rights and documenting these .
- **Data on the gender distribution of land in Africa are weak** and many flawed narratives have existed on this (Doss et al. 2015).
- In our study, we provide a more comprehensive assessment by utilizing data of First Stage **Land Registration (FSLR)** in 1998 and the **SSLR in 2016** from 11 municipalities in four districts of Tigray, Northern Ethiopia.
- **The objectives of this study are**:
  1. to make a gender-disaggregated analysis;
  2. to measure inequality of land access and how this has changed from 1998 to 2016 within and across communities;
  3. to assess the reliability of the FSLR data, the extent of measurement error, and how this may bias land distribution measures

HYPOTHESES

- Based on the historical dominance of men in management and control over land in Ethiopia … our first hypothesis is:
  - *H1: Most land remains owned by men after SSLR*
  - *H2: A large share of land owned by male-headed married households is in the name of husbands only*
- Based on the study by Dokken (2015) we propose the following hypothesis;
  - *H3: Female-headed households are more land-poor than male-headed households and this remains the case after correcting for households size differences*
- It is possible that in some communities and some households the men are more open about sharing of land with their wives. One implication of this may be that (hypothesis c);
  - *H4: The land owned by women across households and communities shows a more skewed distribution than that among men, where distribution still remains more equitable.*

HYPOTHESES

- In theory we expect that population growth from 1998 to 2016 has resulted in shrinking farm sizes.
- We do not expect that many existing households in 1998 have received much additional land through redistribution after 1998.
  - However, new households may have been established after 1998 that do not have access to land from their parents and these may have been allocated some land from the communities and such allocations are expected to be very small.
- Overall, we hypothesize the following changes from 1998 to 2016:

H_5: Average farm size is reduced

H_6: The farm size distribution has become more skewed as new owners have smaller farm sizes than old owners still keeping their land

H_7: Population growth has contributed to land fragmentation

H_8: Measurement error in measuring parcel and farm sizes in 1998 caused underestimated and unreliable farm size estimates at that time.

STUDY AREA, DATA & METHODS

- We sampled 4 *woredas* (districts) & 11 Tabias and
- We matched parcels and their owners into households within communities.
- The female owned share of land is calculated for each parcel.
- In order to assess the land distribution:
  - ✓ Gini-coefficients were calculated together with mean and median land sizes and farm size distributions were also illustrated with cumulative density functions (CDFs).
- Next, we compared farm size distributions in the FSLR versus the SSLR data to assess changes over time while also assessing the extent of measurement error in the FSLR data.
  - ✓ By matching households by names in the FSLR and SSLR data from the same communities
  - ✓ By also utilizing an additional sample of surveyed farms with FSLCs combined with carefully measured plot sizes,
  - ✓ We also take into account the changes in the administrative borders of most of the *tabias* in the period between 1998 and 2016.
  - ✓ This gave a better basis also for assessing the extent of land fragmentation and shrinking of farm sizes over the 18 years period from FSLR to SSLR took place.

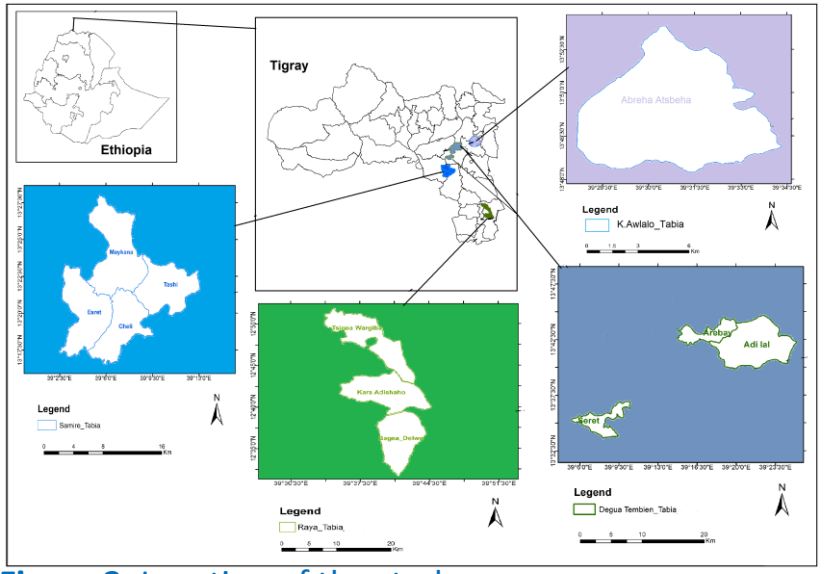


Figure 2: Location of the study area

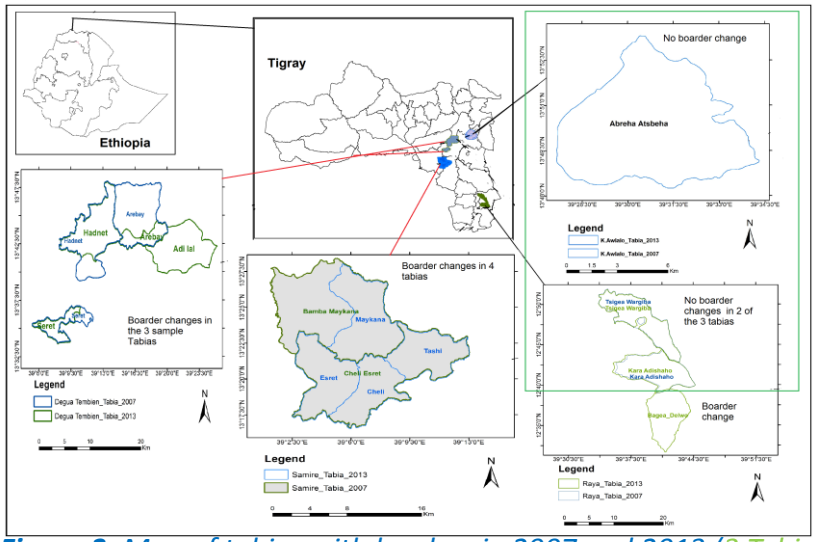
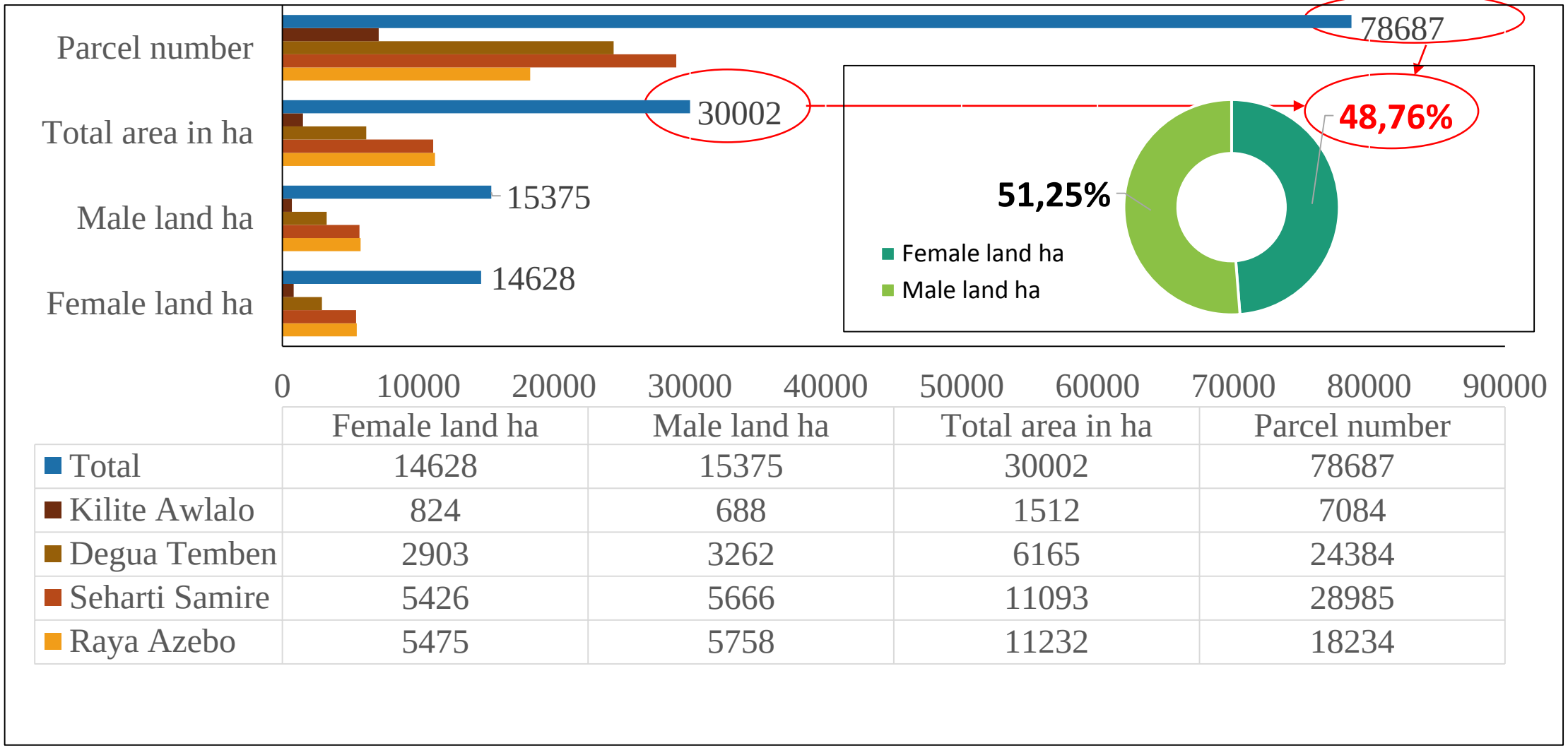


Figure 3: *Map of tabias with borders in 2007 and 2013 (3 Tabias with no boarder changes)*

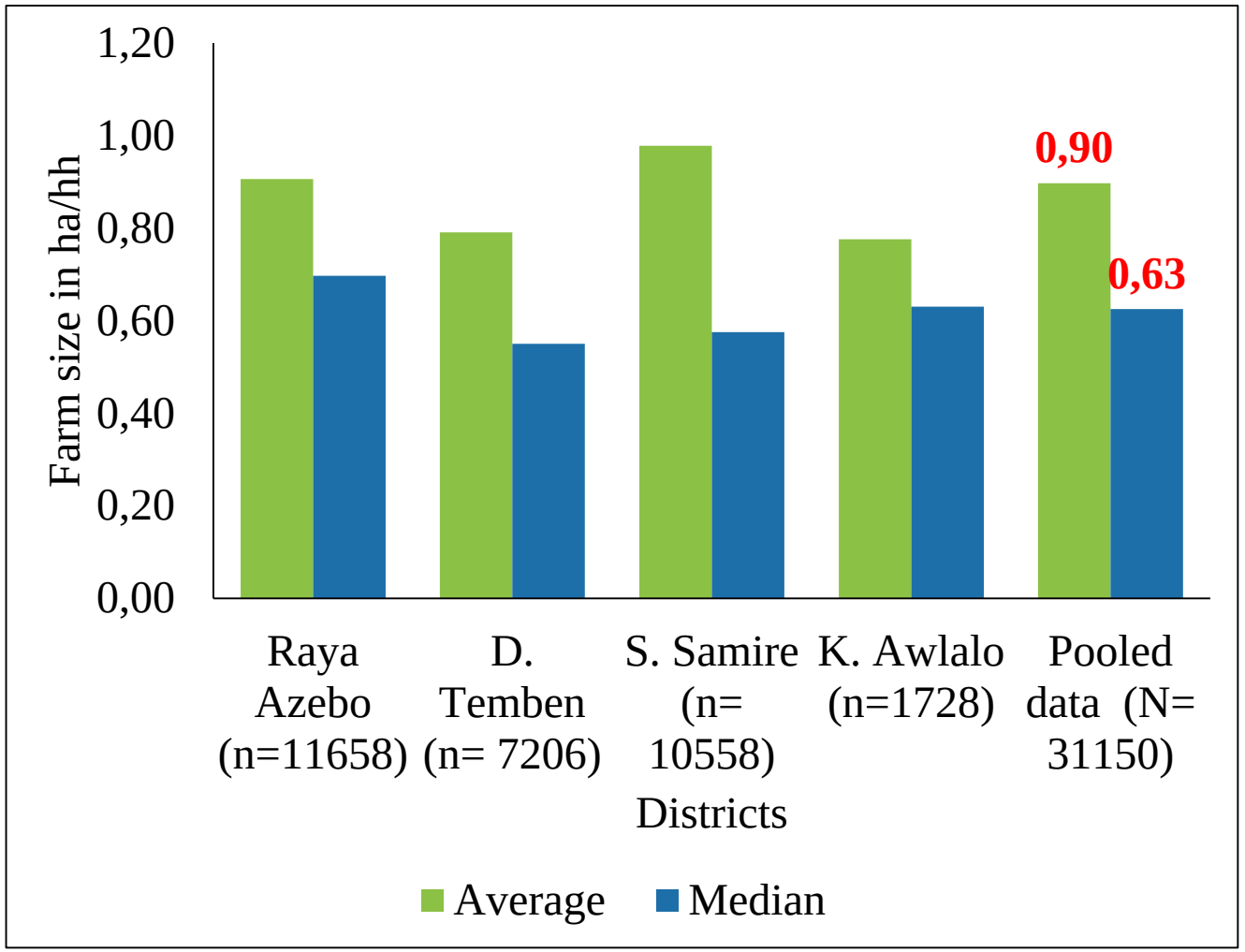
RESULTS: *SSLR-land distribution by gender and districts*



	Female land ha	Male land ha	Total area in ha	Parcel number
Total	14628	15375	30002	78687
Kilite Awlalo	824	688	1512	7084
Degua Temben	2903	3262	6165	24384
Seharti Samire	5426	5666	11093	28985
Raya Azebo	5475	5758	11232	18234

Figure 4: SSLR Parcel based land registry data gender disaggregated. Source: Tigray Land Registry data from District Land Administrations. Total land includes agricultural and non-agricultural land.

RESULTS: *SSLR-Farm size by districts and gender*



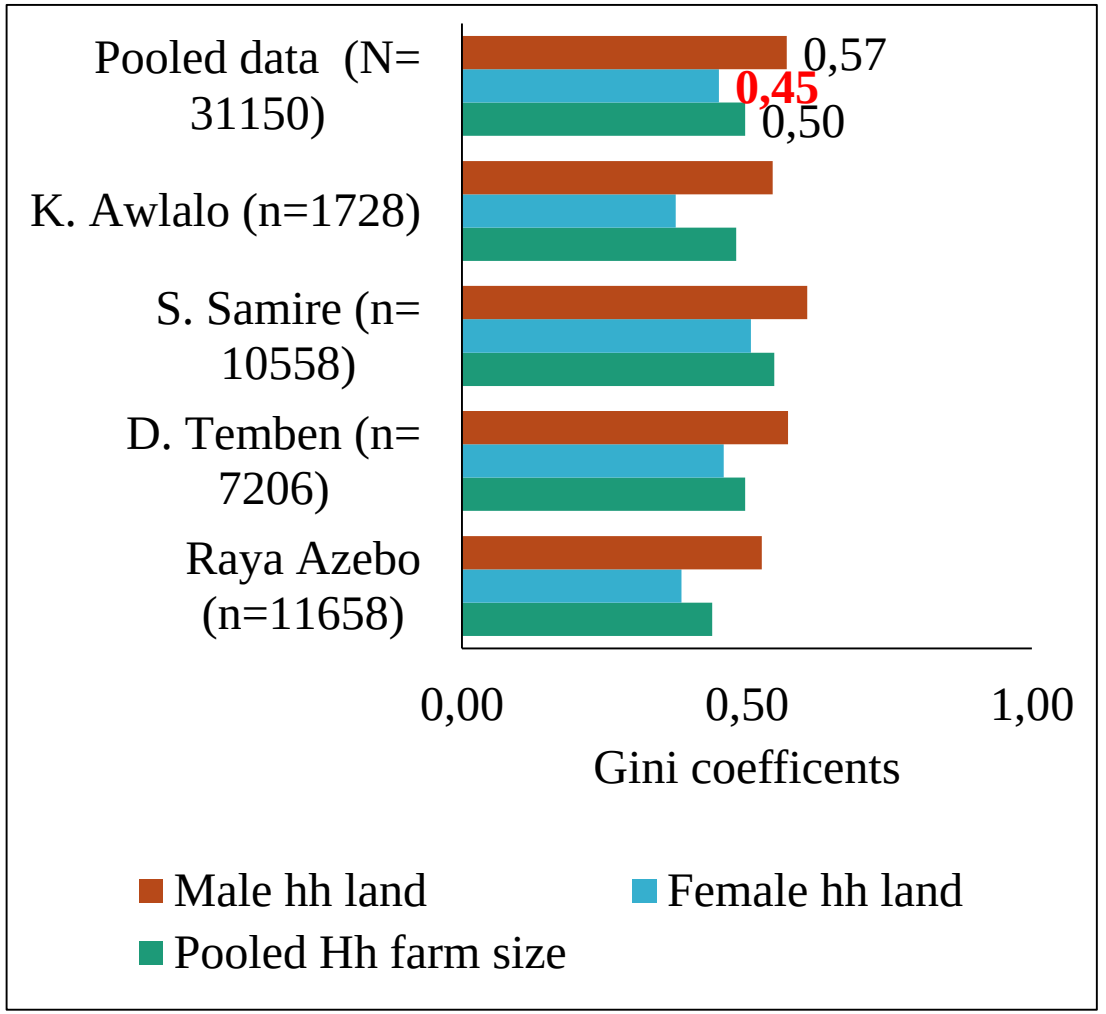


Figure 5: SSLR data aggregated to farm level: Farm size and farm size distribution by district. Source: Tigray Land Registry data from District Land Administrations. Only agricultural land included.

RESULTS: *SSLR-Farm size and land per capita by gender*

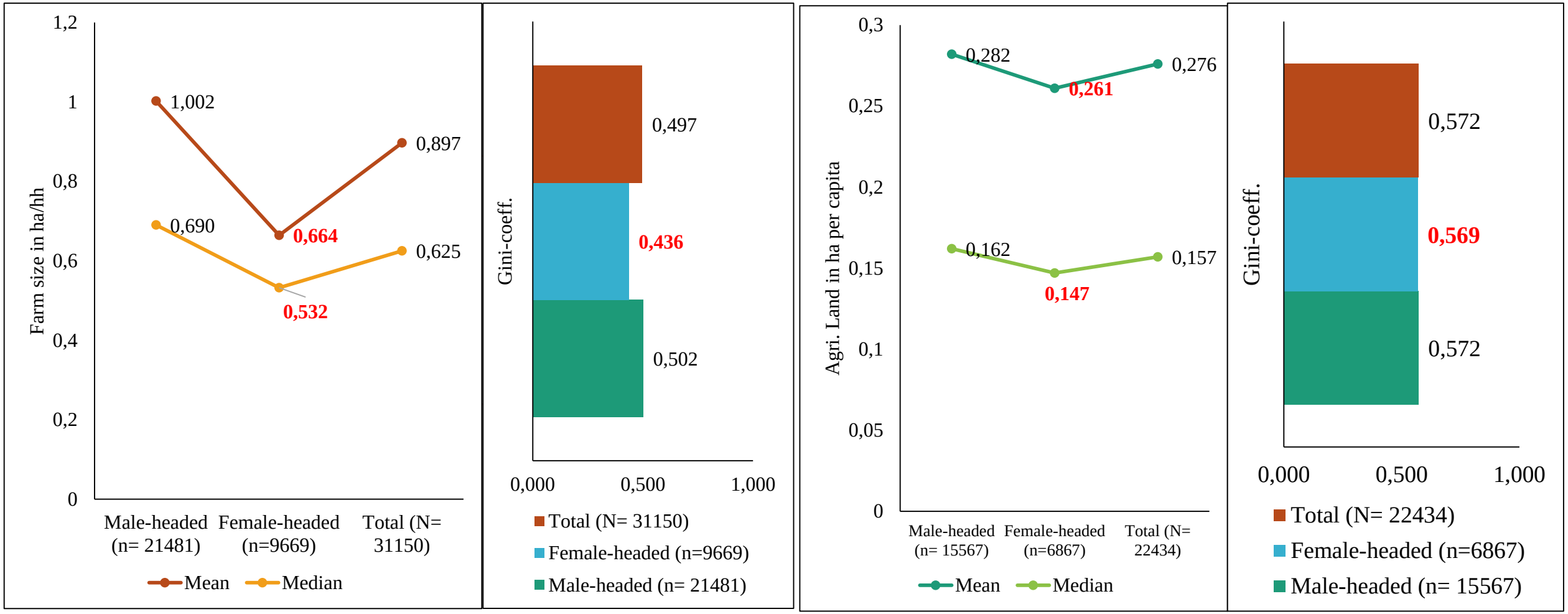


Figure 6. Comparing farm size and land per capita for male-headed versus female-headed households based on SSLR data for full sample/sample share with family size data. Source: Tigray Land Registry data from District Land Administrations.

RESULTS: *SSLR-Farm size distribution by gender and communities*

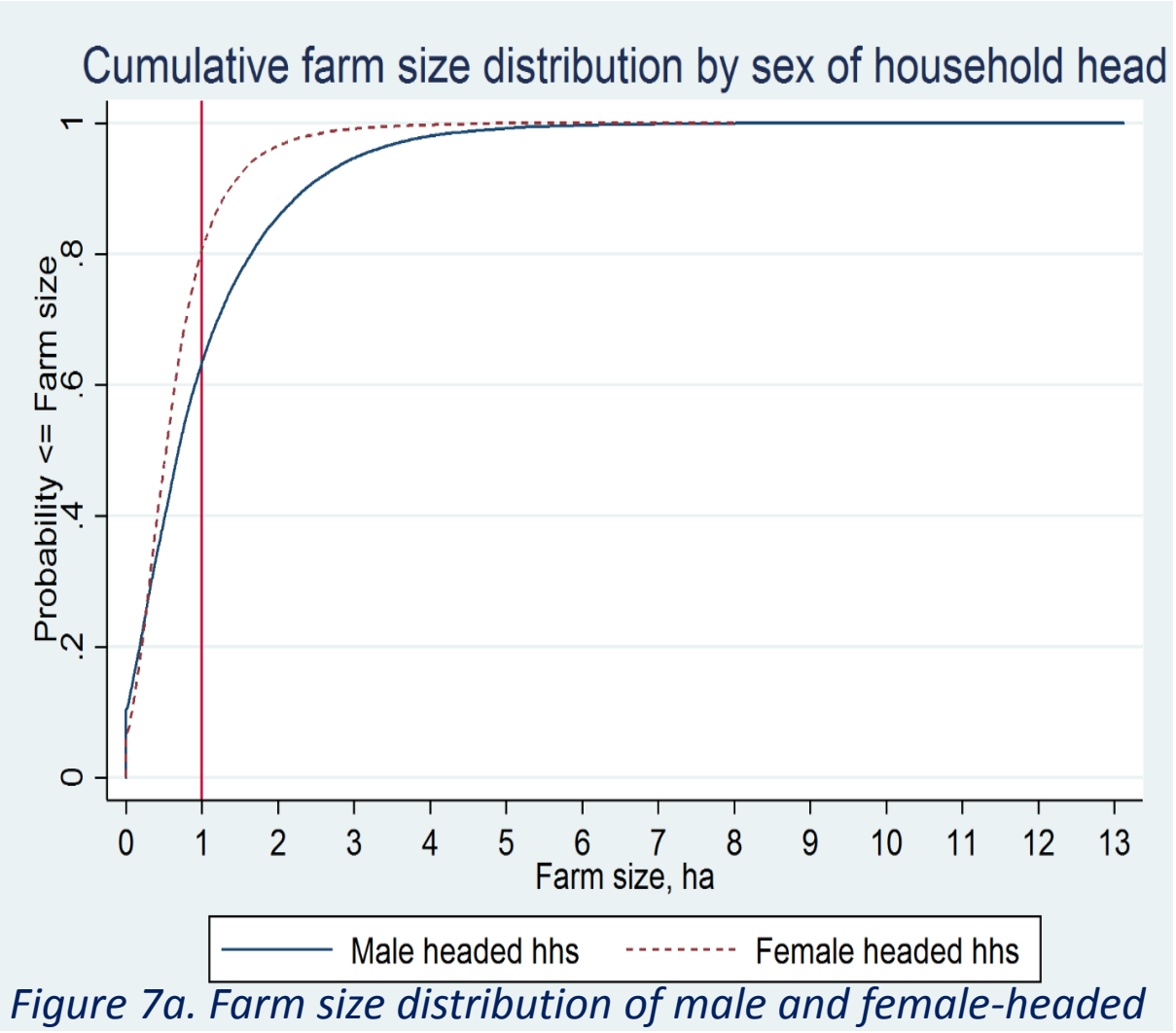


Figure 7a. Farm size distribution of male and female-headed households in SSLR, full sample (31150 farms)

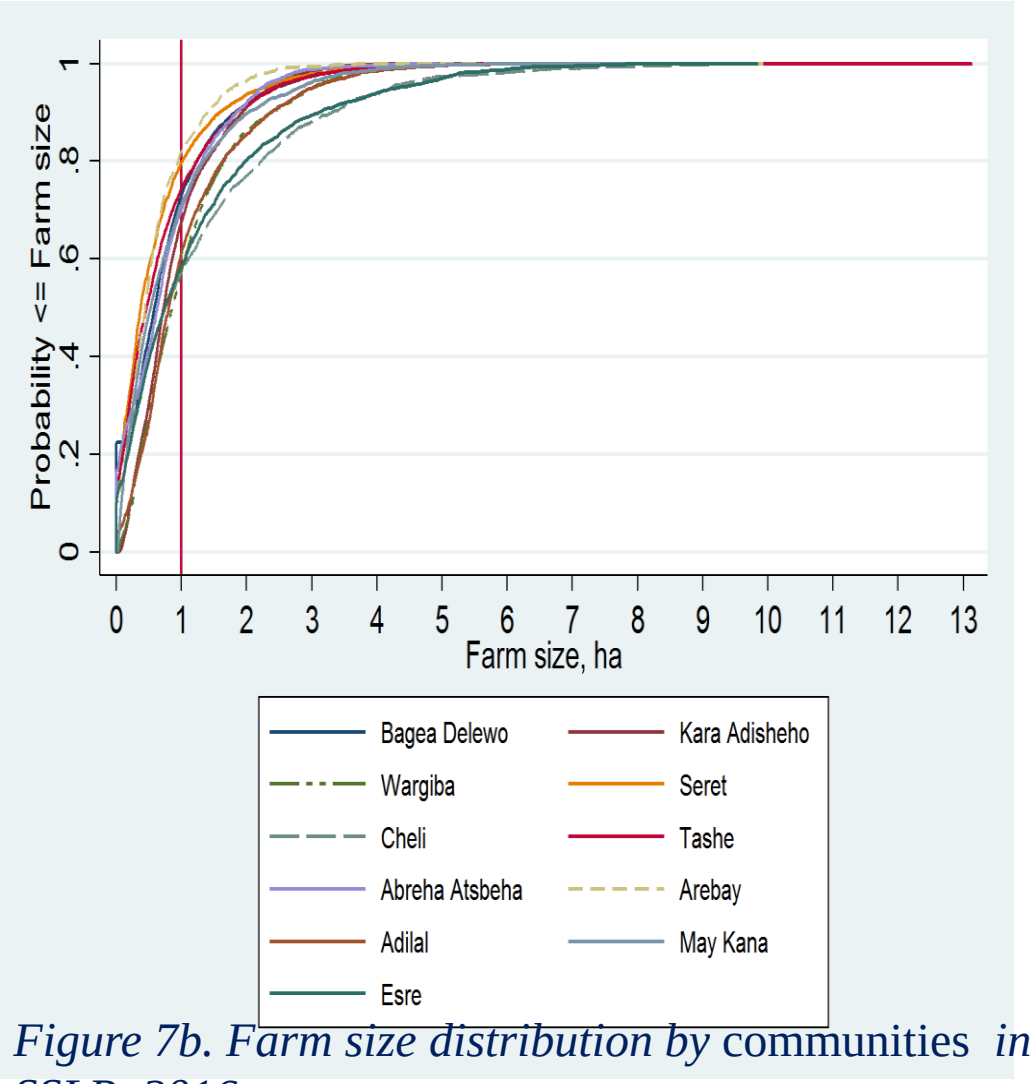


Figure 7b. Farm size distribution by communities in SSLR, 2016.

RESULTS: *Female owned share of land and within HH distribution*

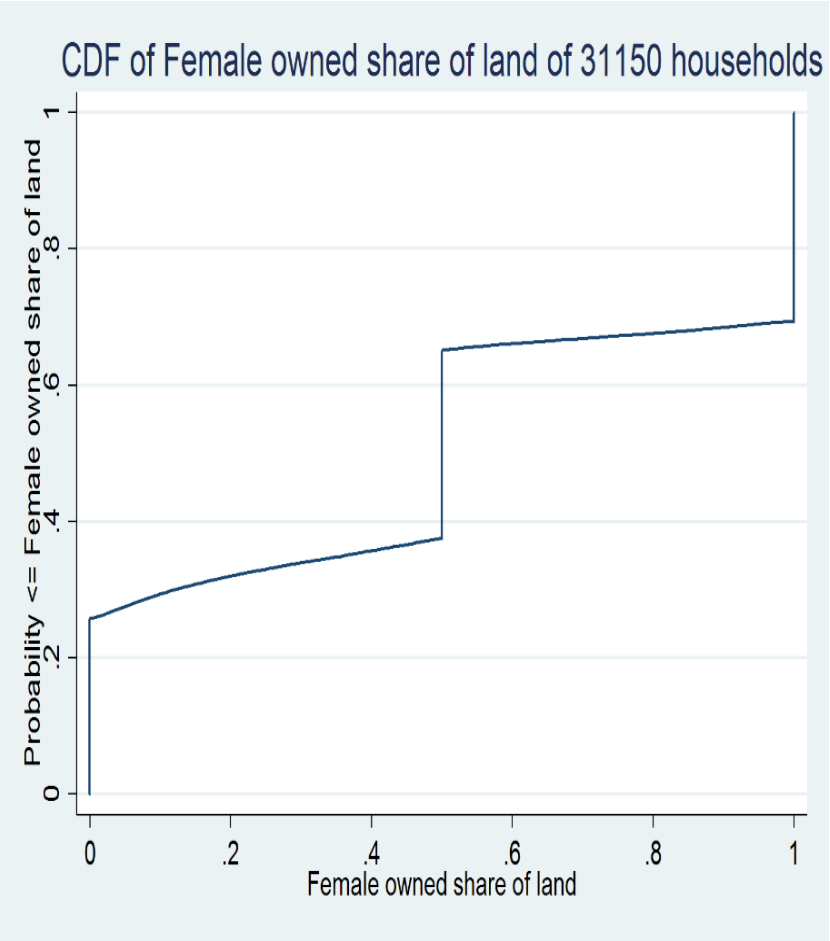
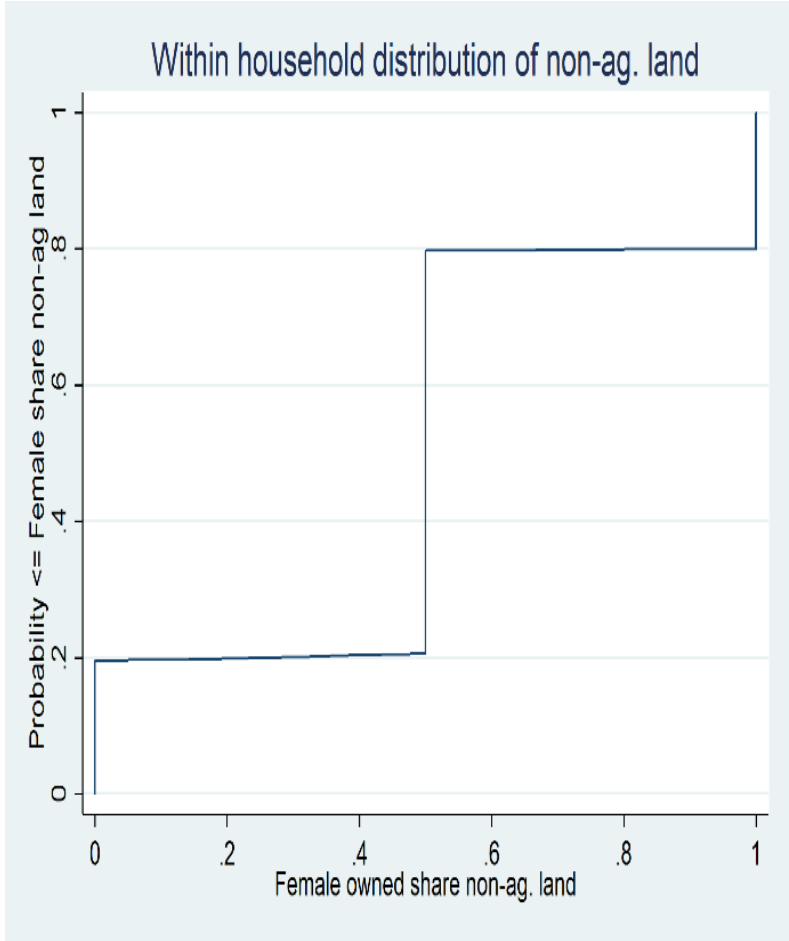


Figure 8a. CDF for females' owned share of farms based on SSLR data from 31150 farms across four districts in Tigray



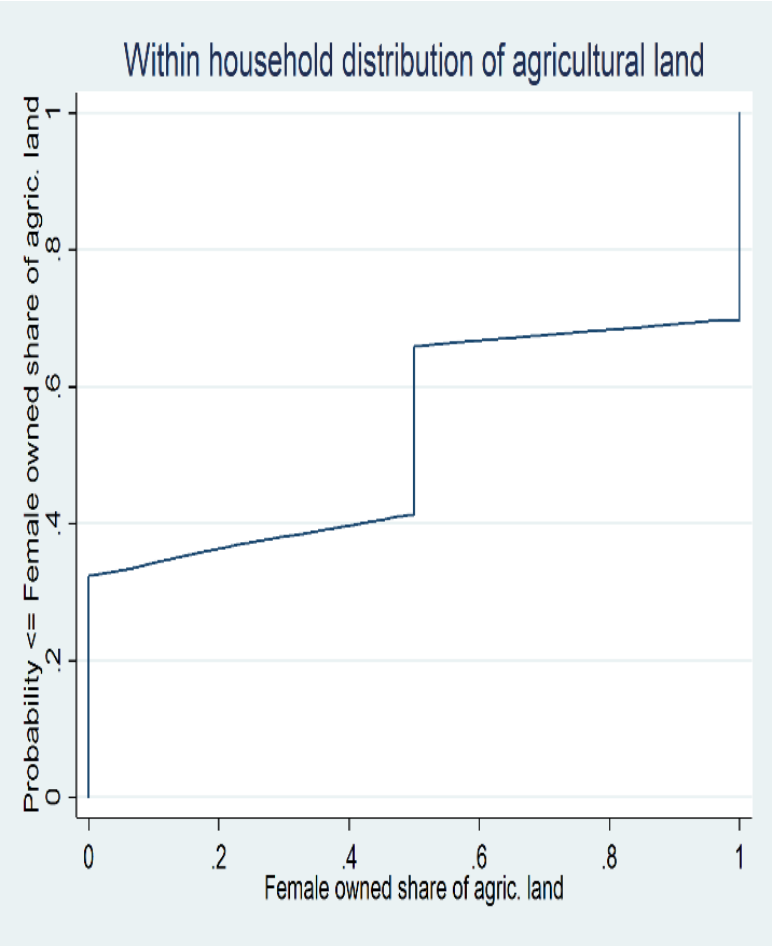


Figure 8b and 8c. CDF for female owned share of non-agricultural and agricultural land.

RESULTS: *Female owned share of land by district & gender of HH heads*

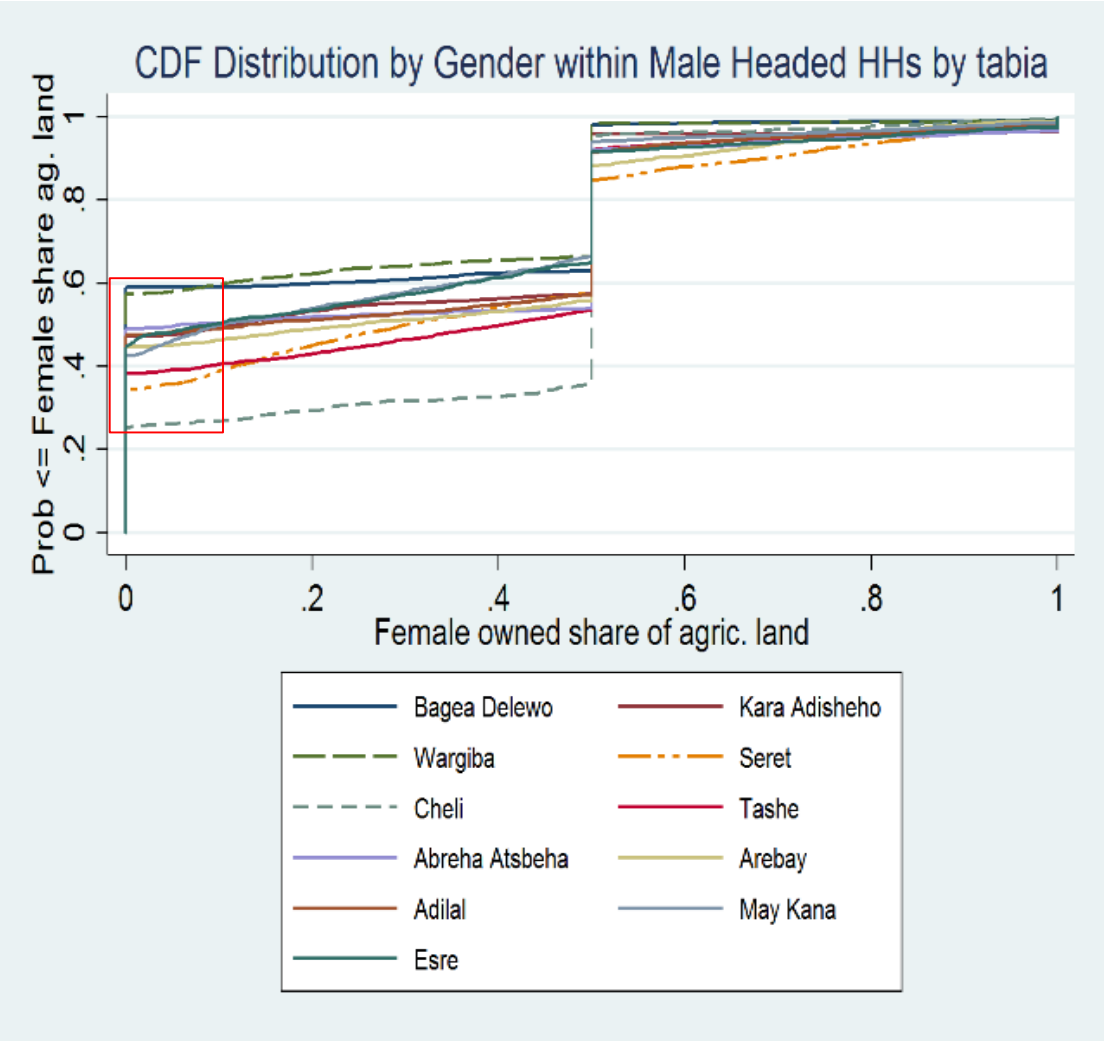


Figure 9a. Within Male Headed HH gender ownership distribution of agricultural land by tabia

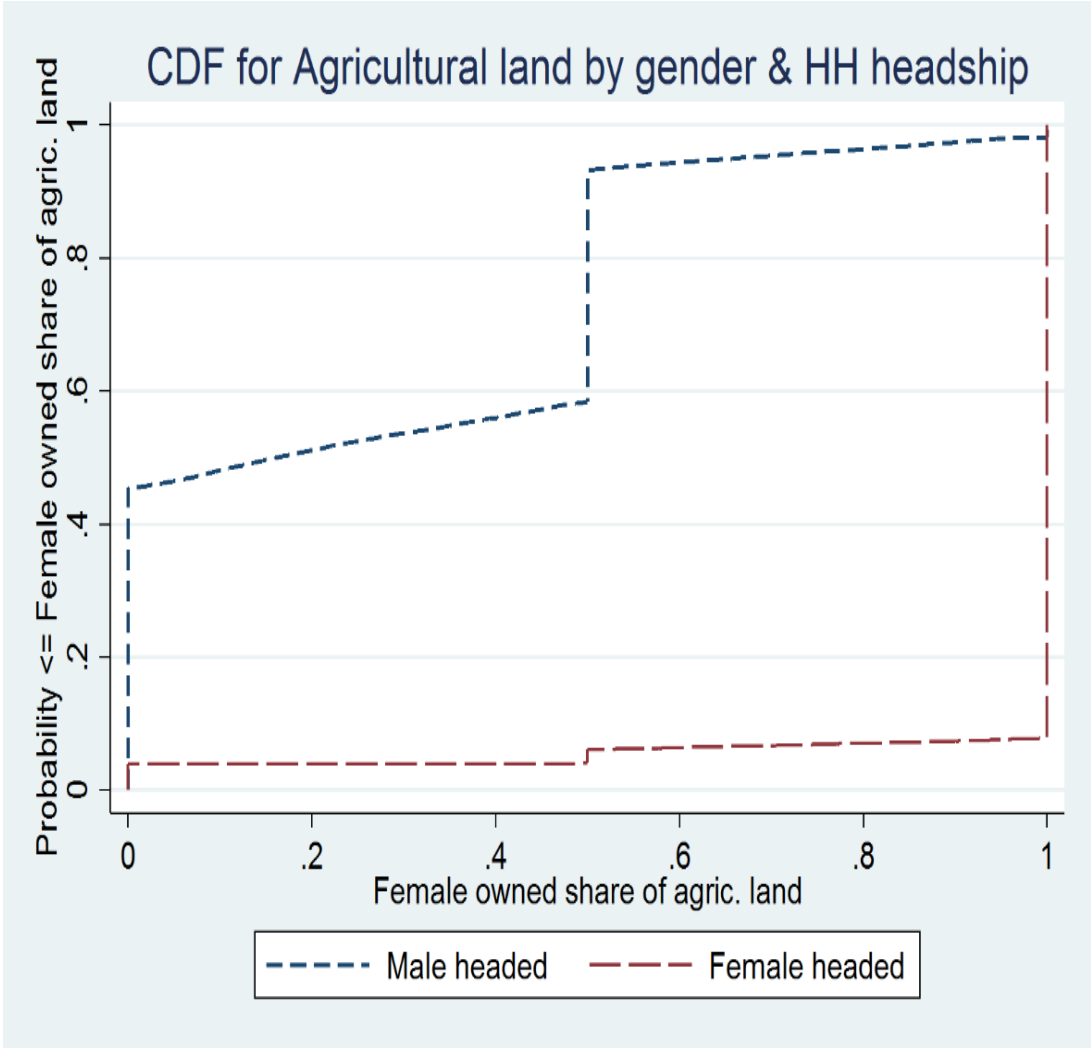


Figure 9b. Gender distribution of agricultural land within male-headed and female-headed households, full sample

RESULTS: *Changes from 1998 (FSLR) to 2016 (SSLR)*

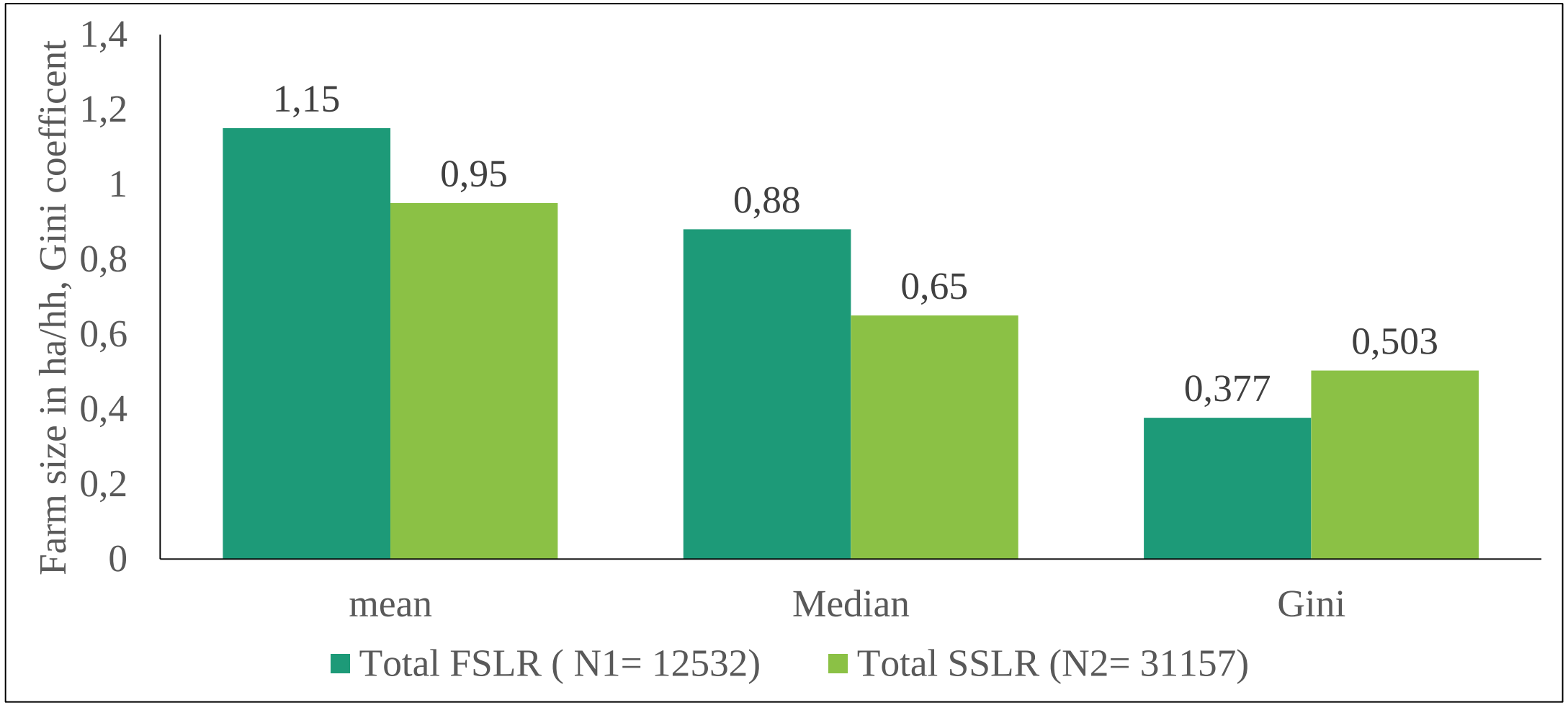


Figure 9. Farm size distribution in FSLR&C and SSLR&C. Source: GoE Land Registry Data with own calculations.

RESULTS: *Assessment of potential measurement error in FSLR data*

Table 2. Assessment of reliability of parcel sizes in FSLR&Cs

Stats	FSLC size	Measured with tape (M)	Difference (M-FSLC)
Mean size in tsimdi	1.050	1.220	0.169
Standard deviation	0.926	1.244	0.911
Standard error (mean)	0.033	0.045	0.033
N	780	780	780

Source: NMBU-MU household survey 2006. Areas measured in tsimdi, 1 tsimdi=0.25 ha

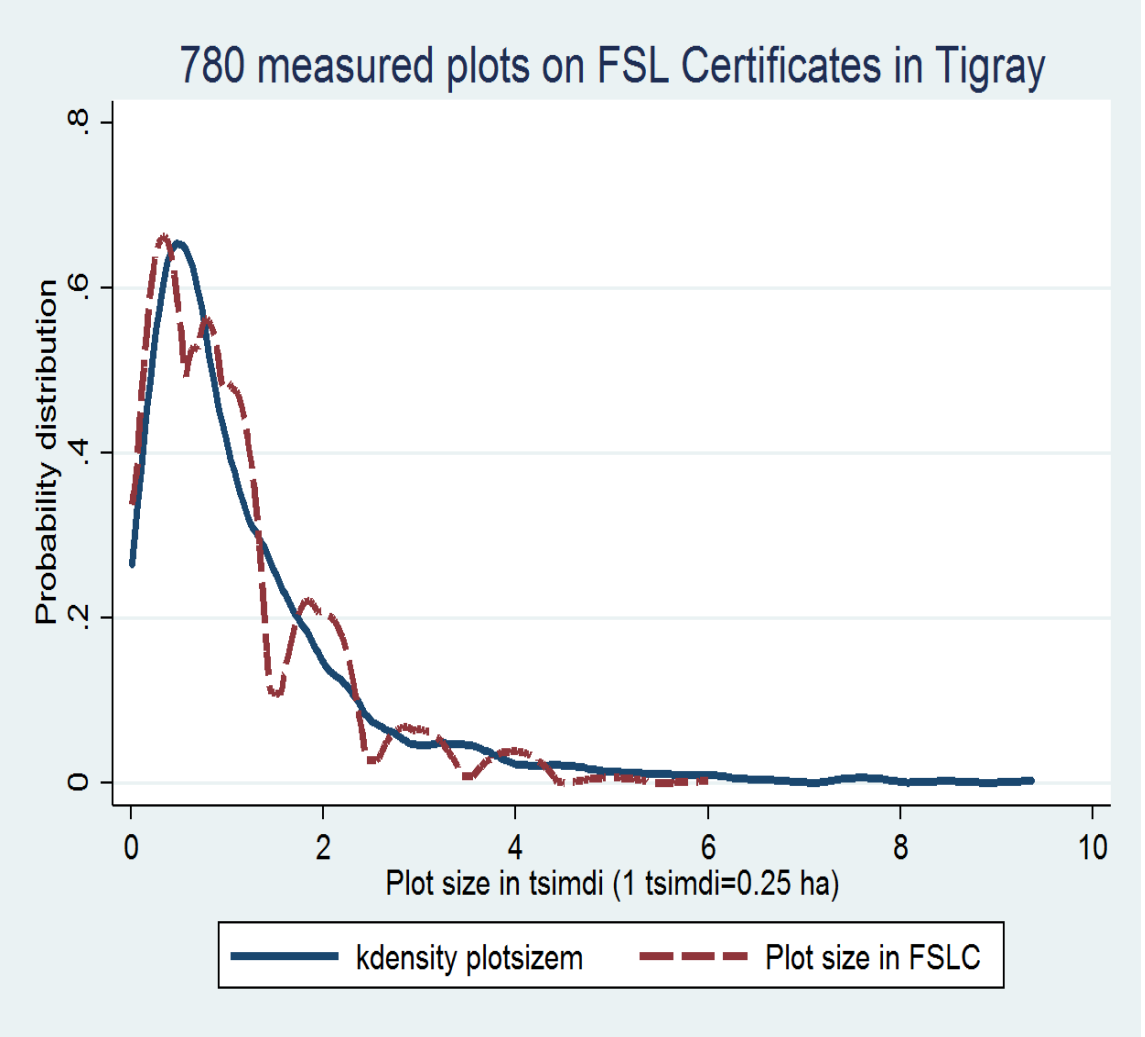
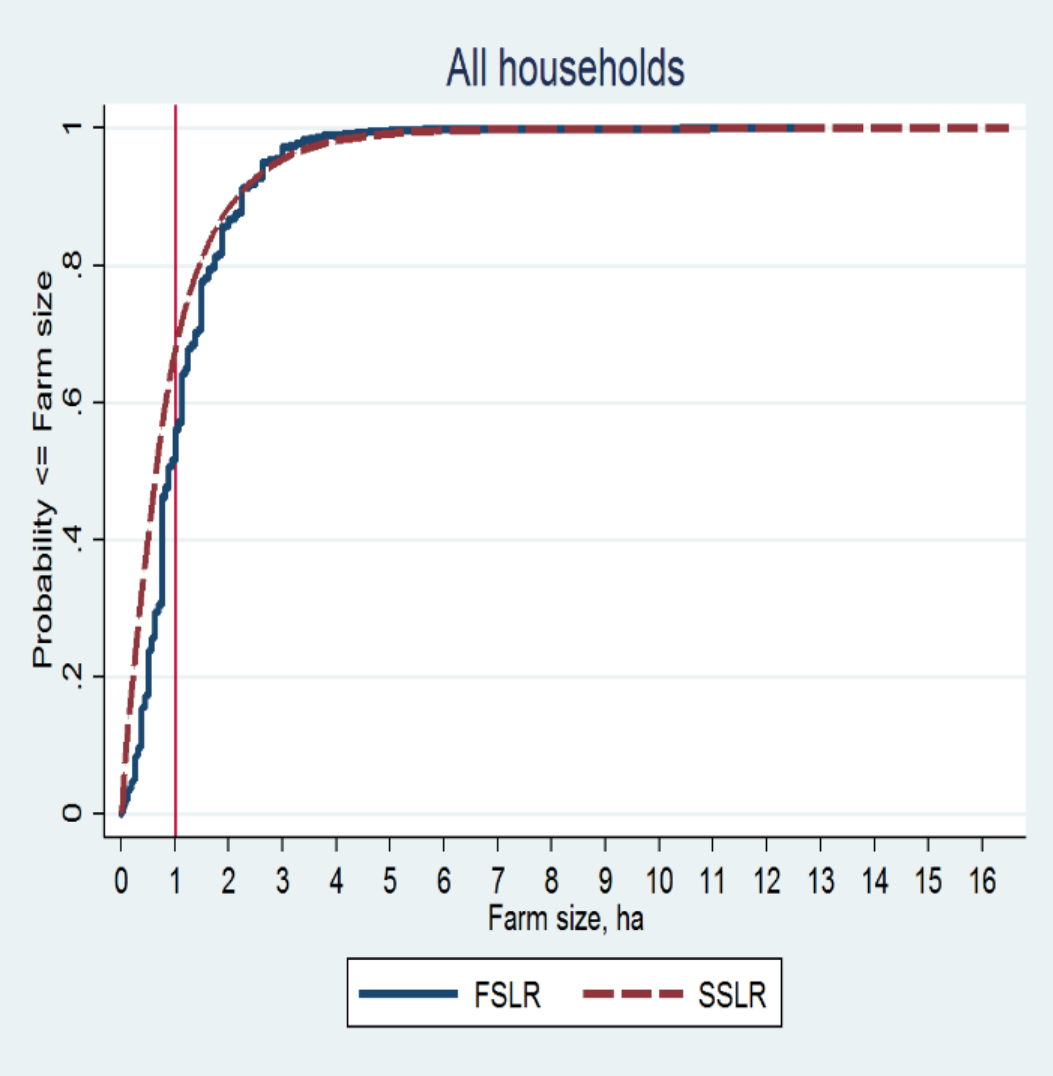


Figure 10 . Kernel density graphs (probability distributions) for FSL Certificate parcel sizes versus tape-measured parcel sizes.

RESULTS: *Assessment of potential measurement error in FSLR data*



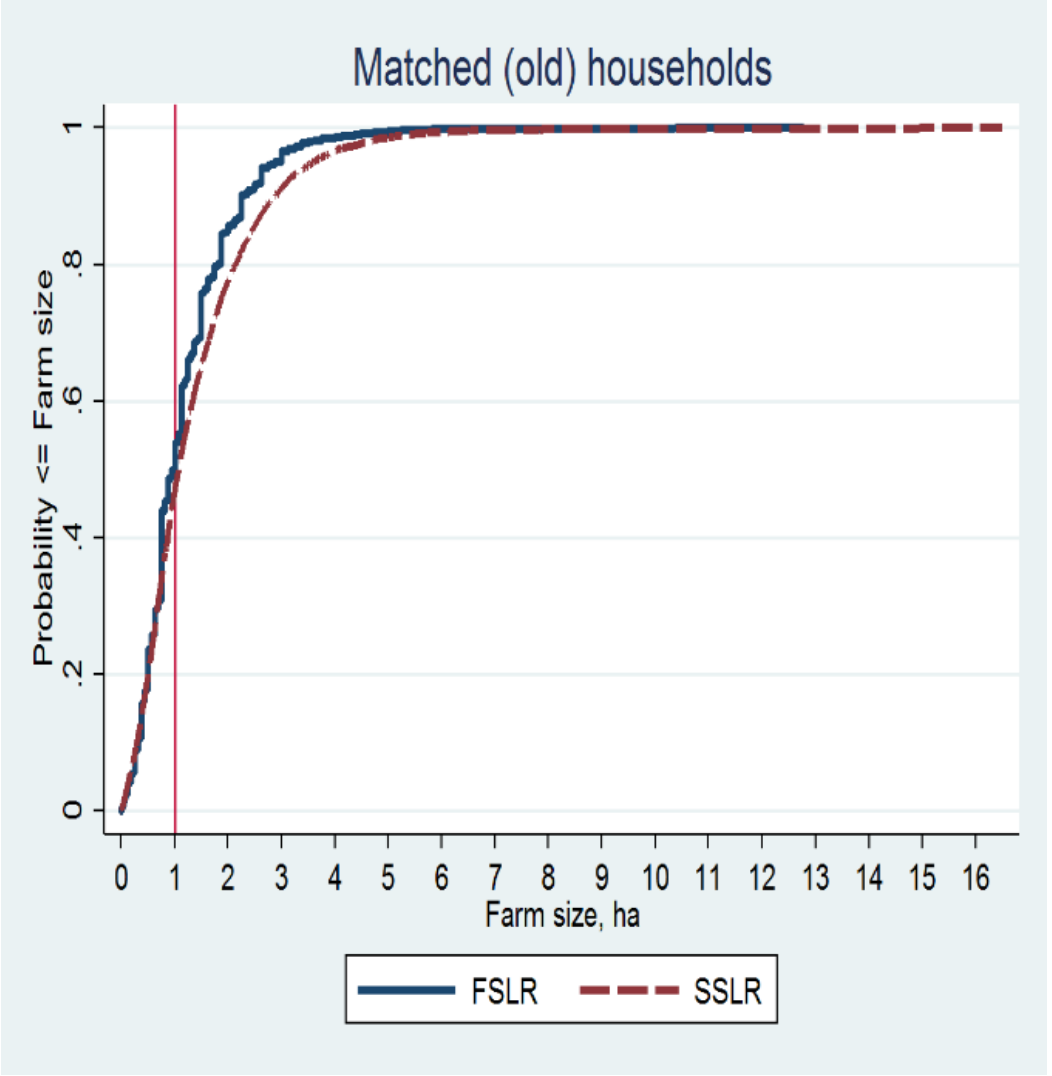
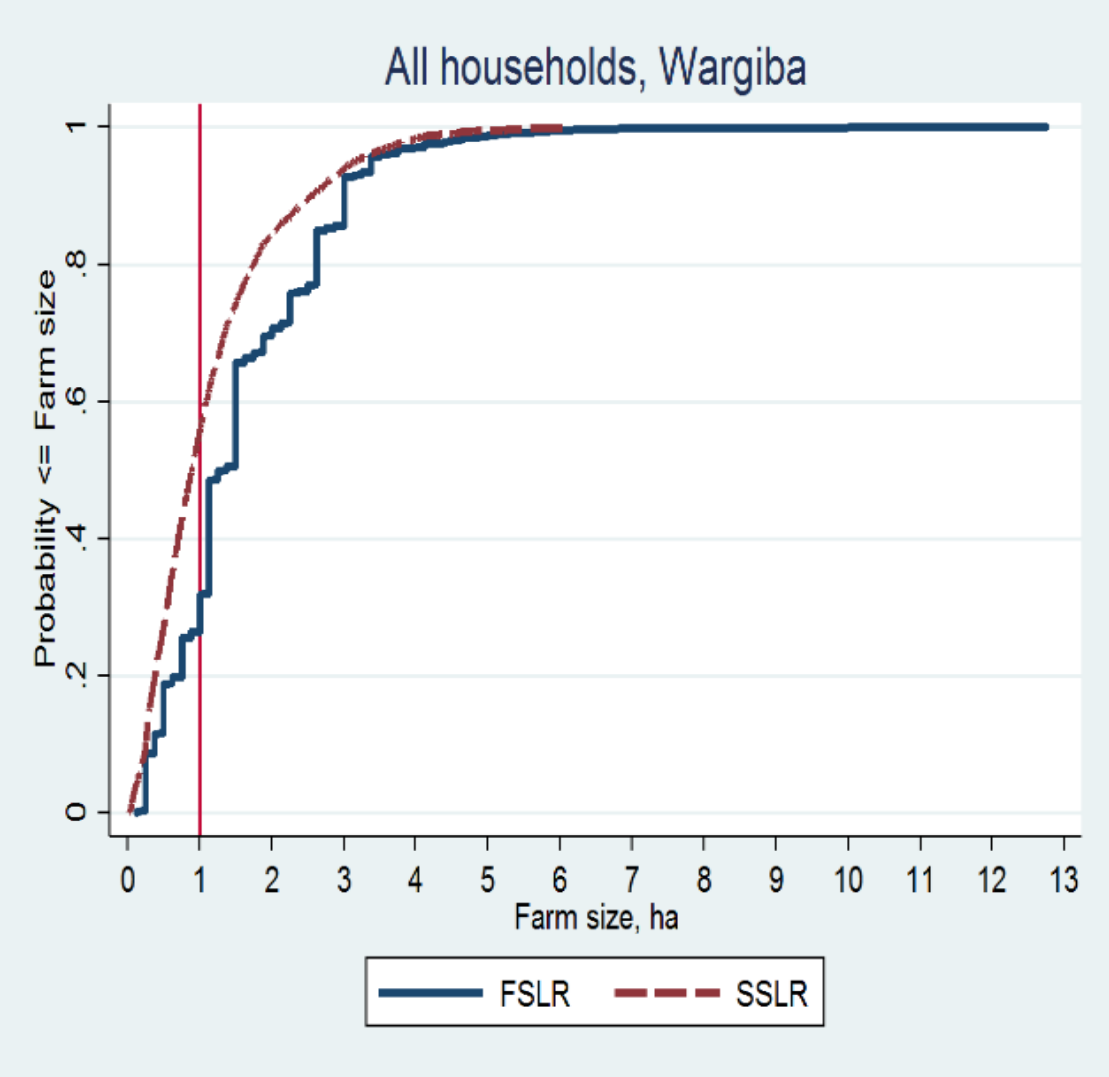


Figure 11a and b. Farm size distribution during FSLR versus SSLR for the matched (old) household sample.

RESULTS: *Assessment of potential measurement error in FSLR data*



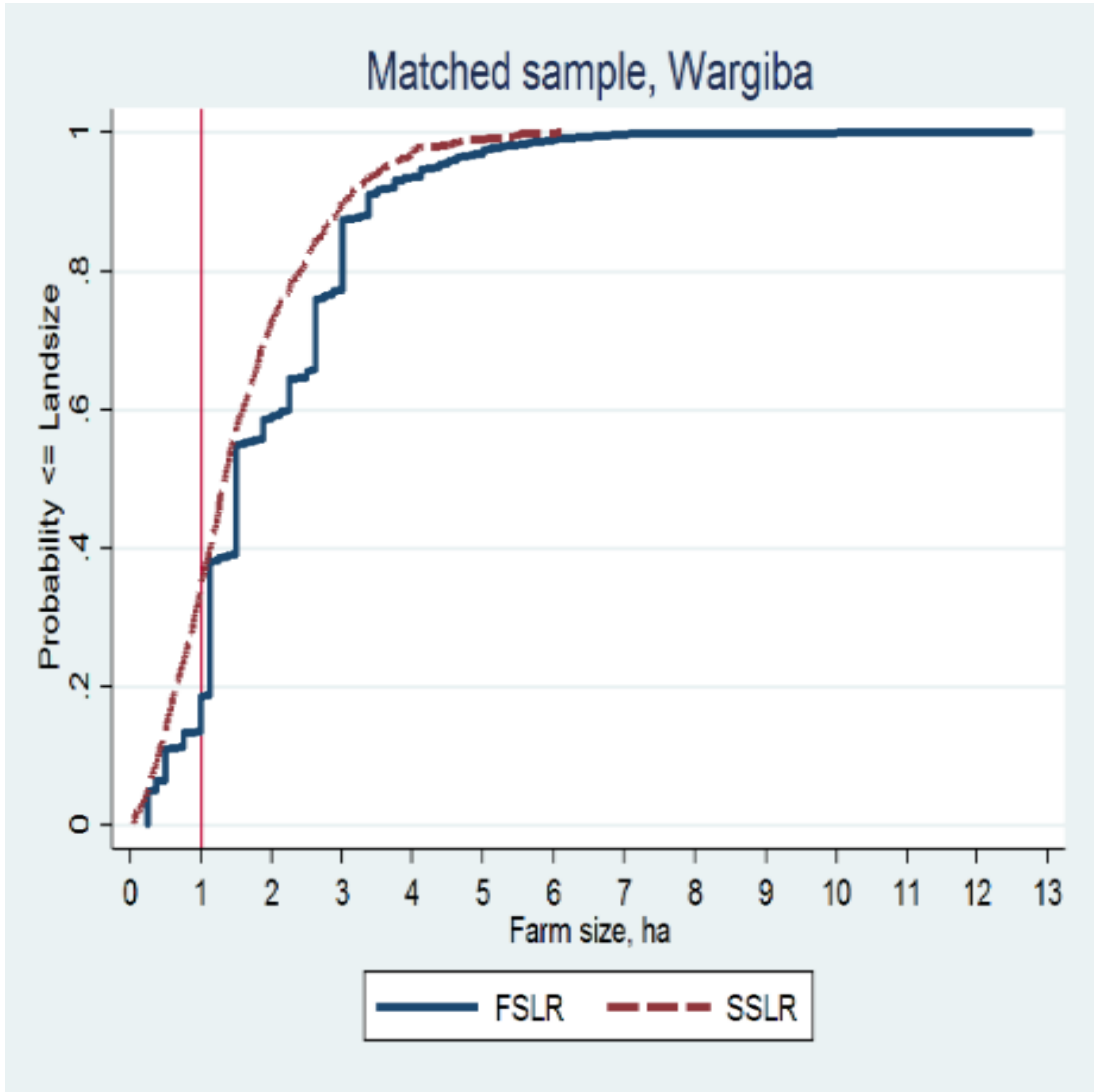


Figure 12. Farm size distribution for matched sample of (old) households versus all households at FSLR and SSLR in Wargiba tabias (one of the Tabias with no boarder changes)

CONCLUSIONS

- We have assessed the gender-distribution of land within male- and female headed households as well as how equitable the land distribution is among women across households, communities and the larger sample of districts.
  - ✓ Females owned as much as 48.8% of all privately held land in our sample areas.
  - ✓ The Gini-coefficient for land distribution among women was lower than that among men (0.45 versus 0.57).
  - ✓ The share of male-headed households with no female landowners varied from 25 to 60% across communities.
  - ✓ Male-headed households had on average 34% more land than female-headed households but this difference was reduced to less than 10% in terms of land per capita.
- There is a clear trend towards smaller farm sizes from the FSLR in 1998 to the SSLR in 2016.
  - ✓ The share of farms below one ha varies from 0.50 to 0.90 across communities in the SSLR data.
- There is evidence of substantial measurement errors in the FSLR data and the extent of this problem varies across communities.
  - ✓ Our rough estimate of total area registered in the 11 *tabias* increased from 13800 ha to 30000 ha.
- Further research is needed to investigate how much of this change is due to:
  - ✓ change in community borders, reallocation of communal lands to households, private unregistered land during FSLR, measurement errors, and lost registry books and records in the FSLR.
- We can conclude, however, that the SSLR data give a much more accurate basis for planning of future land use and assessment of land distribution.

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THANK YOU!

Norad