

# README for the Reproducibility Package for the working paper “*Property Rights, Agricultural Technology Adoption, and Investment: Experimental Evidence from Mozambique*”

## Overview

The code in this replication package uses Stata to construct the analysis dataset and to generate the figure and all tables in the paper from the raw baseline, midline, and endline survey data. The master do-file runs all code required to produce the 5 tables and 1 figure in the main paper, as well as the 22 tables in the appendix. The full replication should take approximately 2 minutes to run.

## Data Availability Statement

The data is available on Micro Data Library here:

<https://microdata.worldbank.org/catalog/8274/study-description>. With the exception of the treatment variable embargoed until journal publication.

| Folder            | File Name(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Source                       | Access Date   | Data Access              |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------|--------------------------|
| Data\raw\baseline | PROMAC II - Agregado Familiar - v1.dta<br>PROMAC II - Agregado Familiar - v1-add_members.dta<br>PROMAC II - Agregado Familiar - v1-all_members.dta<br>PROMAC II - Agregado Familiar - v1-b2_couple.dta<br>PROMAC II - Agregado Familiar - v1-b309_members.dta<br>PROMAC II - Agregado Familiar - v1-C2_cultivated_1.dta<br>PROMAC II - Agregado Familiar - v1-C2_cultivated_2.dta<br>PROMAC II - Agregado Familiar - v1-c4_crops_1.dta<br>PROMAC II - Agregado Familiar - v1-c4_crops_2.dta<br>PROMAC II - Agregado Familiar - v1-c4_plots_1.dta<br>PROMAC II - Agregado Familiar - v1-c4_plots_2.dta<br>PROMAC II - Agregado Familiar - v1-C5_crops_1.dta<br>PROMAC II - Agregado Familiar - v1-C5_crops_2.dta<br>PROMAC II - Agregado Familiar - v1-inputs_1.dta<br>PROMAC II - Agregado Familiar - v1-inputs_2.dta<br>PROMAC II - Agregado Familiar - v1-plot_info.dta<br>PROMAC II - Agregado Familiar - v1-relation_d1.dta<br>PROMAC II - Agregado Familiar - v1-tree_c100.dta<br>PROMAC II - Agregado Familiar - v1-trees.dta | Africa Gender Innovation Lab | Dec 2020      | <a href="#">MDL link</a> |
| Data\raw\midline  | animal_roster.dta<br>B1_members.dta<br>B4_credits.dta<br>B4_pensions.dta<br>C1_plots.dta<br>C3_members_act1_e1.dta<br>C4_crops_e1.dta<br>C4_crops_e2.dta<br>C5_crops_e1.dta<br>C5_crops_e2.dta<br>C6_fruits.dta<br>estructuras.dta<br>instalacoes.dta<br>insumo.dta                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Africa Gender Innovation Lab | November 2021 | <a href="#">MDL link</a> |

|                  |                                                                                                                                                                                                                                                                                                                                                        |                                                                    |                 |                                                                                                                                                                                         |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  | member_roster_business.dta<br>negocio_roster.dta<br>PromacII_HH_Midline_2021.dta<br>trees.dta                                                                                                                                                                                                                                                          |                                                                    |                 |                                                                                                                                                                                         |
| Data\raw\endline | animal_roster.dta<br>B1_members.dta<br>B4_credits.dta<br>B4_pensions.dta<br>C1_plots.dta<br>C3_members_act1_e1.dta<br>C4_crops_e1.dta<br>C4_crops_e2.dta<br>C5_crops_e1.dta<br>C5_crops_e2.dta<br>C6_fruits.dta<br>estructuras.dta<br>instalacoes.dta<br>member_roster_business.dta<br>negocio_roster.dta<br>PromacII_HH_Endline_2022.dta<br>trees.dta | Africa<br>Gender<br>Innovation<br>Lab                              | November<br>202 | <a href="#">MDL link</a>                                                                                                                                                                |
| Data\admin       | Cadasta_input.dta<br>combined_wtp.dta<br>CombinedBundleDelivery.dta<br>list_members_plots.dta<br>merged_duats_final.dta<br>treatment_assignment.dta                                                                                                                                                                                                    | Africa<br>Gender<br>Innovation<br>Lab & NCBA<br>CLUSA &<br>Cadasta | 2021            | <a href="#">MDL link</a>                                                                                                                                                                |
| \data\admin      | treatment_assignment.dta                                                                                                                                                                                                                                                                                                                               | Africa<br>Gender<br>Innovation<br>Lab                              | Feb 2021        | Embargo until<br>journal<br>publication<br>accepted (~1<br>year). Provided<br>for<br>reproducibility<br>check<br>exclusively and<br>should not be<br>included in the<br>public package. |

## Statement about Rights

I certify that the author(s) of the manuscript have legitimate access to and permission to use the data used in this manuscript.

## Instructions for Replicators

This package contains all code, raw and admin data required to replicate the results. Before running the replication, users should ensure that their local folder structure exactly matches the structure described in the Folder Structure section, as empty folders may have been dropped when the replication package was downloaded.

Data is included in the reproducibility package, but it can also be downloaded from the MDL link provided.

To run the replication, execute the master do-file “0-master”, which generates the analysis datasets and the figure included in the paper. The code does not generate tables directly; instead, it produces 62 .tex files that serve as components for the 5 tables in the paper and the 22 tables in the annex, with each table constructed from one or more of these files. All .tex files and their corresponding tables are listed

in the List of Exhibits section. The .tex files are exported to the output/tables folder, and the figure is exported to the output/figure folder. All required user-written Stata ado-packages are included in the replication package under the ado/ directory and are automatically referenced by the master do-file, so no manual installation is required. Replicators should only ensure that the project global path is correctly set in the master do-file. The full replication should take approximately 2 minutes to run.

## Software Requirements

Stata (code was last run with version 18.5)

## List of Exhibits

Table 1: Intent-to-Treat Impacts: Agricultural Investment and Income

Panel A: 12-month impacts

*ml\_tenureIndex*

*ml\_ag\_investment*

Panel B: 24-month impacts

*el\_tenureIndex*

*el\_ag\_investment*

Table 2: Intent-to-Treat Impacts: Off-Farm Investment and Income

Panel A: 12-month impacts

*ml\_bus\_investment*

Panel B: 24-month impacts

*el\_bus\_investment*

Table 3: Intent-to-Treat Impacts: Women's Land Rights, Intra-Household Tenure Security, and Decision Making

Panel A: 12-month impacts

*ml\_womensLandIndex*

Panel B: 24-month impacts

*el\_womensLandIndex*

*el\_decisionIndex*

Table 4: Network-based Spillover Impacts of Land Registration

*ts\_spillovers*

*csa\_spillovers*

Table 5: Intent-to-Treat Impacts: Crop-Specific Outcomes

Panel A: 12-month impacts

*ml\_crop\_mechanisms*

Panel B: 24-month impacts

*el\_crop\_mechanisms*

Table A1: Follow-up Survey Tracking

*attrition*

Table A2: Baseline Characteristics and Balance Tests

*balance\_hh*

*balance\_plot*

*balance\_iga*

*balance\_f\_test*

Table A3: Correlates of Take-Up of Land Registration and Co-Registration

*tiling*

Table A4: Compliance: Land Registration and Package Delivery

*compliance*

*compliance2*

Table A5: Impacts of Land Registration on WTP for Agricultural Inputs Package

OLS

*impacts\_wtp*

Probit

*impacts\_pro\_wtp*

Table A6: Intent-to-Treat Impacts: Tenure Security Components

Panel A: 12-month impacts

*ml\_tenure\_insecurity*

Panel B: 24-month impacts

*el\_tenure\_insecurity*

Table A7: Intent-to-Treat Impacts: Labor Composition

Panel A: 12-month impacts

*ml\_plots\_farmlabor\_wl*

Panel B: 24-month impacts

*el\_plots\_farmlabor\_wl*

Table A8: Intent-to-Treat Impacts: Non-Labor Inputs

Panel A: 12-month impacts

*ml\_nonlabor\_inputs*

Panel B: 24-month impacts

*el\_nonlabor\_inputs*

Table A9: Intent-to-Treat Impacts: Sustainable Farming Practices

Panel A: 12-month impacts

*ml\_farming\_practices*

Panel B: 24-month impacts

*el\_farming\_practices*

Table A10: Intent-to-Treatment Impacts: Pooled 12- and 24-Month Results

Panel A: Agricultural investment and income

*pooled\_ag\_investment*

Panel B: Off-farm investment and income

*pooled\_bus\_investment*

Table A11: Intent-to-Treatment Impacts: Log Harvest Value

Panel A: 12-month impacts

*ml\_logHarvest*

Panel B: 24-month impacts

*el\_logHarvest*

Table A12: Intent-to-Treat Impacts: Target Plot Investment and Income

Panel A: 12-month impacts

*ml\_plot\_current\_tp*

*ml\_fallowing\_since2020\_tp*

*ml\_tenureIndex\_tp*

*ml\_ag\_investment\_tp*

Panel B: 24-month impacts

*el\_plot\_current\_tp*

*el\_fallowing\_since2020\_tp*

*el\_tenureIndex\_tp*

*el\_ag\_investment\_tp*

Table A13: Intent-to-Treat Impacts: Land under Cultivation

Panel A: 12-month impacts

*ml\_landArea*

*ml\_fallowing\_since2020*

Panel B: 24-month impacts

*el\_landArea*

*el\_fallowing\_since2020*

Table A14: Intent-to-Treat Impacts: Women's Land Rights Attitudes

Panel A: 12-month impacts

*ml\_womensLand*

Panel B: 24-month impacts

*el\_womensLand*

Table A15: Intent-to-Treat Impacts: Decision-Making Power

Panel A: 24-month impacts

*el\_decision*

Table A16: Intent-to-Treat Impacts: Decision-Making Power Heterogeneity

Panel A: 24-month impacts — matrilineal households

*el\_decision\_matri*

Panel B: 24-month impacts — patrilineal households

*el\_decision\_patri*

Table A17: Intent-to-Treat Impacts: Decision-Making Power (by plot acquisition)

Panel A: 24-month impacts — acquired from parents

*el\_decision\_parents*

Panel B: 24-month impacts — acquired in other way

*el\_decision\_other*

Table A18: Network-based Spillover Impacts of Input Package

*butbeans\_spillovers*

Table A19: Intent-to-Treat Impacts: Crops Cultivated

Panel A: 12-month impacts

*ml\_crop\_choices*

Panel B: 24-month impacts

*el\_crop\_choices*

Table A20: Intent-to-Treat Impacts: Area Cultivated, by Crop

Panel A: 12-month impacts

*ml\_crop\_area*

Panel B: 24-month impacts

*el\_crop\_area*

Table A21: Intent-to-Treat Impacts: Harvest Value

Panel A: 12-month impacts

*ml\_crop\_value*

Panel B: 24-month impacts

*el\_crop\_value*

Table A22: Harvest Value Correlates

*harValCorr*

## Folder Structure

ado

code

data

admin

raw

baseline

midline

endline

working  
    baseline  
    midline  
    endline  
clean  
    baseline  
    midline  
    endline  
output  
    figures  
    tables