



LEARNING ABOUT
5 a.1
INDICATOR

SDG Indicator 5.a.1 - Equal tenure rights for women on agricultural land

Lesson: Computing the 5.a.1 Indicator

Text-only version

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Computing the 5.a.1 Indicator

This lesson provides guidance for computing the 5.a.1 Indicator, based on the proxy questions presented in the previous lessons.

Learning objective

At the end of this lesson, you will be able to:

- compute the 5.a.1 Indicator based on the minimum set of data;
- know how to develop a tabulation plan for the 5.a.1 Indicator;
- use the additional data items for a more in-depth analysis of land ownership patterns.

Computing Indicator 5.a.1

In this lesson you will **learn how to calculate SDG Indicator 5.a.1** based on the questions presented in Lesson 3.

🗨️ *“In our survey, we collected data at the **parcel level**.” - Miriam*

🗨️ *“In our survey, we asked questions at the **individual level**” - Farid* 🗨️

Before computing Indicator 5.a.1, **data manipulation is needed** in order to:

- ➡️ **retain** in the dataset **only individuals** living in **agricultural households** (relevant if using National Household Surveys);
- ➡️ **retain** in the dataset **only the individuals who have been interviewed** about their own tenure rights over agricultural land;
- ➡️ **compute individual weights** for the individuals interviewed.

Once the first data manipulation steps are done, **additional steps** are needed to **identify owners or holders of agricultural land**. There are two different approaches based on the level at which data was collected. We will follow two analysts, **Miriam** and **Farid**, whose countries followed two different approaches.

Identify agricultural households

Only **adults living in agricultural households** are randomly selected for the questions on their tenure rights over agricultural land. Therefore only **households that have practised agriculture** for own use/consumption or for profit/trade **in the past 12 months** should be **retained** in the dataset.

If Indicator 5.a.1 is collected through an **agricultural survey**

There is **no need** to identify the agricultural households, as all households in such surveys are agricultural.

➤ If Indicator 5.a.1 is collected through a **national household survey**

Agricultural households must be **identified** and only those households **retained** in the dataset.

The data analyst must therefore **create a variable "agricultural HH"** indicating whether or not the household is "agricultural".

The agricultural household variable

The variable equals:

YES	NO
<p>If the household responded:</p> <p>Yes to either:</p> <ul style="list-style-type: none"> ✓ Has the household operated land for agricultural purposes in the last 12 months? ✓ Has the household raised or tended livestock (e.g. cattle, goats, etc.) in the last 12 months? <p style="text-align: center;">AND</p> <p>That activities were done for own use/consumption and/or for profit/trade.</p>	<p>If the household responded:</p> <p>No to both:</p> <ul style="list-style-type: none"> ✓ Has the household operated land for agricultural purposes in the last 12 months? ✓ Has the household raised or tended livestock (e.g. cattle, goats, etc.) in the last 12 months? <p style="text-align: center;">OR</p> <p>That activities were done only as wage work for others.</p>

The agricultural household variable

Let's consider this **sample initial dataset**.

1	2	3	4	5	6	7	8	9	10
HH ID	Q1 HH operating land	Q2.1 Operating land purpose 1	Q2.2 Operating land purpose 2	Q2.3 Operating land purpose 3	Q3 HH raising/tending livestock	Q4.1 livestock purpose 1	Q4.2 livestock purpose 2	Q4.3 livestock purpose 3	Agricultural HH
1	No				No				No
2	Yes	own use/consumption	profit/trade		Yes	own use/consumption			Yes
3	No				Yes	own use/consumption	profit/trade		Yes
4	Yes	own use/consumption	wage work for others		No				Yes
5	No				No				No
6	Yes	own use/consumption	profit/trade	wage work for others	No				Yes
7	Yes	wage work for others			Yes	wage work for others			No
8	No				No				No

Household 1 answered no to both questions:

Has the household operated land for agricultural purposes in the last 12 months?

Has the household raised or tended livestock (e.g. cattle, goats, etc.) in the last 12 months?

Therefore it is not an agricultural household, and the variable in column 10 is No.

Household 2 answered yes to both questions:

Has the household operated land for agricultural purposes in the last 12 months?

Has the household raised or tended livestock (e.g. cattle, goats, etc.) in the last 12 months?

The purpose was for own use/consumption.

Household 3 answered no to the question: "Has the household operated land for agricultural purposes in the last 12 months?"

But it answered yes to the question: "Has the household raised or tended livestock (e.g. cattle, goats, etc.) in the last 12 months?"

The purpose was for own use/consumption.

Therefore it is an agricultural household, and the variable in column 10 is Yes.

Household 5 answered no to both questions:

Has the household operated land for agricultural purposes in the last 12 months?

Has the household raised or tended livestock (e.g. cattle, goats, etc.) in the last 12 months?

Household 6 answered yes to the question: "Has the household operated land for agricultural purposes in the last 12 months?" and no to the question: "Has the household raised or tended livestock (e.g. cattle, goats, etc.) in the last 12 months?"

There were multiple purposes – although some was wage work for others, other work was for own use/consumption and for profit/trade.

Therefore it is an agricultural household, and the variable in column 10 is Yes.

Selected for interview column

Once a household has been classified as agricultural, the data **analyst must look at its household members.**

As explained in Lesson 3, there are two options: either all adult members of the agricultural household are interviewed, or only one is randomly selected. Here we focus on the second option. Thus, only **one adult member of each agricultural household is randomly selected** for the questions on his or her tenure rights over agricultural land.

7	8
Agricultural HH	Selected for interview
No	
No	
No	
Yes	No
Yes	Yes
Yes	No
Yes	No
Yes	No
Yes	Yes
Yes	
Yes	Yes
Yes	No
Yes	
Yes	No
Yes	No
No	
Yes	No
Yes	No
Yes	No
Yes	Yes
Yes	No
No	

“That’s why, here in column 8 you can see that only adult members of agricultural households (ie. where column 7 = yes) are selected for responding to the questions on tenure rights over agricultural land. Individuals in non-agricultural households are never selected for the interview, and the cells in column 8 are empty.” Miriam

Calculating individual weights

As a third step, you will calculate the **individual weights** for the individuals interviewed about their tenure rights on agricultural land. This is done by:

sampling weights at household level **X** inverse of the probability of being selected

If the survey interviews **one randomly selected adult member** in each agricultural household, the individual weights are obtained by multiplying the:

number of adult individuals in the household;

by the:

household level sampling weights;

the individual weights used to compute the indicator are presented in **column 10**.

8	9	10
Number of adults	HH expansion factor	Individual expansion factor
2	208	416
2	177	354
	223	0
4	160	640
4	224	896
4	230	920
4	172	688
2	223	446
2	183	366
	225	0
4	185	740
4	192	768
	177	0
4	241	964
4	207	828
1	218	218
5	199	995
5	208	1040
5	223	1115
5	242	1210
5	197	985
2	205	410
	182	0
2	186	372
2	200	400
2	203	406



Please note that the event that **no random selection is made**, and **all adult members** of the household are interviewed, then the individual weights equal the household weights.

Retain only individuals selected for interview

As a fourth step, you should **delete from the dataset**:

- all **non-agricultural households**
- any **individuals not randomly selected** for the interview

This will **leave only** those **individuals selected** for interview

1	2	3	4	5	6	7	8
ID	HH ID	HH member ID	Name	Sex	Age	Agricultural HH	Selected for interview
22	2	2	Antony	M	28	Yes	Yes
32	3	2	Angelica	F	25	Yes	Yes
41	4	1	Ben	M	67	Yes	Yes
64	6	4	Melanie	F	50	Yes	Yes

“When your data are at this stage, you’re ready to start computing SDG Indicator 5.a.1” - Miriam

Identify owners and holders of agricultural land

“Now that we have retained in the dataset only agricultural households and randomly selected respondents, we need to identify the owners or holders of agricultural land. The procedure varies slightly depending on whether the data were collected at the individual or parcel level.” - Miriam

Working with data collected at the individual level

Let’s return to Miriam: in her country, data were collected at the **individual level** - i.e., investigating the rights over any agricultural land of a randomly selected household member (or all household members).

*“This is our dataset. I have already removed those individuals from non-agricultural households, and individuals not selected for interview, so columns 7 and 8 contain only **yes** answers”.* **Miriam**

You need to create a **variable, indicating** whether a given respondent has **ownership or tenure rights over agricultural land**. This can be seen in **Column 18**.

For the variable in this column to be **"yes"**, the respondent must have **at least one of the following rights** over agricultural land:

- their own name on a legally recognized document;
- the right to sell;
- the right to bequeath.

If the individual does not hold any of the three proxy conditions, the variable should be **no**.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
ID	HH ID	HH member ID	Name	Sex	Age	Agricultural HH selected for interview	Q1. Reported ownership	Q2.1 Formal document 1	Q2.2 Formal document 2	Q3.1 Name on any document	Q4. Right to sell	Q5. Right to bequeath	Number of adults	HH expansion factor	Individual expansion factor	Ownership or tenure rights	
22	2	2	Antony	M	28	Yes	Yes	No					4	224	896	No	
32	3	2	Angelica	F	25	Yes	Yes	Yes	customary		No	Yes	Yes	2	183	366	Yes
41	4	1	Ben	M	67	Yes	Yes	Yes	occupancy deed		Yes	Yes	Yes	4	185	740	Yes
64	6	4	Melanie	F	50	Yes	Yes	Yes	no document		No	No	No	5	242	1210	No
102	10	2	Marc	M	38	Yes	Yes	Yes	rent		Yes	Yes	Yes	3	173	519	Yes
113	11	3	Miranda	F	42	Yes	Yes	Yes			No	No	No	2	196	392	No
123	12	3	Gabrielle	F	36	Yes	Yes	Yes	deed	long term lease	No	Yes	Yes	5	202	1010	Yes
131	13	1	Oscar	M	31	Yes	Yes	Yes	customary		Yes	Yes	Yes	1	201	201	Yes
142	14	2	Mohammed	M	25	Yes	Yes	No						7	224	1568	No
151	15	1	Michael	M	60	Yes	Yes	Yes	deed		Yes	Yes	Yes	3	180	540	Yes
186	18	6	Evelyne	F	21	Yes	Yes	Yes	deed	customary	No	No	No	4	215	860	No
194	19	4	Ihea	F	40	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	162	648	Yes
203	20	3	Abdullah	M	19	Yes	Yes	Yes	deed		No	Yes	Yes	2	212	424	Yes
212	21	2	Julia	F	35	Yes	Yes	Yes	will	deed	Yes	No	No	3	199	597	Yes
233	23	3	Sara	F	20	Yes	Yes	No						5	237	1185	No
241	24	1	Benjamin	M	55	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	249	996	Yes
252	25	2	William	M	30	Yes	Yes	Yes	deed		No	No	Yes	6	180	1080	Yes

Brief explanation of 3 circles:

Row 22: Antony **does not hold any tenure rights over agricultural land**, since he responded **no** to Q1, and was therefore not asked the following questions on documentation and alienation rights.

Row 123: Gabrielle **does have ownership or tenure rights** over agricultural land, given that she **reported** having the **right to sell and bequeath her land**, although her name does not appear in the documents she declared.

Row 186: Evelyne **does not hold tenure rights over agricultural land**. Although she answered yes to Q1, her name is not on the title/deed she declared, and in addition, she cannot sell or bequeath her agricultural land.

Computing Indicator 5.a.1 using individual data

Once this variable "ownership or tenure rights" is created, you will be ready to compute Indicator 5.a.1. As you learned in Lesson 1 of this course, there are **two sub-indicators** of indicator 5.a.1.:

Sub indicator a:

Percentage of **people with ownership or tenure rights** over agricultural land (out of total agricultural population), **by sex**. This requires:

- ✓ Counting the **number of women and men** (living in agricultural households) **with ownership** or tenure rights over agricultural land.
- ✓ **Dividing** them **by the total number of women and men** (living in agricultural households) **who have been interviewed** about their ownership/ tenure status over agricultural land.

$\frac{\text{number of men with ownership or tenure rights over agricultural land}}{\text{total males in agricultural households}}$	$\frac{\sum_{i=1}^N \text{males with rights } w_i}{\sum_{i=1}^N \text{males } w_i}$
$\frac{\text{number of women with ownership or tenure rights over agricultural land}}{\text{total females in agricultural households}}$	$\frac{\sum_{i=1}^N \text{females with rights } w_i}{\sum_{i=1}^N \text{females } w_i}$
$\frac{\text{number of people with ownership or tenure rights over agricultural land}}{\text{total people in agricultural households}}$	$\frac{\sum_{i=1}^N \text{people with rights } w_i}{\sum_{i=1}^N \text{people } w_i}$

Sub indicator b:

Percentage of **people with ownership or tenure rights** over agricultural land (out of total agricultural population), **by sex**. This focuses on the sub-sample of **respondents** living in **agricultural households** who **reported owning** or having tenure rights over agricultural land. It requires:

- Counting the **number of women** (living in agricultural households) **with ownership** or tenure rights over agricultural land.
- **Dividing** them **by the number of women and men** (living in agricultural households) with ownership or tenure.

$$\frac{\text{number of women with ownership or tenure rights over agricultural land}}{\text{total people with ownership or tenure rights over agricultural land}}$$

$$\frac{\sum_{i=1}^N \text{females with rights } w_i}{\sum_{i=1}^N \text{females } w_i}$$



In order to produce representative estimates, weights should be applied.

Miriam's example dataset

✓ women with ownership or tenure rights over agricultural land

4	5	6	7	8	9	10	11	12	13	14	25	16	17	18
Name	Sex	Age	Agricultural HH	Selected for interview	Q1. Reported ownership	Q2.1 Formal document 1	Q2.2 Formal document 2	Q3.1 Name on any document	Q4. Right to sell	Q5. Right to bequeath	Number of adults	HH expansion factor	Individual expansion factor	Ownership or tenure rights
Antony	M	28	Yes	Yes	No						4	224	896	No
Angelica	F	25	Yes	Yes	Yes	customary		No	Yes	Yes	2	183	366	Yes
Ben	M	67	Yes	Yes	Yes	occupancy		Yes	Yes	Yes	4	185	740	Yes
Melanie	F	50	Yes	Yes	Yes	deed		No	No	No	5	242	1210	No
Marc	M	38	Yes	Yes	Yes	no document			Yes	Yes	3	173	519	Yes
Miranda	F	42	Yes	Yes	Yes	rent		No	No	No	2	196	392	No
Gabrielle	F	36	Yes	Yes	Yes	deed	long term lease	No	Yes	Yes	5	202	1010	Yes
Oscar	M	31	Yes	Yes	Yes	customary		Yes	Yes	Yes	1	201	201	Yes
Mohammed	M	25	Yes	Yes	No						7	224	1568	No
Michael	M	60	Yes	Yes	Yes	deed		Yes	Yes	Yes	3	180	540	Yes
Evelyne	F	21	Yes	Yes	Yes	deed	customary	No	No	No	4	215	860	No
Thea	F	40	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	162	648	Yes
Abdullah	M	19	Yes	Yes	Yes	deed		No	Yes	Yes	2	212	424	Yes
Julia	F	35	Yes	Yes	Yes	will	deed	Yes	No	No	3	199	597	Yes
Sara	F	20	Yes	Yes	No						5	237	1185	No
Benjamin	M	55	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	249	996	Yes
William	M	30	Yes	Yes	Yes	deed		No	No	Yes	6	180	1080	Yes

✓ women interviewed about their ownership/tenure rights over agricultural land (i.e. women in the dataset)

4	5	6	7	8	9	10	11	12	13	14	25	16	17	18
Name	Sex	Age	Agricultural HH	Selected for interview	Q1. Reported ownership	Q2.1 Formal document 1	Q2.2 Formal document 2	Q3.1 Name on any document	Q4. Right to sell	Q5. Right to bequeath	Number of adults	HH expansion factor	Individual expansion factor	Ownership or tenure rights
Antony	M	28	Yes	Yes	No						4	224	896	No
Angelica	F	25	Yes	Yes	Yes	customary		No	Yes	Yes	2	183	366	Yes
Ben	M	67	Yes	Yes	Yes	occupancy		Yes	Yes	Yes	4	185	740	Yes
Melanie	F	50	Yes	Yes	Yes	deed		No	No	No	5	242	1210	No
Marc	M	38	Yes	Yes	Yes	no document			Yes	Yes	3	173	519	Yes
Miranda	F	42	Yes	Yes	Yes	rent		No	No	No	2	196	392	No
Gabrielle	F	36	Yes	Yes	Yes	deed	long term lease	No	Yes	Yes	5	202	1010	Yes
Oscar	M	31	Yes	Yes	Yes	customary		Yes	Yes	Yes	1	201	201	Yes
Mohammed	M	25	Yes	Yes	No						7	224	1568	No
Michael	M	60	Yes	Yes	Yes	deed		Yes	Yes	Yes	3	180	540	Yes
Evelyne	F	21	Yes	Yes	Yes	deed	customary	No	No	No	4	215	860	No
Thea	F	40	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	162	648	Yes
Abdullah	M	19	Yes	Yes	Yes	deed		No	Yes	Yes	2	212	424	Yes
Julia	F	35	Yes	Yes	Yes	will	deed	Yes	No	No	3	199	597	Yes
Sara	F	20	Yes	Yes	No						5	237	1185	No
Benjamin	M	55	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	249	996	Yes
William	M	30	Yes	Yes	Yes	deed		No	No	Yes	6	180	1080	Yes

✓ men with ownership or tenure rights over agricultural land

4	5	6	7	8	9	10	11	12	13	14	25	16	17	18
Name	Sex	Age	Agricultural HH	Selected for interview	Q1. Reported ownership	Q2.1 Formal document 1	Q2.2 Formal document 2	Q3.1 Name on any document	Q4. Right to sell	Q5. Right to bequeath	Number of adults	HH expansion factor	Individual expansion factor	Ownership or tenure rights
Antony	M	28	Yes	Yes	No						4	224	896	No
Angelica	F	25	Yes	Yes	Yes	customary		No	Yes	Yes	2	183	366	Yes
Ben	M	67	Yes	Yes	Yes	occupancy		Yes	Yes	Yes	4	185	740	Yes
Melanie	F	50	Yes	Yes	Yes	deed		No	No	No	5	242	1210	No
Marc	M	38	Yes	Yes	Yes	no document			Yes	Yes	3	173	519	Yes
Miranda	F	42	Yes	Yes	Yes	rent		No	No	No	2	196	392	No
Gabrielle	F	36	Yes	Yes	Yes	deed	long term lease	No	Yes	Yes	5	202	1010	Yes
Oscar	M	31	Yes	Yes	Yes	customary		Yes	Yes	Yes	1	201	201	Yes
Mohammed	M	25	Yes	Yes	No						7	224	1568	No
Michael	M	60	Yes	Yes	Yes	deed		Yes	Yes	Yes	3	180	540	Yes
Evelyne	F	21	Yes	Yes	Yes	deed	customary	No	No	No	4	215	860	No
Thea	F	40	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	162	648	Yes
Abdullah	M	19	Yes	Yes	Yes	deed		No	Yes	Yes	2	212	424	Yes
Julia	F	35	Yes	Yes	Yes	will	deed	Yes	No	No	3	199	597	Yes
Sara	F	20	Yes	Yes	No						5	237	1185	No
Benjamin	M	55	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	249	996	Yes
William	M	30	Yes	Yes	Yes	deed		No	No	Yes	6	180	1080	Yes

✓ men interviewed about their ownership/tenure rights over agricultural land (i.e., men in the dataset)

4	5	6	7	8	9	10	11	12	13	14	25	16	17	18
Name	Sex	Age	Agricultural HH	Selected for interview	Q1. Reported ownership	Q2.1 Formal document 1	Q2.2 Formal document 2	Q3.1 Name on any document	Q4. Right to sell	Q5. Right to bequeath	Number of adults	HH expansion factor	Individual expansion factor	Ownership or tenure rights
Antony	M	28	Yes	Yes	No						4	224	896	No
Angelica	F	25	Yes	Yes	Yes	customary		No	Yes	Yes	2	183	366	Yes
Ben	M	67	Yes	Yes	Yes	occupancy		Yes	Yes	Yes	4	185	740	Yes
Melanie	F	50	Yes	Yes	Yes	deed		No	No	No	5	242	1210	No
Marc	M	38	Yes	Yes	Yes	no document			Yes	Yes	3	173	519	Yes
Miranda	F	42	Yes	Yes	Yes	rent		No	No	No	2	196	392	No
Gabrielle	F	36	Yes	Yes	Yes	deed	long term lease	No	Yes	Yes	5	202	1010	Yes
Oscar	M	31	Yes	Yes	Yes	customary		Yes	Yes	Yes	1	201	201	Yes
Mohammed	M	25	Yes	Yes	No						7	224	1568	No
Michael	M	60	Yes	Yes	Yes	deed		Yes	Yes	Yes	3	180	540	Yes
Evelyne	F	21	Yes	Yes	Yes	deed	customary	No	No	No	4	215	860	No
Thea	F	40	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	162	648	Yes
Abdullah	M	19	Yes	Yes	Yes	deed		No	Yes	Yes	2	212	424	Yes
Julia	F	35	Yes	Yes	Yes	will	deed	Yes	No	No	3	199	597	Yes
Sara	F	20	Yes	Yes	No						5	237	1185	No
Benjamin	M	55	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	249	996	Yes
William	M	30	Yes	Yes	Yes	deed		No	No	Yes	6	180	1080	Yes

✓ individuals with ownership or tenure rights over agricultural land

4	5	6	7	8	9	10	11	12	13	14	25	16	17	18
Name	Sex	Age	Agricultural HH	Selected for interview	Q1. Reported ownership	Q2.1 Formal document 1	Q2.2 Formal document 2	Q3.1 Name on any document	Q4. Right to sell	Q5. Right to bequeath	Number of adults	HH expansion factor	Individual expansion factor	Ownership or tenure rights
Antony	M	28	Yes	Yes	No						4	224	896	No
Angelica	F	25	Yes	Yes	Yes	customary		No	Yes	Yes	2	183	366	Yes
Ben	M	67	Yes	Yes	Yes	occupancy		Yes	Yes	Yes	4	185	740	Yes
Melanie	F	50	Yes	Yes	Yes	deed		No	No	No	5	242	1210	No
Marc	M	38	Yes	Yes	Yes	no document			Yes	Yes	3	173	519	Yes
Miranda	F	42	Yes	Yes	Yes	rent		No	No	No	2	196	392	No
Gabrielle	F	36	Yes	Yes	Yes	deed	long term lease	No	Yes	Yes	5	202	1010	Yes
Oscar	M	31	Yes	Yes	Yes	customary		Yes	Yes	Yes	1	201	201	Yes
Mohammed	M	25	Yes	Yes	No						7	224	1568	No
Michael	M	60	Yes	Yes	Yes	deed		Yes	Yes	Yes	3	180	540	Yes
Evelyne	F	21	Yes	Yes	Yes	deed	customary	No	No	No	4	215	860	No
Thea	F	40	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	162	648	Yes
Abdullah	M	19	Yes	Yes	Yes	deed		No	Yes	Yes	2	212	424	Yes
Julia	F	35	Yes	Yes	Yes	will	deed	Yes	No	No	3	199	597	Yes
Sara	F	20	Yes	Yes	No						5	237	1185	No
Benjamin	M	55	Yes	Yes	Yes	deed		Yes	Yes	Yes	4	249	996	Yes
William	M	30	Yes	Yes	Yes	deed		No	No	Yes	6	180	1080	Yes

This example shows a **clear disparity between the two sexes**. Women belonging to the agricultural population are **less likely** to hold these rights than men. In general, 54% of people living in agricultural households are owners or holders of rights over agricultural land. However, the percentage of women with ownership or tenure rights is 42%, while the corresponding figure for men is 65%. Sub-indicator b gives a **more complete picture** of the situation - only 37% of people with rights over land are women.

Sub indicator a:

Percentage of **people with ownership or tenure rights** over agricultural land (out of total agricultural population), **by sex**.

$$\frac{\text{women with ownership or tenure rights over agricultural land}}{\text{all men in the dataset}} = \frac{2\,621}{6\,268} \times 100 = 42\%$$

men with ownership or tenure rights over agricultural land	$\frac{4\,500}{6\,964} \times 100 = 65\%$
all men in the dataset	
people with ownership or tenure rights over agricultural land	$\frac{7\,121}{13\,232} \times 100 = 54\%$
all men in the dataset	

Sub indicator b:Share of **women among owners or rights bearers** of agricultural land.

women with ownership or tenure rights over agricultural land	$\frac{2\,621}{7\,121} \times 100 = 37\%$
all men and women with ownership or tenure rights over agricultural land	

Working with data collected at the parcel level

Now let's consider Farid, who works in a country where data were collected at the parcel level.

When information is collected at parcel level, for every respondent **each parcel is indexed** by **Parcel ID** (column 4), and the questions on ownership and tenure rights are replicated for all of them. **Each line of the table represents a parcel.**



Although in this example only one document for each parcel is reported, it could be the case that an individual has more than one document for each parcel.

*"This is our dataset. I have already removed those individuals from non-agricultural households and individuals not selected for interview, so columns 8 and 9 contain only **yes** answers." – Farid*

Aggregating parcel level data

When a parcel approach is used, the computation of Indicator 5.a.1 is slightly more complex, since it is necessary to **aggregate the data** in order to produce **comparable figures** to those computed using an individual level dataset. When a parcel approach is used, **a respondent has ownership or tenure rights over agricultural land** if he or she has one of the three proxy conditions (i.e. name on a formal

document, right to sell, right to bequeath) on **at least one parcel**. While there are various ways of aggregating parcel level data to compute the indicator, the easiest solution is to apply the same procedure described for the individual-level questions, and **evaluate ownership/tenure rights for each parcel**.

Evaluating ownership and tenure rights of the respondent on each parcel results in a new variable **Ownership or tenure rights**, which we see in Column 15.

The next step is to collapse the dataset using the respondent ID.

The **Ownership or tenure rights** variable should be **yes** if the variable is **yes** for at least one parcel belonging to the same individual.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
ID	HH ID	Parcel ID	HH member ID	Name	Sex	Age	Agricultural HH	Selected for interview	Q1. Reported ownership	Q2.1 Formal document 1	Q3.1 Name on any document	Q4. Right to sell	Q5. Right to bequeath	Ownership or tenure rights	Number of adults	HH expansion factor	Individual expansion factor
22	2		2	Antony	M	28	Yes	Yes	No					No	4	224	896
32	3	1	2	Angelica	F	25	Yes	Yes	Yes	customary	No	Yes	Yes	Yes	2	183	366
32	3	2	2	Angelica	F	25	Yes	Yes	Yes	deed	Yes	Yes	Yes	Yes	2	183	366
41	4	1	1	Ben	M	67	Yes	Yes	Yes	occupancy	Yes	Yes	Yes	Yes	4	185	740
41	4	2	1	Ben	M	67	Yes	Yes	Yes	occupancy	No	No	No	No	4	185	740
41	4	3	1	Ben	M	67	Yes	Yes	Yes	no document		No	No	No	4	185	740
64	6	1	4	Melanie	F	50	Yes	Yes	Yes	deed	No	No	No	No	5	242	1210
64	6	2	4	Melanie	F	50	Yes	Yes	Yes	deed	No	No	No	No	5	242	1210
64	6	3	4	Melanie	F	50	Yes	Yes	Yes	no document		No	No	No	5	242	1210
64	6	4	4	Melanie	F	50	Yes	Yes	Yes	no document		No	No	No	5	242	1210
102	10	1	2	Marc	M	38	Yes	Yes	Yes	document		Yes	Yes	Yes	3	173	519
113	11	1	3	Miranda	F	42	Yes	Yes	Yes	rent	No	No	No	No	2	196	392
113	11	2	3	Miranda	F	42	Yes	Yes	Yes	occupancy	No	No	No	No	2	196	392
123	12	1	3	Gabrielle	F	36	Yes	Yes	Yes	deed	No	Yes	Yes	Yes	5	202	1010
131	13	1	1	Oscar	M	31	Yes	Yes	Yes	customary	Yes	Yes	Yes	Yes	1	201	201
142	14		2	Mohammed	M	25	Yes	Yes	No					No	7	224	1568
151	15	1	1	Michael	M	60	Yes	Yes	Yes	deed	Yes	Yes	Yes	Yes	3	180	540
151	15	3	1	Michael	M	60	Yes	Yes	Yes	no document		No	No	No	3	180	540
151	15	2	1	Michael	M	60	Yes	Yes	Yes	deed	Yes	Yes	Yes	Yes	3	180	540
186	18	1	6	Evelyn	F	21	Yes	Yes	Yes	deed	No	No	No	No	4	215	860
194	19	1	4	Thea	F	40	Yes	Yes	Yes	deed	Yes	Yes	Yes	Yes	4	162	648
194	19	2	4	Thea	F	40	Yes	Yes	Yes	deed	Yes	Yes	Yes	Yes	4	162	648
203	20	1	3	Abdullah	M	19	Yes	Yes	Yes	document		Yes	Yes	Yes	2	162	424
203	20	2	3	Abdullah	M	19	Yes	Yes	Yes	deed	No	Yes	Yes	Yes	2	212	424
212	21	1	2	Julia	F	35	Yes	Yes	Yes	will	Yes	No	No	Yes	3	199	597
212	21	2	2	Julia	F	35	Yes	Yes	Yes	deed	No	No	No	No	3	199	597
212	21	3	2	Julia	F	35	Yes	Yes	Yes	deed	No	No	No	No	3	199	597
233	23		3	Sara	F	20	Yes	Yes	No					No	5	237	1185
241	24	1	1	Benjamin	M	55	Yes	Yes	Yes	deed	Yes	Yes	Yes	Yes	4	249	996
252	25	1	2	William	M	30	Yes	Yes	Yes	deed	No	No	Yes	Yes	6	180	1080

Ben self-reported ownership of three parcels. For parcel ID 1, the **Ownership or tenure rights** variable is **yes**, but for parcels ID 2 and 3, the variable is **no**. Because at least one parcel has the variable **yes**, when collapsed, Ben's variable should be **yes**.

Melanie self-reported ownership of **four parcels**. However the **Ownership or tenure rights** variable is **no** for all four, therefore when collapsed, Melanie's variable should be **no**.

Thea self-reported ownership of **two parcels**. For both parcels the **Ownership or tenure rights** variable is **yes**, therefore when collapsed, Thea's variable should be **yes**.

Farid's example dataset

✓ women with ownership or tenure rights over agricultural land

1	2	3	4	5	6	7	8	9	10	11	12
ID	HH ID	HH member ID	Name	Sex	Age	Agricultural HH	Selected for interview	Ownership or tenure	Number of adults	HH expansion factor	Individual expansion factor
22	2	2	Antony	M	28	Yes	Yes	No	4	224	896
32	3	2	Angelica	F	25	Yes	Yes	Yes	2	183	366
41	4	1	Ben	M	67	Yes	Yes	Yes	4	185	740
64	6	4	Melanie	F	50	Yes	Yes	No	5	242	1210
102	10	2	Marc	M	38	Yes	Yes	Yes	3	173	519
113	11	3	Miranda	F	42	Yes	Yes	No	2	196	392
123	12	3	Gabrielle	F	36	Yes	Yes	Yes	5	202	1010
131	13	1	Oscar	M	31	Yes	Yes	Yes	1	201	201
142	14	2	Mohammed	M	25	Yes	Yes	No	7	224	1568
151	15	1	Michael	M	60	Yes	Yes	Yes	3	180	540
186	18	6	Evelyne	F	21	Yes	Yes	No	4	215	860
194	19	4	Thea	F	40	Yes	Yes	Yes	4	162	648
203	20	3	Abdullah	M	19	Yes	Yes	Yes	2	162	424
212	21	2	Julia	F	35	Yes	Yes	Yes	3	199	597
233	23	3	Sara	F	20	Yes	Yes	No	5	237	1185
241	24	1	Benjamin	M	55	Yes	Yes	Yes	4	249	996
252	25	2	William	M	30	Yes	Yes	Yes	6	180	1080

- ✓ women interviewed about their ownership/tenure rights over agricultural land (i.e. women in the dataset)

1	2	3	4	5	6	7	8	9	10	11	12
ID	HH ID	HH member ID	Name	Sex	Age	Agricultural HH	Selected for interview	Ownership or tenure	Number of adults	HH expansion factor	Individual expansion factor
22	2	2	Antony	M	28	Yes	Yes	No	4	224	896
32	3	2	Angelica	F	25	Yes	Yes	Yes	2	183	366
41	4	1	Ben	M	67	Yes	Yes	Yes	4	185	740
64	6	4	Melanie	F	50	Yes	Yes	No	5	242	1210
102	10	2	Marc	M	38	Yes	Yes	Yes	3	173	519
113	11	3	Miranda	F	42	Yes	Yes	No	2	196	392
123	12	3	Gabrielle	F	36	Yes	Yes	Yes	5	202	1010
131	13	1	Oscar	M	31	Yes	Yes	Yes	1	201	201
142	14	2	Mohammed	M	25	Yes	Yes	No	7	224	1568
151	15	1	Michael	M	60	Yes	Yes	Yes	3	180	540
186	18	6	Evelyne	F	21	Yes	Yes	No	4	215	860
194	19	4	Thea	F	40	Yes	Yes	Yes	4	162	648
203	20	3	Abdullah	M	19	Yes	Yes	Yes	2	162	424
212	21	2	Julia	F	35	Yes	Yes	Yes	3	199	597
233	23	3	Sara	F	20	Yes	Yes	No	5	237	1185
241	24	1	Benjamin	M	55	Yes	Yes	Yes	4	249	996
252	25	2	William	M	30	Yes	Yes	Yes	6	180	1080

- ✓ men with ownership or tenure rights over agricultural land

1	2	3	4	5	6	7	8	9	10	11	12
ID	HH ID	HH member ID	Name	Sex	Age	Agricultural HH	Selected for interview	Ownership or tenure	Number of adults	HH expansion factor	Individual expansion factor
22	2	2	Antony	M	28	Yes	Yes	No	4	224	896
32	3	2	Angelica	F	25	Yes	Yes	Yes	2	183	366
41	4	1	Ben	M	67	Yes	Yes	Yes	4	185	740
64	6	4	Melanie	F	50	Yes	Yes	No	5	242	1210
102	10	2	Marc	M	38	Yes	Yes	Yes	3	173	519
113	11	3	Miranda	F	42	Yes	Yes	No	2	196	392
123	12	3	Gabrielle	F	36	Yes	Yes	Yes	5	202	1010
131	13	1	Oscar	M	31	Yes	Yes	Yes	1	201	201
142	14	2	Mohammed	M	25	Yes	Yes	No	7	224	1568
151	15	1	Michael	M	60	Yes	Yes	Yes	3	180	540
186	18	6	Evelyne	F	21	Yes	Yes	No	4	215	860
194	19	4	Thea	F	40	Yes	Yes	Yes	4	162	648
203	20	3	Abdullah	M	19	Yes	Yes	Yes	2	162	424
212	21	2	Julia	F	35	Yes	Yes	Yes	3	199	597
233	23	3	Sara	F	20	Yes	Yes	No	5	237	1185
241	24	1	Benjamin	M	55	Yes	Yes	Yes	4	249	996
252	25	2	William	M	30	Yes	Yes	Yes	6	180	1080

- ✓ men interviewed about their ownership/tenure rights over agricultural land (i.e., men in the dataset)

1	2	3	4	5	6	7	8	9	10	11	12
ID	HH ID	HH member ID	Name	Sex	Age	Agricultural HH	Selected for interview	Ownership or tenure	Number of adults	HH expansion factor	Individual expansion factor
22	2	2	Antony	M	28	Yes	Yes	No	4	224	896
32	3	2	Angelica	F	25	Yes	Yes	Yes	2	183	366
41	4	1	Ben	M	67	Yes	Yes	Yes	4	185	740
64	6	4	Melanie	F	50	Yes	Yes	No	5	242	1210
102	10	2	Marc	M	38	Yes	Yes	Yes	3	173	519
113	11	3	Miranda	F	42	Yes	Yes	No	2	196	392
123	12	3	Gabrielle	F	36	Yes	Yes	Yes	5	202	1010
131	13	1	Oscar	M	31	Yes	Yes	Yes	1	201	201
142	14	2	Mohammed	M	25	Yes	Yes	No	7	224	1568
151	15	1	Michael	M	60	Yes	Yes	Yes	3	180	540
186	18	6	Evelyne	F	21	Yes	Yes	No	4	215	860
194	19	4	Thea	F	40	Yes	Yes	Yes	4	162	648
203	20	3	Abdullah	M	19	Yes	Yes	Yes	2	162	424
212	21	2	Julia	F	35	Yes	Yes	Yes	3	199	597
233	23	3	Sara	F	20	Yes	Yes	No	5	237	1185
241	24	1	Benjamin	M	55	Yes	Yes	Yes	4	249	996
252	25	2	William	M	30	Yes	Yes	Yes	6	180	1080

- ✓ individuals with ownership or tenure rights over agricultural land

1	2	3	4	5	6	7	8	9	10	11	12
ID	HH ID	HH member ID	Name	Sex	Age	Agricultural HH	Selected for interview	Ownership or tenure	Number of adults	HH expansion factor	Individual expansion factor
22	2	2	Antony	M	28	Yes	Yes	No	4	224	896
32	3	2	Angelica	F	25	Yes	Yes	Yes	2	183	366
41	4	1	Ben	M	67	Yes	Yes	Yes	4	185	740
64	6	4	Melanie	F	50	Yes	Yes	No	5	242	1210
102	10	2	Marc	M	38	Yes	Yes	Yes	3	173	519
113	11	3	Miranda	F	42	Yes	Yes	No	2	196	392
123	12	3	Gabrielle	F	36	Yes	Yes	Yes	5	202	1010
131	13	1	Oscar	M	31	Yes	Yes	Yes	1	201	201
142	14	2	Mohammed	M	25	Yes	Yes	No	7	224	1568
151	15	1	Michael	M	60	Yes	Yes	Yes	3	180	540
186	18	6	Evelyne	F	21	Yes	Yes	No	4	215	860
194	19	4	Thea	F	40	Yes	Yes	Yes	4	162	648
203	20	3	Abdullah	M	19	Yes	Yes	Yes	2	162	424
212	21	2	Julia	F	35	Yes	Yes	Yes	3	199	597
233	23	3	Sara	F	20	Yes	Yes	No	5	237	1185
241	24	1	Benjamin	M	55	Yes	Yes	Yes	4	249	996
252	25	2	William	M	30	Yes	Yes	Yes	6	180	1080

As in the previous example, here we can see a **clear disparity between the two sexes**. Women belonging to the agricultural population are **less likely** to hold these rights than men. In general, 54% of people living in agricultural households are owners or holders of rights over agricultural land. However, the percentage of women with ownership or tenure rights is 42%, while the corresponding figure for men is 65%.

Sub-indicator b gives a **more complete picture** of the situation - only 37% of people with rights over land are women.

Sub indicator a:

Percentage of **people with ownership or tenure rights** over agricultural land (out of total agricultural population), **by sex**.

$\frac{\text{women with ownership or tenure rights over agricultural land}}{\text{all men in the dataset}}$	$\frac{2\,621}{6\,268} \times 100 = 42\%$
$\frac{\text{men with ownership or tenure rights over agricultural land}}{\text{all men in the dataset}}$	$\frac{4\,500}{6\,964} \times 100 = 65\%$
$\frac{\text{people with ownership or tenure rights over agricultural land}}{\text{all men in the dataset}}$	$\frac{7\,121}{13\,232} \times 100 = 54\%$

Sub indicator b:

Share of **women among owners or rights bearers** of agricultural land.

$\frac{\text{women with ownership or tenure rights over agricultural land}}{\text{all men and women with ownership or tenure rights over agricultural land}}$	$\frac{2\,621}{7\,121} \times 100 = 37\%$
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Tabulation plan and additional analysis

It is possible to gain even **deeper insights** into how ownership and tenure rights are distributed between men and women by looking closely at **all the evidence derived** from the **minimum set of questions** needed for Indicator 5.a.1.

It is possible to **separately analyse** the **different rights** associated with agricultural land (documented ownership, right to sell and right to bequeath). An analysis of the distribution of these rights between men and women will help to understand the main **drivers** of the indicator. A clearer picture of the various **levels of security of rights** will be gained by considering the separation between documented ownership and the other rights, according to different contexts and legal systems.

When **additional variables** are present in the survey or when a parcel level approach is adopted, it is also possible to analyse:

- ✓ Respondent's ethnic group
- ✓ Sex of household head
- ✓ Parcels prize
- ✓ Number of parcels
- ✓ Parcels size
- ✓ Respondent's age group
- ✓ Tenure type
- ✓ Household size
- ✓ Type of legally recognized document

Summary

In order to calculate Indicator 5.a.1, first, a series of data manipulation steps are taken, to remove any individuals: not living in agricultural households (if the survey included them), or who are less than 18 years old, or who were not selected for interview.

For each **interviewed individual**, the responses to the series of questions on **land ownership** are then considered, and a decision made regarding whether the individual does or does not have ownership or tenure right over land, based on **at least one of the three proxy conditions**.

When data have been collected at **parcel level**, it will be **aggregated**, so that an individual is considered to **have ownership or tenure rights** over agricultural land if they have at least one of the three proxy conditions for **at least one parcel**.

It is then possible to calculate **sub indicator a** (percentage of people with ownership or tenure rights over agricultural land (out of total agricultural population), by sex) and **sub indicator b** (share of women among owners or rights bearers of agricultural land).

Deeper insights can be gained by considering additional variables, such as household income, number of parcels, ethnic group or sex of household head. Countries can choose to collect additional information that they deem relevant to their own context.