

Supplementary Material S1 Questionnaire of the structured household survey.

Note: The questionnaire was implemented in Azerbaijani and Georgian language

Socio-Economic Survey of Farming Households

**By the research project Common village pastures – Comparative case studies in
Azerbaijan and Georgia**

Partner Universities:

Greifswald University, Germany

Agricultural University of Georgia

Azerbaijan State Agrarian University

With this survey, students and researchers collect socio-economic data on farming households using common village pastures in Azerbaijan and Georgia. This questionnaire is distributed to selected households in the project's study villages. The data are very important for doctoral works of students in the framework of the project and contribute to improving scientific knowledge on agriculture in Azerbaijan and Georgia.

We appreciate very much your cooperation with the students and would like to ask you to complete this questionnaire on socio-economic issues of farming households. We ensure you that your data will not be given to third groups or persons.

Note: This questionnaire should be answered by household members of 18 years or older

Name of Interviewer:_____

Code:_____

Date:____/____/2016

1. General information

1.1 Address

1.1.1	Name of respondent:
1.1.2	Age of respondent:
1.1.3	Street:
1.1.4	Neighborhood:
1.1.5	Village:
1.1.6	E-mail-Address:
1.1.7	Phone:
1.1.8	How long do you live in this villages

Relationship of respondent to household head

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1.2 Household Characteristics

1.2.1 Who lives in your household? Please list all household members living in your house for more than 3 months in a year and are helping in your household

Category	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	...
1.2.1.1 Name							
1.2.1.2 Relationship ^{a)}							
1.2.1.3 Age							
1.2.1.4 Marital status ^{b)}							
1.2.1.5 Gender (1. Female, 2. Male)							
1.2.1.6 Education ^{c)}							
1.2.1.7 Activity ^{d)}							
a) 1 Head of family 2 Husband/Wife 3 Daughter 4 Son 5 Daughter/son in law 6 Grandparent 7 Grandchild 8 Brother/Sister/ 9 Other parental relatives 10 Other maternal relatives	b) I.Single II.Married III.Divorced IV.Widowed V.Separated	c) A) Below school age B) Pupil C) Graduated from school D) Student in university E) Graduated from university F) Student in college or technical school G) Graduated from college or technical school H) Student in vocational school I) Graduated from vocational school J) Not educated					
	d) a. Public job b. Agricultural activities c. Searching for job d. Pensioner e. Pupil/student f. Other (please specify)						

2. Crop Farming

2.1 Area

2.1.1 Do you have activities in crop farming?

☐

Yes

☐

No

If yes, please proceed below.

If no, please go to question 3.1.

2.1.2 Which areas for crop farming do you grow? Please cross and fill in the area.

Category	Total (in ha)		thereof			
			Private	Leased from local administration	Leased from private person	Rented to other person
2.1.1.1 Home garden	<input type="checkbox"/>					
2.1.1.2 Land plot	<input type="checkbox"/>					
2.1.1.3 Hay meadows	<input type="checkbox"/>					
2.1.1.4 Fruit garden	<input type="checkbox"/>					
2.1.1.5 Greenhouse	<input type="checkbox"/>					
2.1.1.6 Vineyard	<input type="checkbox"/>					

2.2 Cropping

2.2.1 What kind of plants (crops) do you grow?

2.2.1.1 Wheat	<input type="checkbox"/>	2.2.1.2 Onion	<input type="checkbox"/>
2.2.1.3 Barley	<input type="checkbox"/>	2.2.1.4 Tomato	<input type="checkbox"/>
2.2.1.5 Maize	<input type="checkbox"/>	2.2.1.6 Eggplant	<input type="checkbox"/>
2.2.1.7 Potato	<input type="checkbox"/>	2.2.1.8 Garlic	<input type="checkbox"/>
2.2.1.9 Cabbage	<input type="checkbox"/>	2.2.1.10 Capsicum	<input type="checkbox"/>
2.2.1.11 Carrot	<input type="checkbox"/>	2.2.1.12 Radish	<input type="checkbox"/>
2.2.1.13 Cucumber	<input type="checkbox"/>	2.2.1.14 Herbs	<input type="checkbox"/>
2.2.1.15 Sun flower	<input type="checkbox"/>	2.2.1.16 Others: please specify _____	<input type="checkbox"/>
2.2.1.17 Bean	<input type="checkbox"/>		

2.2.2 What is the most important crop for your household (for cash and own consumption)?

for cash _____

for own consumption _____

2.2.3 Do you sell crop products?

☐ Yes

☐ No

3. Fruit growing

3.1 Do you grow fruits?

☐ Yes

_____ If yes, please proceed below.

☐ No

_____ If no, please go to question 4.1

3.2 Which fruits do you produce?

3.2.1	Apple	<input type="checkbox"/>
3.2.2	Pear	<input type="checkbox"/>
3.2.3	Plum	<input type="checkbox"/>
3.2.4	Walnut	<input type="checkbox"/>
3.2.5	Hazelnut	<input type="checkbox"/>
3.2.6	Cornel cherry	<input type="checkbox"/>
3.2.7	Apricot	<input type="checkbox"/>
3.2.8	Cherry	<input type="checkbox"/>
3.2.9	Raspberry	<input type="checkbox"/>
3.2.10	Wine	<input type="checkbox"/>
3.2.11	Others: please specify _____	<input type="checkbox"/>

3.3 What is the most important fruit for your household (for cash and own consumption)?

for cash _____

for own consumption _____

4. Livestock

4.1 Do you have livestock?

☐ Yes

_____ If yes, please proceed below.

☐ No

_____ If no, please go to question 5.1

4.1.1 Which kind of livestock do you have and how many?

Category	Numbers	
4.1.1.1 Cattle	<input type="checkbox"/>	
A. Dairy cow		
B. Bull		
C. Calf (0-18 month)		
4.1.1.2 Sheep	<input type="checkbox"/>	
A. Ewe		
B. Ram		
C. Lamb(0-12month)		
4.1.1.3 Goat	<input type="checkbox"/>	
A. Mother Goat		
B. Ram		
C. Goat kid (0-12month)		
4.1.1.4 Water buffalo	<input type="checkbox"/>	
A. Dairy water buffalo		
B. Bull		
C. Calf (0-18 month)		
4.1.1.5 Horse	<input type="checkbox"/>	
4.1.1.6 Donkey	<input type="checkbox"/>	
4.1.1.7 Pig	<input type="checkbox"/>	
4.1.1.8 Other (please specify)	<input type="checkbox"/>	

4.2 Marketing of livestock products

4.2.1 Which of the following livestock products do you sell?

Category	Cattle	Sheep	Goat
4.2.1.1 Milk products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.1.2 Meat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.1.3 Live animals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.1.4 Wool		<input type="checkbox"/>	
4.2.1.5 Others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.3 Use of pasture

4.3.1 Which kind of following pastures do you use for your livestock?

Category	Summer months	Winter months	Others season
4.3.1.1 Common village pasture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.1.2 Winter pasture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.1.3 Summer pasture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.1.4 Hay meadow and arable land after harvesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.1.5 Vineyard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.1.6 Others, please specify_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.3.2 If you use summer pastures, in which district (rayon) is this pasture located?

4.3.3 If you use winter pastures, in which district (rayon) is this pasture located?

4.3.4 Do you use other seasonal pastures, in which district (rayon) is this pasture located?

4.3.5 Who herds your cattle?

Category	Summer months	Winter months	Other season
4.3.5.1 Herded by Household members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.5.2 Herded by a shepherd hired by the Household	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.5.3 Herded by relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.5.4 Herded in a common herd organized in turns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.5.5 Herded in a common herd by payed shepherd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.5.6 Without herding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.3.6 Who herds your sheep and goats?

Category	Summer months	Winter months	Others season
4.3.6.1 Herded by Household members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.6.2 Herded by a shepherd hired by the Household	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.6.3 Herded by relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.6.4 Herded in a common herd organized in turns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.6.5 Herded in a common herd by payed shepherd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.6.6 Without herding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Beekeeping

5.1 Do you engage in beekeeping?

☐

Yes

☐

No

If yes, how many beehives do you have?

6. Poultry

6.1 Do you engage in poultry keeping?

☐

Yes

☐

No

If yes, please proceed below.

If no, please go to question 7.1

6.1.1 Which kind of poultry do you have and how much?

Category		Number
6.1.1.1 Hen	<input type="checkbox"/>	
6.1.1.2 Turkey	<input type="checkbox"/>	
6.1.1.3 Goose	<input type="checkbox"/>	
6.1.1.4 Duck	<input type="checkbox"/>	
6.1.1.5 Others, please specify _____	<input type="checkbox"/>	

7. Other off farm activities

7.1 Do you have income sources apart from own agriculture?

☐

Yes

☐

No

If yes, which income sources do you have?

If no, please go to question 8.1

7.1.1 Public employment	<input type="checkbox"/>
7.1.2 Permanent employment in private enterprises	<input type="checkbox"/>
7.1.3 Self-employment	<input type="checkbox"/>
7.1.4 /Salaried work	<input type="checkbox"/>
7.1.5 Pension (State retirement or disability benefits)	<input type="checkbox"/>
7.1.6 Other state benefits (child benefits, job-Seekers allowance, social services)	<input type="checkbox"/>
7.1.7 Other private benefits (student grants, support from relatives etc.)	<input type="checkbox"/>
7.1.8 Interest from savings and investments	<input type="checkbox"/>
7.1.9 Rent of real estates	<input type="checkbox"/>
7.1.10 Other(please,note)	<input type="checkbox"/>

7.2 Which of the income sources listed in the table above is most important for your household?

(Note: The survey continued with questions on topics not used in the analysis of this manuscript)

Thanks for taking part in this survey!

Supplementary Material S2: Contribution margin and household income calculations

1. Preliminary considerations

All contribution margin calculations were performed in the local currencies (New Azerbaijani Manat (AZN) or Georgian Lari (GEL)). Major indicators were then converted to EUR using the average exchange rate for 2016, which is the year for which calculations were performed. The exchange rates are 1 EUR= 0,526701 AZN and 1 EUR = 0,356336 GEL (for 1. January 2016–31. December 2016, from <https://fxtop.com/de/historische-wechselkurse.php>).

2. Livestock, poultry and beekeeping

For household income calculations the contribution margins were multiplied with the respective mother animal unit held by the household as recorded in household survey data (Supplementary Material S19).

Table S3. Cost-revenue calculation for cattle keeping (per milk cow unit).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetila
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Main indicators							
Herd size	head	2.00	3.00	2.00	3.00	3.00	4.00
Productive lifetime	years	8.00	8.00	8.00	8.00	8.00	8.00
Bulls per cow	Ratio	0.13	0.13	0.13	0.13	0.13	0.13
Live weight	kg	250.00	250.00	250.00	250.00	250.00	250.00
Revenue							
Calf	AZN or GEL/unit	323.99	495.00	315.36	323.99	456.00	328.00
Old cow	AZN or GEL/unit	24.38	20.31	20.31	32.00	24.00	27.00
Milk and milk products	AZN or GEL/unit	480.00	368.78	405.00	784.00	720.00	900.00
Total revenue	AZN or GEL/unit	828.37	884.09	740.67	1139.99	1200.00	1255.00
Variable costs							
Flock replacement (male and female)	AZN or GEL/unit	104.52	112.29	96.29	128.57	135.00	118.00
Feed costs	AZN or GEL/unit	188.95	276.50	192.80	255.67	276.00	382.00
Herding fee	AZN or GEL/unit	35.00	30.00	35.00			
Veterinary care	AZN or GEL/unit	15.00	12.00	11.76	10.50	20.00	8.00
Transport to market	AZN or GEL/unit	5.00	5.00	5.00	7.00	7.00	7.00
Total variable costs	AZN or GEL/unit	348.47	435.79	340.85	401.74	438.00	515.00
Contribution margin	AZN or GEL/unit	479.90	448.30	399.82	738.25	762.00	740.00
Contribution margin ratio	%	57.93	50.71	53.98	64.76	63.50	58.96
<i>Revenue</i>	<i>EUR/unit</i>	<i>436.30</i>	<i>465.65</i>	<i>390.11</i>	<i>406.22</i>	<i>427.60</i>	<i>447.20</i>

<i>Variable costs</i>	<i>EUR/unit</i>	183.54	229.53	179.52	143.15	156.08	183.51
<i>Contribution margin</i>	<i>EUR/unit</i>	252.76	236.12	210.59	263.07	271.53	263.69

Table S4. Cost-revenue calculation for sheep keeping (per ewe unit).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetil
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Main indicators							
Herd size	heads	20.00	15.00	18.00	18.00	15.00	10.00
Productive lifetime	years	7.00	7.00	7.00	7.00	7.00	7.00
Rams per ewe	Ratio	0.14	0.14	0.14	0.14	0.14	0.14
Live weight	kg	35.00	35.00	35.00	35.00	35.00	35.00
Revenue							
Lamb	AZN or GEL/unit	81.78	99.26	89.25	126	119	126.00
Old ewe	AZN or GEL/unit	8.00	7.35	6.30	7.73	7	7.00
Milk and milk products	AZN or GEL/unit	27.00					
Wool	AZN or GEL/unit			1.60	2		
Total revenue	AZN or GEL/unit	116.78	106.61	97.15	135.73	126.00	133.00
Variable costs							
Flock replacement (male and female)	AZN or GEL/unit	11.68	14.18	12.75	18.00	17.00	18.00
Feed costs	AZN or GEL/unit	20.40	17.80	10.20	26.5	22	25
Veterinary care	AZN or GEL/unit	5.00	5.00	1.46	1	1.5	1
Washing	AZN or GEL/unit	0.30		0.17	2.4	2.4	2
Dog feed	AZN or GEL/unit		1.80	0.52			1
Transport to market	AZN or GEL/unit	2.00	2.00	2.00	3.00	3.00	3.00
Total variable costs	AZN or GEL/unit	39.38	40.78	27.10	50.90	45.90	50.00
Contribution margin	AZN or GEL/unit	77.40	65.83	70.05	84.83	80.10	83.00
Contribution margin ratio	%	66.28	61.75	72.10	62.50	63.57	62.41
<i>Revenue</i>	<i>EUR/unit</i>	61.51	56.15	51.17	48.37	44.90	47.39
<i>Variable costs</i>	<i>EUR/unit</i>	20.74	21.48	14.27	18.14	16.36	17.82
<i>Contribution margin</i>	<i>EUR/unit</i>	40.77	34.67	36.90	30.23	28.54	29.58

Table S5. Cost-revenue calculation for goat keeping (per mother goat unit).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankendi	Gombori	Arashenda	Shakhvetil
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Main indicators							
Productive lifetime	years	5.00	5.00	5.00	5.00	5.00	5.00
Live weight	kg	35.00	30.00	30.00	35.00	35.00	35.00
Revenue							
Goat kid (male)	AZN or GEL/unit	40.88	40.88	40.88	47	47	47
Goat kid (female)	AZN or GEL/unit	36.79	36.79	36.79	47	47	47
Milk and milk products	AZN or GEL/unit	18.00	21.00	21.00			
Old goat	AZN or GEL/unit	3.84	3.84	3.84	7.00	7.00	7.00
Total revenue	AZN or GEL/unit	99.51	102.51	102.51	101.00	101.00	101.00
Variable costs							
Flock replacement (male and female)	AZN or GEL/unit	15.53	15.53	15.53	18.80	18.80	18.80
Feed costs	AZN or GEL/unit	16.32	14.24	8.16	21.20	17.60	20.00
Veterinary care	AZN or GEL/unit	5.00	5.00	1.46	0.2	0.2	0.2
Washing	AZN or GEL/unit	0.30		0.17	1	1	1
Dog feed	AZN or GEL/unit		1.80	0.52			
Transport to market	AZN or GEL/unit	2.00	2.00	2.00	3.00	3.00	3.00
Total variable costs	AZN or GEL/unit	39.15	38.57	27.84	44.20	40.60	43.00
Contribution margin	AZN or GEL/unit	60.36	63.94	74.67	56.80	60.40	58.00
Contribution margin ratio	%	60.65	62.37	72.84	56.24	59.80	57.43
<i>Revenue</i>	<i>EUR/unit</i>	<i>52.41</i>	<i>53.99</i>	<i>53.99</i>	<i>35.99</i>	<i>35.99</i>	<i>35.99</i>
<i>Variable costs</i>	<i>EUR/unit</i>	<i>20.62</i>	<i>20.32</i>	<i>14.67</i>	<i>15.75</i>	<i>14.47</i>	<i>15.32</i>
<i>Contribution margin</i>	<i>EUR/unit</i>	<i>31.79</i>	<i>33.68</i>	<i>39.33</i>	<i>20.24</i>	<i>21.52</i>	<i>20.67</i>

Table S6. Cost-revenue calculation for pig keeping (per sow unit).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankendi	Gombori	Arashenda	Shakhvetil
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Main indicators							
Productive lifetime	years				4.50	4.50 ¹	3.50
Live weight	kg				200.00	200.00	140.00
Raised piglets					20.00	20.00	22.00
Revenue							
Piglet	AZN or GEL/unit				1200.00	1200.00	1100.00
Old Sow	AZN or GEL/unit				143.25	143.25	139.58
Total revenue	AZN or GEL/unit				1343.25	1343.25	1239.58
Variable costs							
Flock replacement (male and female)	AZN or GEL/unit				59.10	59.10	71.90
Feed costs	AZN or GEL/unit				510.00	510.00	510.00
Veterinary care	AZN or GEL/unit				100.00	100.00	100.00
Transport to market	AZN or GEL/unit				10.00	10.00	10.00
Total variable costs	AZN or GEL/unit				679.10	679.10	691.90
Contribution margin	AZN or GEL/unit				664.15	664.15	547.68
Contribution margin ratio	%				49.44	49.44	44.18
<i>Revenue</i>	<i>EUR/unit</i>				427.60	427.60	391.97
<i>Variable costs</i>	<i>EUR/unit</i>				241.99	241.99	246.55
<i>Contribution margin</i>	<i>EUR/unit</i>				236.66	236.66	195.16

¹ Calculation transferred from Gombori

Table S7. Cost-revenue calculation for chicken keeping (per hen unit).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetil
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Main indicators							
Number of hens	Head	18	26	10	22	30	22 ¹
Number of sold chicken	Head	100	100	100	50	100	50
Number of hens laying eggs	Head	9	10	8	10	15	10
Number of eggs from one hen	Head/year	210	210	210	200	210	200
Price of hen (2 years old)	AZN or GEL/head	2	2	2	4	4	4
Price of one chicken (4.5 months old)	AZN or GEL/head	4	4	4	8	8	8
Price of eggs	AZN or GEL/head	0.15	0.15	0.15	0.2	0.2	0.2
Loss of hens	%	10	10	10	10	10	10
Loss of eggs	%	15	15	15	15	15	15
Loss of chicken	%	28	25	25	28	25	28
Revenue							
Old hen	AZN or GEL/unit	1.80	1.80	1.80	3.00	3.12	3.00
Eggs	AZN or GEL/unit	13.39	10.30	21.42	15.45	17.85	15.45
Chicken (after 4.5 months)	AZN or GEL/unit	16.00	11.54	30.00	32.58	30.00	32.58
Total revenue	AZN or GEL/unit	31.19	23.64	53.22	51.04	50.97	51.04
Variable costs							
Feed for chicken fattening	AZN or GEL/unit	5.56	3.85	9.00			
Wheat (500 kg; 0.3 AZN/kg)	AZN or GEL/unit	8.33	5.77	12.00	20.91	17.67	20.91
Mixed feed (100 kg; 0.65 AZN/kg)	AZN or GEL/unit	3.61	2.50	5.20	5.45	8.00	5.45
Medicine	AZN or GEL/unit	1.96	1.35	3.50	0.30	1.00	0.30
Total variable costs	AZN or GEL/unit	19.46	13.47	29.70	26.66	26.67	26.66
Contribution margin	AZN or GEL/unit	11.73	10.17	23.52	24.37	24.30	24.37
Contribution margin ratio	%	37.62	43.02	44.19	47.76	47.68	47.76
<i>Revenue</i>	<i>EUR/unit</i>	<i>16.43</i>	<i>12.45</i>	<i>28.03</i>	<i>18.19</i>	<i>18.16</i>	<i>18.19</i>
<i>Variable costs</i>	<i>EUR/unit</i>	<i>10.25</i>	<i>7.09</i>	<i>15.64</i>	<i>9.50</i>	<i>9.50</i>	<i>9.50</i>
<i>Contribution margin</i>	<i>EUR/unit</i>	<i>6.18</i>	<i>5.36</i>	<i>12.39</i>	<i>8.68</i>	<i>8.66</i>	<i>8.68</i>

¹ Calculation transferred from Gombori

Table S8. Cost-revenue calculation for goose keeping (per goose unit).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetila
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Main indicators							
Live weight	kg	5.00 ¹	5.00	5.00 ¹			
Slaughter weight	kg	3.00	3.00	3.00			
Price goose meat	AZN/kg	7.00	7.00	7.00			
Price Feed (wheat)	AZN/kg	0.30	0.30	0.30			
Price Feed (potato)	AZN/kg	0.25	0.25	0.25			
Price feathers	AZN/kg	3.33	3.33	3.33			
Revenue							
Meat	AZN or GEL/unit	21.00	21.00	21.00			
Feathers/downs	AZN or GEL/unit	1.00	1.00	1.00			
Total revenue	AZN or GEL/unit	22.00	22.00	22.00			
Variable costs							
Feed (wheat, 30 kg)	AZN or GEL/unit	9.00	9.00	9.00			
Feed (Potato, 5 kg)	AZN or GEL/unit	1.25	1.25	1.25			
Medicine	AZN or GEL/unit	1.00	1.00	1.00			
Total variable costs	AZN or GEL/unit	11.25	11.25	11.25			
Contribution margin	AZN or GEL/unit	10.75	10.75	10.75			
Contribution margin ratio	%	48.86	48.86	48.86			
<i>Revenue</i>	<i>EUR/unit</i>	<i>11.59</i>	<i>11.59</i>	<i>11.59</i>			
<i>Variable costs</i>	<i>EUR/unit</i>	<i>5.93</i>	<i>5.93</i>	<i>5.93</i>			
<i>Contribution margin</i>	<i>EUR/unit</i>	<i>5.66</i>	<i>5.66</i>	<i>5.66</i>			

¹ Calculation transferred from Keremli

Table S9. Cost-revenue calculation for bee keeping (per beehive).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetil
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Revenue							
Honey	kg	10.00	12.00	8.00	22.00	22.00	22.00
Loss of honey	%	0.10	0.10	0.08	0.08	0.08	0.08
Price	AZN or GEL/kg	20.00	20.00	20.00	15.00	15.00	15.00
Total revenue	AZN or GEL/beehive	180.00	216.00	147.20	303.60	303.60	303.60
Variable costs							
Medicine	AZN or GEL/beehive	3.50	6.00	4.50	12.00	12.00	12.00
Feed (sugar)	AZN or GEL/beehive	9.00	12.00	10.00	18.00	18.00	18.00
Wax	AZN or GEL/beehive	1.20	1.20	1.50	2.4	2.4	2.4
Frames	AZN or GEL/beehive	24.00	24.00	24.00	18	18	18
Box	AZN or GEL/beehive	10.00	10.00	10.00	11	11	11
Transport	AZN or GEL/beehive	5.00	5.00	5.00	15	4	10
Total variable costs	AZN or GEL/beehive	52.70	58.20	55.00	76.40	65.40	71.40
Contribution margin	AZN or GEL/beehive	127.30	157.80	92.20	227.20	238.20	232.20
Contribution margin ratio	%	70.72	73.06	62.64	74.84	78.46	76.48
<i>Revenue</i>	<i>EUR/beehive</i>	<i>94.81</i>	<i>113.77</i>	<i>77.53</i>	<i>159.91</i>	<i>159.91</i>	<i>159.91</i>
<i>Variable costs</i>	<i>EUR/beehive</i>	<i>27.76</i>	<i>30.65</i>	<i>28.97</i>	<i>40.24</i>	<i>34.45</i>	<i>37.61</i>
<i>Contribution margin</i>	<i>EUR/beehive</i>	<i>67.05</i>	<i>83.11</i>	<i>48.56</i>	<i>119.67</i>	<i>125.46</i>	<i>122.30</i>

3. Arable farming and hay production

Cost-revenue calculations were performed per land area (ha). As in the survey data the arable land area (homegarden, land plot and vineyard) was reported but no detailed coverage for each crop, assumptions on the coverage of wheat, potato, raspberry and other crops were needed for household income calculations. Based on observations during data collection, average percentage shares of crops for each village were set up.

Table S10. Average crop coverages of farmed land in the case study villages.

	Azerbaijan			Georgia		
	Atabey	Keremli	Plankend	Gombori	Shakhvetila	Arashenda
Homegarden						
Potato	50	30	80	60	40	40
Other vegetables and herbs (e.g. cabbage, carrots and beans)	50	50	20	40	60	60
Raspberry		20 ¹				
SUM Homegarden	100	100	100	100	100	100
Land plot						
Potato	65	60	100	90		30
Wheat	35	40				70
SUM Land plot	100	100	100	90²	0²	100
Vineyard						
Grapes				100	100	100
SUM Vineyard				100	100	100

¹: For Raspberry production in Keremli, it was controlled for whether the household engages in raspberry cultivation based on household survey data

²: In Gombori, only a share of the land plot was used by the household. In Shakhvetila, most land plots were not cultivated, at all.

Table S11. Cost-revenue calculation for potatoes (per ha).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetil a
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Main indicators							
Total harvest	kg	14285.00	8461.54	7692.31	2564.00	4764.71	3333.33
Fodder potato	kg	2857.00	1730.77	1346.15	1000.00		
Potato for selling	kg	9999.50	4615.38	4230.77	1125.00	3676.47	2600.00
Potato for self-consumption	kg	1428.50	2115.38	2115.38	439.00	1088.24	733.33
Revenue							
Fodder potato	AZN or GEL/ha	714.25	432.69	336.54	200.00	0.00	
Potato for selling	AZN or GEL/ha	4499.78	2307.69	2538.46	405.00	1323.53	1300.00
Potato for self-consumption	AZN or GEL/ha	642.83	1057.69	1269.23	158.04	391.76	366.67
Total revenue	AZN or GEL/ha	5856.85	3798.08	4144.23	763.04	1715.29	1666.67
Variable costs							
Seed potatoes	AZN or GEL/ha	535.00	1153.85	961.54	42.00	264.71	450.00
Fertilizer	AZN or GEL/ha	590.00	76.92	61.54	24.00	279.41	
Phytosanitary measures	AZN or GEL/ha		57.69	57.69			
<i>Machine service costs</i>							
Cultivating (Plough)	AZN or GEL/ha	70.00	115.38	211.54	35.00	35.29	60.00
Harrowing	AZN or GEL/ha	50.00	115.38		35.00		
Sowing	AZN or GEL/ha	200.00			35.00		
Digging	AZN or GEL/ha	150.00			35.00		
Transport	AZN or GEL/ha	30.00	38.46	38.46	15.00		
Total variable costs	AZN or GEL/ha	1625.00	1557.69	1330.77	221.00	579.41	510.00
Contribution margin	AZN or GEL/ha	4231.85	2240.38	2813.46	542.04	1135.88	1156.67
Contribution margin ratio	%	72.25	58.99	67.89	71.04	66.22	69.40
<i>Revenue</i>	<i>EUR/ha</i>	<i>3084.81</i>	<i>2000.45</i>	<i>2182.77</i>	<i>271.90</i>	<i>611.22</i>	<i>593.89</i>
<i>Variable costs</i>	<i>EUR/ha</i>	<i>855.89</i>	<i>820.44</i>	<i>700.92</i>	<i>78.75</i>	<i>206.47</i>	<i>181.73</i>
<i>Contribution margin</i>	<i>EUR/ha</i>	<i>2228.92</i>	<i>1180.01</i>	<i>1481.85</i>	<i>193.15</i>	<i>404.76</i>	<i>412.16</i>

Table S12. Cost-revenue calculation for wheat (per ha).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetil a
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Main indicators							
Yield	kg	2000 ¹	2000		2000 ²	2000	2000 ²
Fodder wheat	kg	900	900		2000	2000	2000
Wheat for selling	kg	600	600				
Wheat for self-consumption	kg	500	500				
Revenue							
Fodder wheat	AZN or GEL/ha	252.00	252.00		1000.00	1000.00	1000.00
Wheat for selling	AZN or GEL/ha	210.00	210.00				
Wheat for self-consumption	AZN or GEL/ha	175.00	175.00				
Straw bales	AZN or GEL/ha	60.00	60.00				
Total revenue	AZN or GEL/ha	697.00	697.00		1000.00	1000.00	1000.00
Variable costs							
Seed	AZN or GEL/ha	100.00	80.00		240.00	240.00	240.00
Fertilizer	AZN or GEL/ha	46.90	56.90		27.00	27.00	27.00
Phytosanitary measures	AZN or GEL/ha	40.00	20.00				
Machine service costs							
Cultivating	AZN or GEL/ha	40.00	35.00		40.00	40.00	40.00
Mowing	AZN or GEL/ha	30.00	35.00		60.00	60.00	60.00
Sowing	AZN or GEL/ha	20.00	30.00		50.00	50.00	50.00
Baling	AZN or GEL/ha	45.00	45.00		60.00	60.00	60.00
Storage	AZN or GEL/ha	10.00	10.00		10.00	10.00	10.00
Transport	AZN or GEL/ha	25.00	30.00		20.00	20.00	20.00
Total variable costs	AZN or GEL/ha	356.90	341.90		507.00	507.00	507.00
Contribution margin	AZN or GEL/ha	340.10	355.10		493.00	493.00	493.00
Contribution margin ratio	%	48.79	50.95		49.30	49.30	49.30
Revenue	EUR/ha	367.11	367.11		356.34	356.34	356.34
Variable costs	EUR/ha	187.98	180.08		180.66	180.66	180.66
Contribution margin	EUR/ha	179.13	187.03		175.67	175.67	175.67

¹ Calculation transferred from Keremli, ² Calculation transferred from Arashenda

Table S13. Cost-revenue calculation for raspberry (per ha).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetil a
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Revenue							
Product	kg		2500.00				
Price	AZN/kg		2.00				
Total revenue	AZN/ha		5000.00				
Variable costs							
Irrigation	AZN/ha		100.00				
Replacement	AZN/ha		80.00				
Fertilizer	AZN/ha		50.00				
Phytosanitary treatments	AZN/ha		100.00				
Labour (picking)	AZN/ha		500.00				
Equipment	AZN/ha		850.00				
Total variable costs	AZN/ha		1980.00				
Contribution margin	AZN/ha		3020.00				
Contribution margin ratio	%		60.40				
<i>Revenue</i>	<i>EUR/ha</i>		2633.51				
<i>Variable costs</i>	<i>EUR/ha</i>		1042.87				
<i>Contribution margin</i>	<i>EUR/ha</i>		1590.64				

Note: Raspberries are only cultivated in larger quantities in Keremli. Although in other villages households use raspberries for self-consumption, as well, a scale of commercial production is only reached in Keremli.

Table S14. Cost-revenue calculation for grapes (per ha).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetila
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Main indicators							
Harvest	kg					3000	3000
Grapes for own consumption	kg					1200	1200
Grapes for selling	kg					2800	2800
Revenue							
Grape for own consumption	AZN or GEL/ha					780.00	780.00
Grape for selling	AZN or GEL/ha					1820.00	1820.00
Total revenue	AZN or GEL/ha					2600.00	2600.00
Variable costs							
Irrigation	AZN or GEL/ha					30.00	30.00
Replacement	AZN or GEL/ha					258.00	258.00
Fertilizer	AZN or GEL/ha					150.00	150.00
Phytosanitary measures (pesticides, herbicides, fungicides)	AZN or GEL/ha					600.00	600.00
Weeding	AZN or GEL/ha					80.00	80.00
Ploughing	AZN or GEL/ha					200.00	200.00
Labour (picking, etc)	AZN or GEL/ha					250.00	250.00
Transport (from vineyard to factory)	AZN or GEL/ha					150.00	150.00
Total variable costs	AZN or GEL/ha					1718.00	1718.00
Contribution margin	AZN or GEL/ha					882.00	882.00
Contribution margin ratio	%					33.92	33.92
<i>Revenue</i>	<i>EUR/ha</i>					926.47	926.47
<i>Variable costs</i>	<i>EUR/ha</i>					612.19	612.19
<i>Contribution margin</i>	<i>EUR/ha</i>					314.29	314.29

¹: Calculation transferred from Arashenda. The climatic conditions in Shakhvetila do not allow for grape production, thus, households possess vineyards in other locations of Kakheti regions. It is assumed that the production technology and conditions in those locations are similar to Arashenda.

Table S15. Cost-revenue calculation for hay production (per ha).

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetil a
Currency of calculation		AZN	AZN	AZN	GEL	GEL	GEL
Revenue							
Hay	bales/ha	120.00	216.00	112.50	312.50	312.50 ¹	312.50 ¹
Price	AZN or GEL/bale	3.00	1.80	3.00	2.50	2.50	2.50
Total revenue	AZN or GEL/ha	360.00	388.80	337.50	781.25	781.25	781.25
Variable costs							
Mowing	AZN or GEL/ha	100.00	120.00	93.75	250.00	250.00	250.00
Turning mowed hay	AZN or GEL/ha	20.00	20.00	15.63			
Pressing	AZN or GEL/ha	42.00	75.60	39.38	250	250	250
Load up	AZN or GEL/ha	12.00	21.60	11.25			
Transport	AZN or GEL/ha	25.00	50.00	62.50	10.00	10.00	10.00
Unload	AZN or GEL/ha	12.00	21.60	11.25			
Stacking	AZN or GEL/ha	12.00	0.30	0.94			
Pasture improvement (clover seeding)	AZN or GEL/ha				90	90	90
Total variable costs	AZN or GEL/ha	223.00	309.10	234.69	600.00	600.00	600.00
Contribution margin	AZN or GEL/ha	137.00	79.70	102.81	181.25	181.25	181.25
Contribution margin ratio	%	38.06	20.50	30.46	23.20	23.20	23.20
<i>Revenue</i>	<i>EUR/ha</i>	<i>189.61</i>	<i>204.78</i>	<i>177.76</i>	<i>278.39</i>	<i>278.39</i>	<i>278.39</i>
<i>Variable costs</i>	<i>EUR/ha</i>	<i>117.45</i>	<i>162.80</i>	<i>123.61</i>	<i>213.80</i>	<i>213.80</i>	<i>213.80</i>
<i>Contribution margin</i>	<i>EUR/ha</i>	<i>72.16</i>	<i>41.98</i>	<i>54.15</i>	<i>64.59</i>	<i>64.59</i>	<i>64.59</i>

¹ Calculation transferred from Gombori

4. Summary of contribution margin calculations

Table S16. Summary of contribution margins for all agricultural activities included in the income calculation.

Item	Unit	Azerbaijan			Georgia		
		Atabey	Keremli	Plankend	Gombori	Arashenda	Shakhvetil a
Cattle	EUR/milk cow unit	252.76	236.12	210.59	263.07	271.53	263.69
Sheep	EUR/ewe unit	40.77	34.67	36.90	30.23	28.54	29.58
Goats	EUR/mother goat unit	31.79	33.68	39.33	20.24	21.52	20.67
Pigs	EUR/sow unit	N/A	N/A	N/A	236.66	236.66	195.16
Chicken	EUR/hen unit	6.18	5.36	12.39	8.68	8.66	8.68
Geese	EUR/goose unit	5.66	5.66	5.66			
Beekeeping	EUR/bee hive	67.05	83.11	48.56	80.96	84.88	82.74
Potato	EUR/ha	2228.92	1180.01	1481.85	193.15	404.76	412.16
Wheat	EUR/ha	179.13	187.03	N/A	175.67	175.67	175.67
Raspberry	EUR/ha	N/A	1590.64	N/A	N/A	N/A	N/A
Grapes	EUR/ha	N/A	N/A	N/A	N/A	314.29	314.29
Hay meadow	EUR/ha	72.16	41.98	54.15	64.59	64.59	64.59

N/A: activity not performed in the respective village

5. Off-farm income

The households survey records the number of household income sources in the respective category. Off-farm household income was calculated by multiplying entries in the respective categories with average wages and estimates from statistics. Amounts per month in all categories were multiplied with 12 months, except for "Seasonal salaried work", which was multiplied with 6 months.

Table S17. Calculation basis for categories of off-farm income for Azerbaijani case study villages.

Household survey income category	Amount (AZN/month)	Amount (EUR/month)	Calculation information	Source
Public employment	388.81	204.79	calculated from the categories "Electricity, gas and steam production, distribution and supply", "Water supply; waste treatment and disposal", "Information and communication", "Professional, scientific and technical activities", "Administrative and support service activities", "Public administration and defence; social security", "Education", "Human health and social work activities" and "Art, entertainment and recreation" (figures for "state" category)	State Statistical Committee 2017: 36
Permanent employment in private enterprises	482.45	254.11	calculated from the categories "Manufacturing" and "Accommodation and food service activities" (figures for "non-state" category)	State Statistical Committee 2017: 36
Self-employment	530.97	279.66	calculated from the categories "Trade; repair of transport means", "Transportation and storage" and "Accommodation and food service activities" (figures for "non-state" category)	State Statistical Committee 2017: 36
Seasonal salaried work	696.45	366.82	calculated from the categories "Construction" and "Accommodation and food service activities" (figures for "non-state" category), calculated for 6 months a year	State Statistical Committee 2017: 36
Pension	177.60	93.54	mean value for "Pension"	State Statistical Committee 2017: 38
Other state benefits	35.49	18.69	"State social assistance per person targeted"	State Statistical Committee 2017: 38
Other private benefits	27.8	14.64	"Other incomes" as sum of "income from other households" and "money received from abroad"	State Statistical Committee 2019: Budget of households

All figures for 2016 per person and month

Sources:

State Statistical Committee of Azerbaijan. 2017. Azerbaijan in figures 2017. Baku: State Statistical Committee of Azerbaijan.

State Statistical Committee of Azerbaijan. 2019. Statistical information about Azerbaijan, available from: <https://www.stat.gov.az>

Table S18. Calculation basis for categories of off-farm income for Georgian case study villages.

Household survey income category	Amount (GEL/month)	Amount (EUR/month)	Calculation information	Reference
Public employment	822.14	292.96	calculated from the categories "Electricity, gas and water supply", "Public administration", "Education", "Health and social work" and "Community, social and personal service activities" (figures for "public" category)	National Statistics Office of Georgia 2019: Average monthly nominal earnings of employees in public and non-public sector by economic activity
Permanent employment in private enterprises	902.71	321.67	calculated from the categories "Manufacturing", "Hotels and restaurants" and "Transport and communications" (figures for "non-public" category)	National Statistics Office of Georgia 2019: Average monthly nominal earnings of employees in public and non-public sector by economic activity
Self-employment	905.93	322.82	calculated from the categories "Trade; repair of motor vehicles and personal and household goods", "Hotels and restaurants" and "Transport and communications " (figures for "non-public" category)	National Statistics Office of Georgia 2019: Average monthly nominal earnings of employees in public and non-public sector by economic activity
Seasonal salaried work	997.28	355.37	calculated from the categories "Construction", "Trade; repair of motor vehicles and personal and household goods", "Hotels and restaurants" and "Transport and communications " (figures for "non-public" category), calculated for 6 months a year	National Statistics Office of Georgia 2019: Average monthly nominal earnings of employees in public and non-public sector by economic activity
Pension	153.88	54.83	"Pensions, scholarships, assistances"	National Statistics Office of Georgia 2019: Distribution of Average Monthly Incomes per Household by Years
Other state benefits	153.88	54.83	"Pensions, scholarships, assistances"	National Statistics Office of Georgia 2019: Distribution of Average Monthly Incomes per Household by Years
Other private benefits	131.54	46.87	Sum of "Remittances from abroad" and "Money received as gift"	National Statistics Office of Georgia 2019: Distribution of Average Monthly Incomes per Household by Years

All figures for 2016 per person and month

Source: National Statistics Office of Georgia 2019. Statistical Information about Georgia. Available from <https://www.geostat.ge>

Supplementary Material S19: Household survey data

1. Demographics: Characteristics of household heads

Table S20. Characteristics of household heads.

Item	Unit	Azerbaijani villages				Georgian villages			
		Atabey	Keremli	Plankend	Average	Shakhvetil	Gombori	Arashenda	Average
Age	years	53.8 (12.64)	52.0 (15.18)	54.7 (11.85)	53.5 (13.17)	59.1 (14.98)	59.5 (14.88)	58.0 (11.53)	58.9 (13.89)
Female	percent	11.3	12.2	7.7	10.6	8.8	23.1	8.2	15.5
Education									
Graduated from primary school	percent	0.0	2.4	0.0	0.7	5.9	3.8	0.0	3.1
Graduated from school	percent	74.2	65.9	79.5	73.2	61.8	55.1	34.7	50.3
Student in vocational school	percent	1.6	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Graduated from vocational school	percent	3.2	7.3	5.1	4.9	2.9	14.1	2.0	8.1
Graduated from college or technical school	percent	8.1	4.9	0.0	4.9	23.5	15.4	30.6	21.7
Student in university	percent	0.0	2.4	0.0	0.7	0.0	0.0	0.0	0.0
Graduated from university	percent	12.9	17.1	15.4	14.8	5.9	11.5	32.7	16.8

N = 303, Table displays percent of households or means. Standard deviation in brackets.

2. *Livestock, poultry and beekeeping*

Table S21. Supplementary data on livestock, poultry and beekeeping.

Item	Unit	Azerbaijani villages				Georgian villages			
		Atabey	Keremli	Plankend	Average	Shakhvetil	Gombori	Arashenda	Average
Households keeping livestock		100	100	100	100	100	100	100	100
Dairy cow	% of households	95	98	56	85	85	91	92	90
	Average (heads)	2.4 (1.58)	5.3 (3.42)	1.6 (1.33)	3.2 (2.77)	3.8 (3.75)	2.3 (1.44)	4.1 (9.56)	3.1 (5.69)
Ewe	% of households	56	44	79	59	35	58	31	45
	Average (heads)	20.4 (49.72)	15.4 (11.12)	9.5 (8.92)	15.3 (33.02)	6.2 (5.06)	7.6 (14.44)	15.4 (16.46)	9.0 (14.07)
Mother goat	% of households	26	39	8	25		9	6	6
	Average (heads)	8.5 (16.62)	4.5 (2.76)	11.3 (16.17)	6.9 (12.09)	0.0 (0.00)	1.9 (0.69)	1.7 (1.15)	1.8 (0.79)
Pig Sow	% of households	0	0	0	0	53	14	24	25
	Average (heads)					6.8 (9.38)	2.3 (1.19)	2.1 (1.44)	4.2 (6.62)
Horse	% of households	18	27	10	18	6	37	6	21
	Average (heads)	1.0 (0.00)	1.5 (0.93)	1.3 (0.50)	1.3 (0.67)	1.0 (0.00)	1.1 (0.31)	1.0 (0.00)	1.1 (0.29)
Donkey	% of households	0	5	5	3	3	6	10	7
	Average (heads)		1.5 (0.71)	1.0 (0.00)	1.3 (0.50)	2.0 (0.00)	1.0 (0.00)	1.0 (0.00)	1.1 (0.30)
Beekeeping	% of households	23	27	13	21	29	8	10	13
	Average (beehives)	3.4 (3.61)	3.3 (2.61)	2.8 (1.30)	3.3 (2.91)	5.1 (3.11)	3.0 (2.45)	4.2 (2.39)	4.3 (2.80)
Poultry keeping	% of households	95	95	97	96	76	83	96	86
Hens	% of households	92	95	97	94	76	82	96	85
	Average (heads)	12.2 (7.04)	26.5 (22.54)	7.9 (5.56)	15.1 (15.20)	18.2 (34.52)	11.2 (6.38)	32.2 (33.29)	19.2 (26.04)
Turkeys	% of households	18	29	26	23	12	6	43	19
	Average (heads)	2.3 (1.27)	6.9 (6.69)	2.2 (1.55)	3.9 (4.67)	4.0 (2.16)	3.0 (1.41)	8.0 (8.26)	6.7 (7.25)
Geese	% of households	45	61	62	54	6	5	4	5
	Average (heads)	5.5 (3.98)	7.4 (5.24)	8.9 (10.37)	7.2 (6.99)	3.0 (0.00)	4.5 (3.42)	4.0 (1.41)	4.0 (2.39)
Ducks	% of households	31	22	31	28	3	6	8	6
	Average (heads)	3.5 (1.26)	3.9 (1.96)	3.7 (2.31)	3.7 (1.75)	2.5 (0.71)	3.8 (3.70)	5.8 (3.30)	4.5 (3.31)

N = 303, Table displays percent of households or means. Standard deviation in brackets.

3. *Arable farming and use of fruits*

Table S22. Supplementary data on arable farming and use of fruits.

Item	Unit	Azerbaijani villages				Georgian villages			
		Atabey	Keremli	Plankend	Average	Shakhvetila	Gombori	Arashenda	Average
Arable farming	% of households	100	100	100	100	100	94	100	97
Home garden	% of households	100	100	100	100	100	91	98	95
	Average	0.3 (0.10)	0.4 (0.55)	0.3 (0.27)	0.3 (0.33)	0.4 (0.28)	0.3 (0.32)	0.3 (0.45)	0.3 (0.36)
Land plot	% of households	87	61	56	71	68	38	84	58
	Average	2.4 (1.24)	2.4 (1.45)	0.4 (0.35)	2.0 (1.43)	0.5 (0.33)	0.9 (0.81)	1.9 (2.63)	1.2 (1.90)
Hay meadow	% of households	77	54	54	64	65	71	14	52
	Average	1.0 (0.81)	1.8 (0.74)	0.3 (0.18)	1.0 (0.88)	0.6 (0.27)	1.0 (0.55)	0.7 (0.31)	0.9 (0.51)
Vineyard	% of households	0	0	0	0	0	3	71	22
	Average						1.2 (0.00)	1.5 (2.51)	1.5 (2.47)
Wheat cultivation	% of households	81	63	0	54	3	1	59	19
Potato cultivation	% of households	94	83	97	92	62	88	53	72
Crops	Crop species	5.5 (3.40)	7.0 (3.86)	6.3 (3.72)	6.2 (3.65)	8.0 (2.94)	6.6 (3.56)	8.8 (3.06)	7.6 (3.40)
Raspberry cultivation	% of households		37						
Use of fruits	% of households	84	90	95	89	100	94	98	96
Fruits used	Fruit species	3.8 (1.65)	4.9 (2.42)	4.0 (1.77)	4.2 (1.98)	5.9 (2.57)	4.7 (2.11)	5.5 (2.43)	5.2 (2.36)

N = 303, Table displays percent of households or means. Standard deviation in brackets.

4. *Off-farm income sources*

Table S23. Supplementary data on off-farm income sources.

Item	Unit	Azerbaijani villages				Georgian villages			
		Atabey	Keremli	Plankendi	Average	Shakhvetil	Gombori	Arashenda	Average
Off-farm income	% of households	77	88	74	80	71	79	88	80
	Off-farm income sources	1.15 (0.36)	1.72 (0.81)	1.59 (0.63)	1.44 (0.65)	1.33 (0.56)	1.61 (0.73)	1.58 (0.73)	1.55 (0.71)
Public employment	% of households	16	49	15	25	12	36	45	34
Permanent employment in private enterprises	% of households	2	0	0	1	3	3	0	2
Self-employment	% of households	6	5	10	7	9	4	8	6
Salaried seasonal work	% of households	16	20	13	16	6	23	24	20
Pension	% of households	47	66	54	54	50	58	59	57
Other state benefits	% of households	0	5	5	3	9	5	0	4
Other private benefits	% of households	2	7	21	8	6	0	2	2

N = 303, Table displays percent of households or means. Standard deviation in brackets.

Supplementary Material S24: Supplementary results of regression analyses

Table S25. Robust multiple OLS regression analysis for influential variables on household income in Azerbaijani case study villages.

Item	Reduced model 1	Reduced model 2	Reduced model 3	Reduced model 4	Full model 5
	Coeff (Robust Std. Err)	Coeff (Robust Std. Err)	Coeff (Robust Std. Err)	Coeff (Robust Std. Err)	Coeff (Robust Std. Err)
<i>Diversification</i>					
Diversification Index (HHI)	1483.758 (1553.218)	3303.445 (912.649)***	3096.246 (759.032)***	3114.928 (761.181)***	2021.195 (749.192)***
<i>Household assets</i>					
Land area owned by household		826.446 (69.338)***	823.767 (64.168)***	836.067 (65.337)***	755.766 (60.954)***
Livestock owned in Livestock units		193.728 (21.323)***	187.796 (27.633)***	187.696 (27.597)***	209.656 (20.188)***
Number of working age household members		14.346 (130.283)	53.363 (102.994)	33.801 (106.674)	87.981 (91.048)
<i>Additional activity variables</i>					
Presence of an off-farm income source (Dummy)			2438.100 (233.836)***	2441.926 (234.948)***	2799.037 (204.442)***
Presence of a social benefit income source (Dummy)			904.227 (229.301)***	903.456 (242.532)***	1139.356 (187.745)***
Semi-mobile livestock keeping (Dummy)			453.133 (299.792)	486.165 (297.816)	254.299 (284.971)
<i>Characteristics of household head</i>					
Age of household head				-6.728 (9.440)	-6.003 (8.749)
Gender of household head				22.275 (316.535)	-35.964 (256.609)
Education of household head				-43.152 (60.699)	-28.510 (53.077)
<i>Location variables</i>					
Scarce pasture resources (Dummy; Plankend=1)					904.676 (357.163)**
Remote location (Dummy; Atabey=1)					1846.470 (302.779)***
<i>Constant</i>	4733.975 (573.775)***	893.448 (544.283)	-694.680 (433.280)	-103.490 (765.786)	-1241.131 (627.215)*
<i>Model statistics</i>					
Observations	142	142	142	142	142
Prob > F	0.3411	0.0000	0.0000	0.0000	0.0000
R-squared	0.0069	0.6811	0.8308	0.8327	0.8830

Notes: displayed are coefficients and robust standard errors. Significance levels: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$

Table S26. Robust multiple OLS regression analysis for influential variables on household income in Georgian case study villages.

Item	Reduced model 1	Reduced model 2	Reduced model 3	Reduced model 4	Full model 5
	Coeff (Robust Std. Err)	Coeff (Robust Std. Err)	Coeff (Robust Std. Err)	Coeff (Robust Std. Err)	Coeff (Robust Std. Err)
<i>Diversification</i>					
Diversification Index (HHI)	3337.169 (1086.973)***	4457.033 (792.963)***	406.738 (475.793)	393.885 (499.923)	594.011 (532.039)
<i>Household assets</i>					
Land area owned by household		447.122 (59.295)***	215.508 (45.479)***	212.353 (46.492)***	205.806 (44.855)***
Livestock owned in Livestock units		161.323 (32.494)***	208.081 (20.416)***	205.578 (20.830)***	201.817 (20.656)***
Number of working age household members		-43.197 (140.287)	-121.662 (59.202)**	-134.701 (67.857)**	-110.684 (72.550)
<i>Additional activity variables</i>					
Presence of an off-farm income source (Dummy)			4310.909 (205.725)***	4297.675 (224.621)***	4252.788 (244.340)***
Presence of a social benefit income source (Dummy)			937.221 (183.034)***	901.987 (193.630)***	929.999 (191.569)***
Semi-mobile livestock keeping (Dummy)			481.756 (1386.632)	687.722 (1411.987)	746.431 (1353.411)
<i>Characteristics of household head</i>					
Age of household head				-2.800 (6.693)	-1.689 (6.824)
Gender of household head				230.231 (252.330)	174.753 (239.916)
Education of household head				-8.115 (35.395)	-19.862 (35.401)
<i>Location variables</i>					
Scarce pasture resources (Dummy; Arashenda =1)					414.467 (214.889)*
Remote location (Dummy; Shakhvetila =1)					281.700 (239.613)
<i>Constant</i>	2500.332 (520.235)***	331.443 (474.848)	-100.817 (313.818)	0.533 (675.205)	-242.113 (702.875)
<i>Model statistics</i>					
Observations	161	161	161	161	161
Prob > F	0.0025	0.0000	0.0000	0.0000	0.0000
R-squared	0.0694	0.5161	0.8937	0.8946	0.8975

Notes: displayed are coefficients and robust standard errors. Significance levels: *: p<0.1; **: p<0.05; ***: p<0.01