Survey implementation and qualitative findings

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Background

- Climate change is a global challenge affecting every individual, household, and community.

- The low-income economies are the most affected;

- In Ethiopia, frequent exposure to climate induced hazards, such as droughts, pose a major threat to the conditions of the rural households.

- Vast majority relying on the traditional agriculture, which is highly vulnerable to recurrent climate related hazards;

Background

- The country experienced number of drought episodes over the last three to four decades; some of which resulted in massive humanitarian crises and asset depletion;

- Thus, Ethiopia needs to adapt to climate change and achieve significant increases in agricultural productivity over the next decades, shielding the economy from severe climate shocks;

- It is with this sense PSI and UCPH-DERG launched collaborative research project to support the Government's proactive action providing evidence-based information

Purpose of survey

- The overall objective of the survey is to identify, evaluate, and compare the drivers of resilience to climate change in rural Ethiopia using different data sources;

- With ultimate aims to provide a sound evidence base information to help designing future policies in Ethiopia.

  - Analyse cover actions at the household level; explore effects of large-scale interventions; and also the roles of institutional factors and social networks.

Sampling

- A multi-stage systematic random sampling approach employed to draw sample woredas, sample kebeles and sample HHs from their respective lists.

- All woredas first stratified into agro-ecological zones (lowlands, mid-lands, highlands), then grouped by participation in 3 flagship programmes as well as non-program woredas.

- 77.5% woredas (31) are from flagship (programs) and the remaining 22.5% (9) are from non-program woredas (not covered by any of flagship program)

- From each woreda 50 HHs drawn from 3 Kebeles (2 beneficiary and 1 Non-beneficiary woredas)

- Survey covered 2,000 households and 40 Woredas from five regional states (Amhara, Oromia, Somali, Gambela and the Southern Nations, Nationalities and Peoples' Region (SNNPR)), and one City administration (Dire Dawa).

Sample woredas, kebeles & households by region

Table 1.1: Distribution of sample woredas and households, by region

Region	No. of Woredas	No. of Kebeles	No. of HHs
Amhara	11	33	550
Oromia	11	33	550
SNNP	13	39	650
Somali	2	6	100
Gambela	2	6	100
Dire Dawa City	1	3	50
Total	40	120	2,000

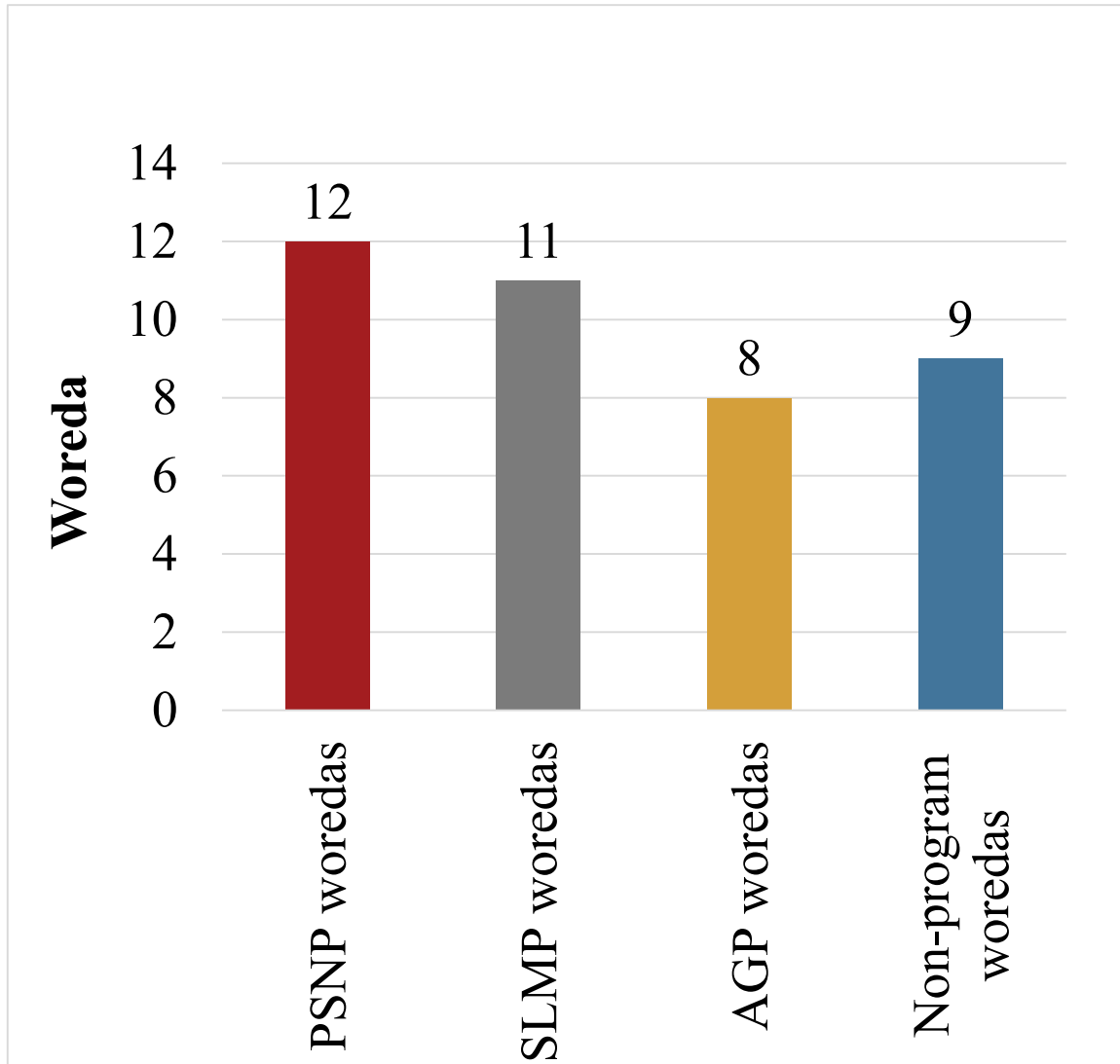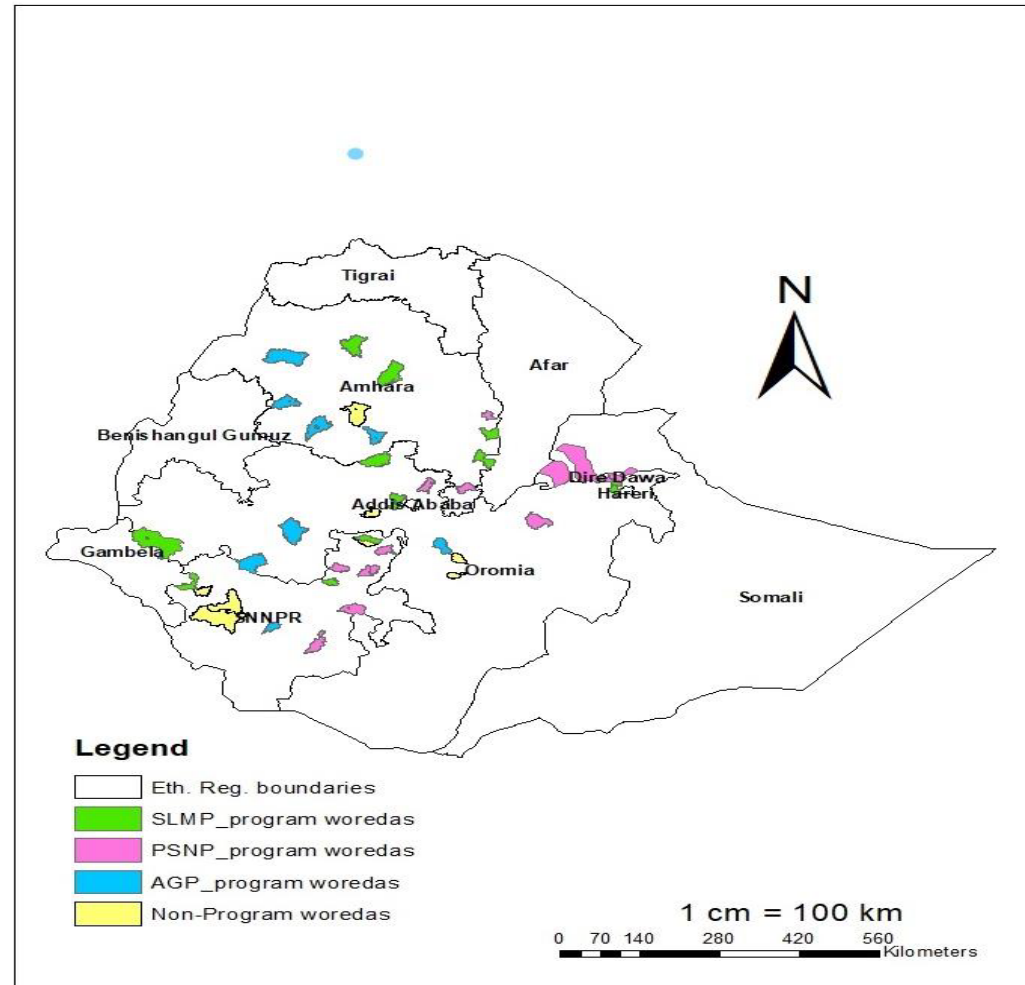# Sample woredas by Program & Non-program areas

Figure 1.2: Map of Woredas included in the sample

Household Survey Implementation

- Questionnaires were designed to collect quantitative and qualitative information from respondents;

- Field staff training and pre-tests were made

Household Survey Implementation

- Conducted field work adhering Covid-19 principles

- Data processing (data entry & cleaning) was facilitated by hiring a senior data manager

- Electronic data collection and transfer (CAPI) approach was made using CSPro

Qualitative survey implementation

- In addition to the quantitative household survey, we conducted qualitative interviews at the community level

- 4 Key Informants (KI) including Kebele committee member, DAs, farmers/elderly individuals, and Women representatives (40x4= 160KIs were interviewed)

  - Who have good knowledge of development interventions in their community/kebele

Qualitative findings

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Qualitative findings

- In addition to the quantitative household survey we also conducted qualitative interviews at the community level in the 40 woredas

- Using check list developed, key informants interview with:

  - Kebele administrative committee representative
  - Development Agents (Das)
  - Farmers' representative/knowledgeable individuals, and
  - women representatives were interviewd

- 160 KII (40 from each group were interviewed) and project site visits were made

Purpose of qualitative survey

- To understand the extent of climate change related hazards communities are facing

- To learn about micro-level innovative adaptation measures taken by household/community for building resilience towards CC.

Summary of Key Evidences

- Although challenges might vary with program area, agro-ecology, and by type of respondent (age, sex) etc. However, here we considered the most frequently expressed challenges only by KIs.

  - Unpredictable rain-fall pattern (start late, end early, too much or too little rain, erosion)

  - Increasing temperature level, crop failure

  - Animal feed shortage, dwindling grazing land, water shortage both for human and animal use

  - Invasive locust, occurrence of unknown human and animal disease; overflow of major rivers (barro), frost (Somali – Jigiga)

Climate change adaptation practices as expressed by KIs

- Changing crop variety - cultivating crops that increase soil fertility and productivity,

- Soil and water conservation. irrigation use

- Diversifying of crop, livestock feed, crop rotation , intercropping, terracing

- Compost and manure processing

- Change in the cropping date

- Eating roots and tubers, hunting wild animals

- Using water pumps for vegetables production

Why some households are more resilient compared to others?

Families who practice/own/have access to:

- Climate smart agriculture, crop rotation, intercropping, terracing

- Apply compost and manure, access to irrigation

- Farmers produce drought resistant crops (e.g., cassava & enset)

- Cultivating crops that increase soil fertility

- Cash crop, engage in non-farm activities

- Own larger land size & livestock holding

- Receive remittance, habit of hard working

Innovative actions by flagship program woredas

Respondents expressed mixed views – the programs contribution for resilience varies with level of implementation management

(i) AGP Woredas

- Contributed for development of modern irrigation, plant nursery site, cattle crash, artificial insemination (AI) service, provision of poultry to poor households, construction of road, market center and warehouses

- **Positive outcomes**: increased productivity, asset holding, income, raised food security, contributed for reduction in soil erosion, improved market access

- But its contribution much visible in Amhara woredas but not in Basketo

Dabe Small scale irrigation canal (river diversion

Cabbage and wheat cultivated using Dabe Small scale irrigation project

Model pig farming (Godere district Gambela)

Root and tuber crop consumption (Taro)

Innovative actions by flagship program woredas

(ii) SLMP Woredas

- Unanimously expressed it has brought visible contribution in environmental conservation (e.g. Limu Sekka), protection of soil erosion, rehabilitation of denuded land,
- Monthly cash transfer, providing goat, promotion of CSA, provision of equipment's

- The main engagement of the program were
  - Sustainable land water management
  - Adopting drought resistant crops
  - Organizing by group and helping the poorest of poor house holds

SLMP in Muhurna Aklil woreda (Gurage zone)

Mulching farms to hold moisture ion

New high yield potato Varity

Adopted apple seed Varity

SLMP Woredas

New variety of barley planted using minimum tillage

Land and water management

Using crop resurge for improving soil fertility

Fodder saving

Fetching drinking water

SLMP Woredas

Area closure at community level
(Silti woreda, Gurage zone)

Modern Beehives Given by
SLMP at Berfeta Lameffa

PSNP Woredas

- The GoE launched PSNP in February 2005 with the objectives to reduce household vulnerability, improve resilience to shock and promote sustainable community development in food insecure areas of rural Ethiopia

- 4 phases since 2005 - demonstrated positive impacts in terms of household and community asset building

- Impact on resilience building not visible as beneficiary HHs are the poorest of poor, they use transfer for immediate consumption

Non-program woredas

- **Mentishasha** (lowland): Due to squeezing resource base for traditional pastoral practice, they are gradually transforming from pastoral lifestyle to agropastoral (settled), mixing their production system.

- Mentishasha started to produce highly productive banana variety introduced from Arbaminch, transformed their livelihood – are better off today compared to pastoral life.

- **Bench shako** (mid-altitude/agriculture) – introduction of new banana variety from Arbaminch assisted livelihood diversification

Implications on HH resilience building to climate change

1) Investing on agricultural technologies that enhance productivity

2) Scaling up innovative practices at micro, community and household levels

3) Invest more on livestock feed and water resources

4) Sustainable natural resource management (afforestation, area closure, enhancing soil fertility and moisture)
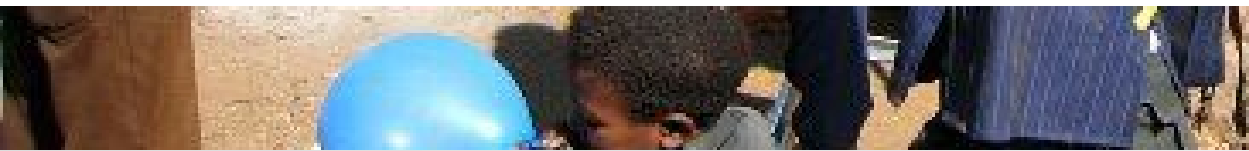
5) Expansion of irrigation services with different scales

Demography, wealth and consumption

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Demography

- The average household size was 5.5 individuals, with an almost equal distribution of males and females; however, only 18 percent of the households interviewed were headed by females.

- The households in the sample were primarily engaged in agriculture, and almost half of household heads were illiterate.

Table 2.1: Household characteristics

	Mean	SD	Min	Max
HH size and composition				
Household size	5.5	2.2	1.0	16.0
No. of children < 5	0.7	0.8	0	5
No. of elderly 60 +	0.2	0.5	0	3
HH characteristics				
Age	45.9	13.3	20.0	95.0
Female	0.2	0.4	0.0	1.0
Married	0.8	0.4	0.0	1.0
Widowed	0.1	0.3	0.0	1.0
HH education and occupation				
Illiterate	0.5	0.5	0.0	1.0
Some primary	0.2	0.4	0.0	1.0
Primary completed	0.1	0.3	0.0	1.0
Some secondary	0.1	0.3	0.0	1.0
Beyond secondary	0.0	0.2	0.0	1.0
Adult literacy programme	0.0	0.2	0.0	1.0
Religious	0.0	0.1	0.0	1.0
Occupation: agriculture	1.0	0.2	0.0	1.0
Observations	2,000			

Source: Own computation based on RCC Survey 2021

Education

Figure 2.1: Head education, by gender

Figure 2.1: Head education, by gender

Category	Male	Female
Illiterate	42.4	79.8
Some Primary	31.0	11.5
Primary Completed	9.1	3.3
Some Secondary	8.6	2.5
Beyond Secodary	1.7	0.5
Adult Literacy Prog.	5.0	2.5
Religious	2.2	

percent

Male   Female

Figure 2.2: Education of HH members, by gender

Figure 2.2: Education of HH members, by gender

Categories: Illiterate, Primary, Primary Completed, Secondary, Beyond Secondary, Adult Literacy Program, Religous

percent

Male   Female
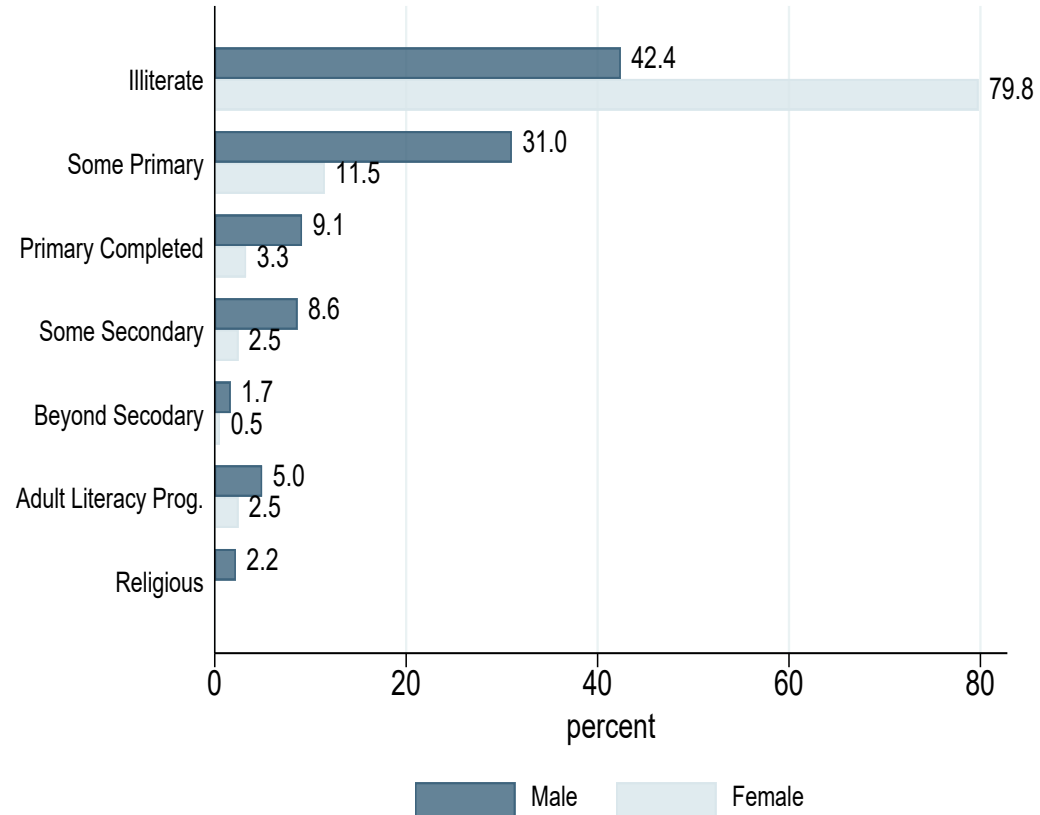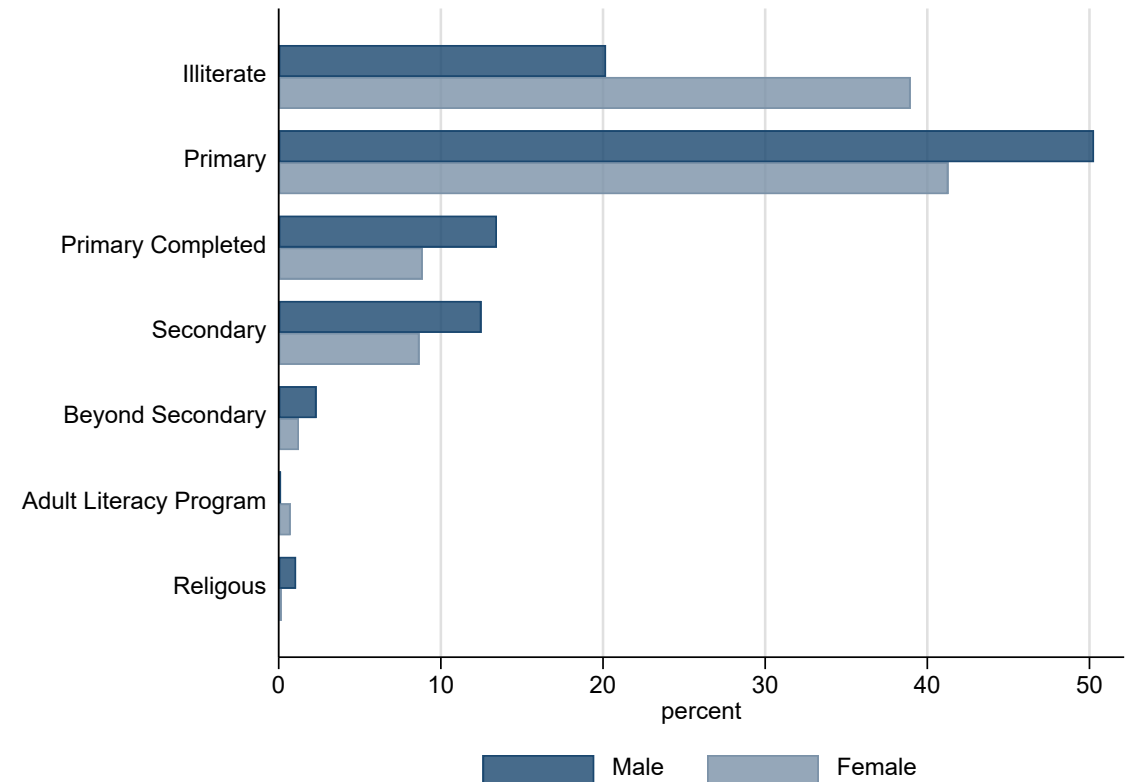
Wealth and living conditions

- A typical dwelling of households in our sample is constructed by mud walls and metal roof

- Half of households have access to piped water, and half use solar energy as their main lighting source
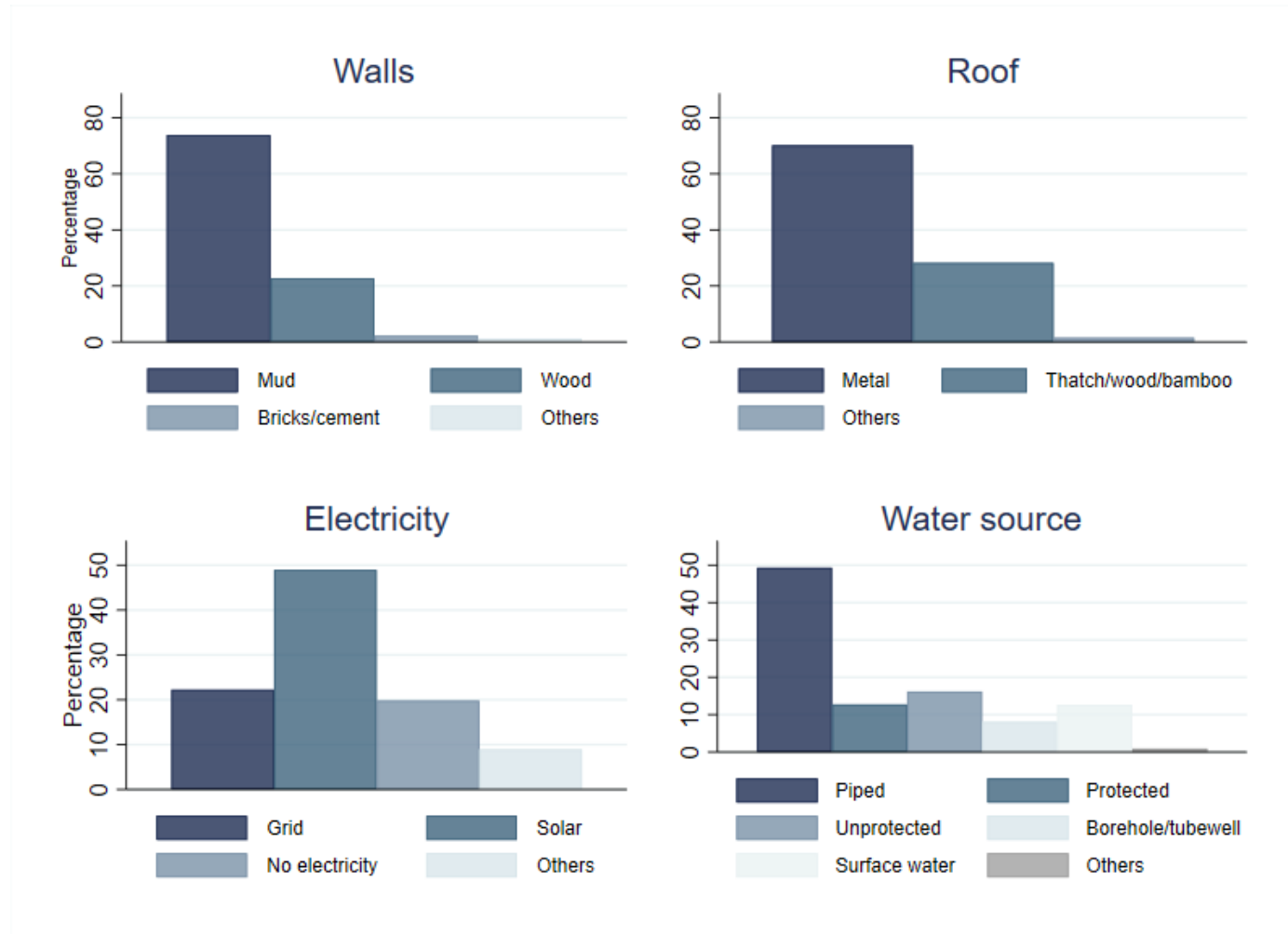
Consumption

- Consumption expenditures split evenly between food and non-food items

- Cereals/grains were the most consumed foods, followed by beverages and stimulants. Meat was the least consumed food group, followed by vegetables and fruits.

- The three most important non-food expenditure items were fees and contributions, clothing, and saving deposits.

Figure 4.1: Consumption of proportion of food groups as a percentage of total diet (grams)
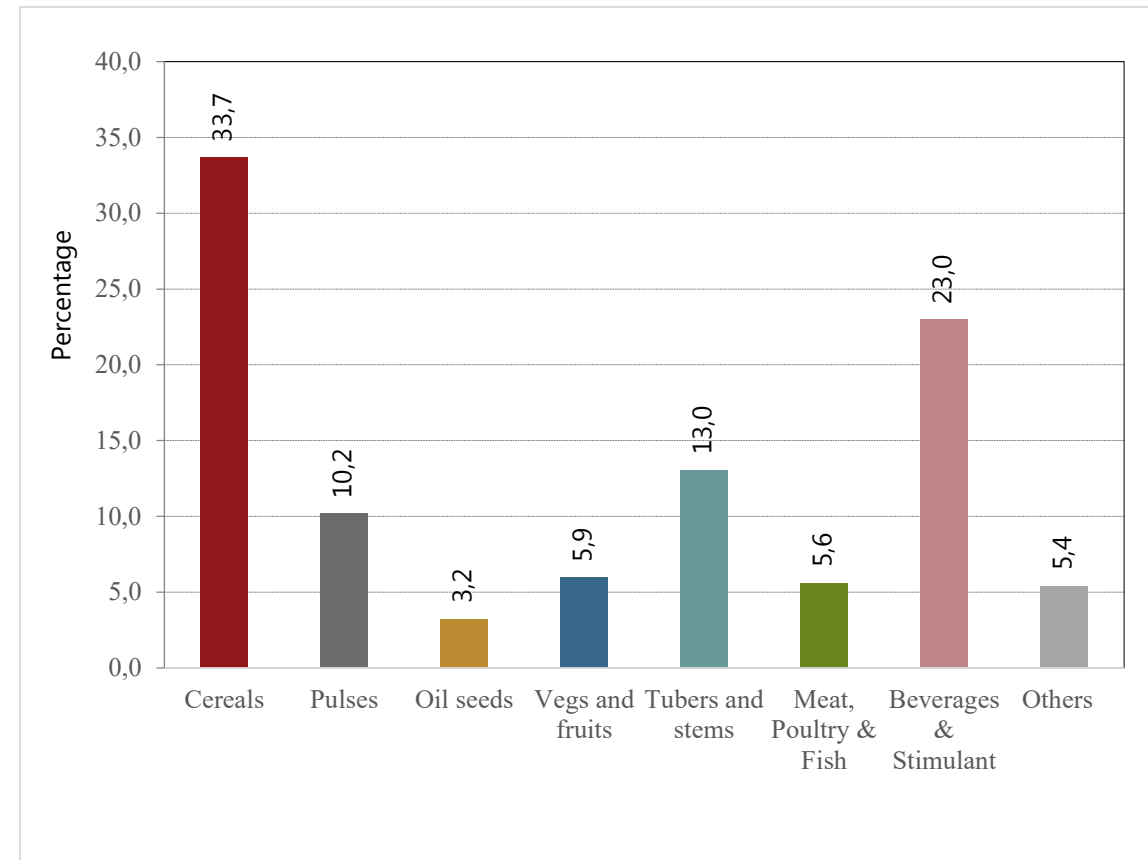
Highlights

- Sampled households are almost exclusively earning their income from agriculture

- Education levels are low with 20 % of male and 40 % of females being illiterate

- Housing conditions generally poor, but solar panels are widespread

- Half of income spent on food items

Agriculture: Crop production and technology

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Highlights

- Mixed farming (both crops and livestock) system is common in the study areas:
  - Each household having an average of three parcels of land.
- The use of extension services, irrigation, and improved seeds was relatively rare for both harvest seasons.
- Production of cereals is dominant
- Less commercialized
- Large share of the production was consumed.

Summary of land-holding by region

Land-holding characteristics	Amhara	Oromia	Somali	SNNPR	Gambela	Dire Dawa	Full sample
Has land-holding right (%)	94.0	97.8	61.0	92.9	100.0	84.0	93.1
Area of land-holding (ha)	0.7	1.7	1.6	0.9	1.3	0.4	1.1
Land-holding change experience (%)	17.3	28.2	1.0	12.3	48.0	6.0	19.1

Parcel size and average number of parcels
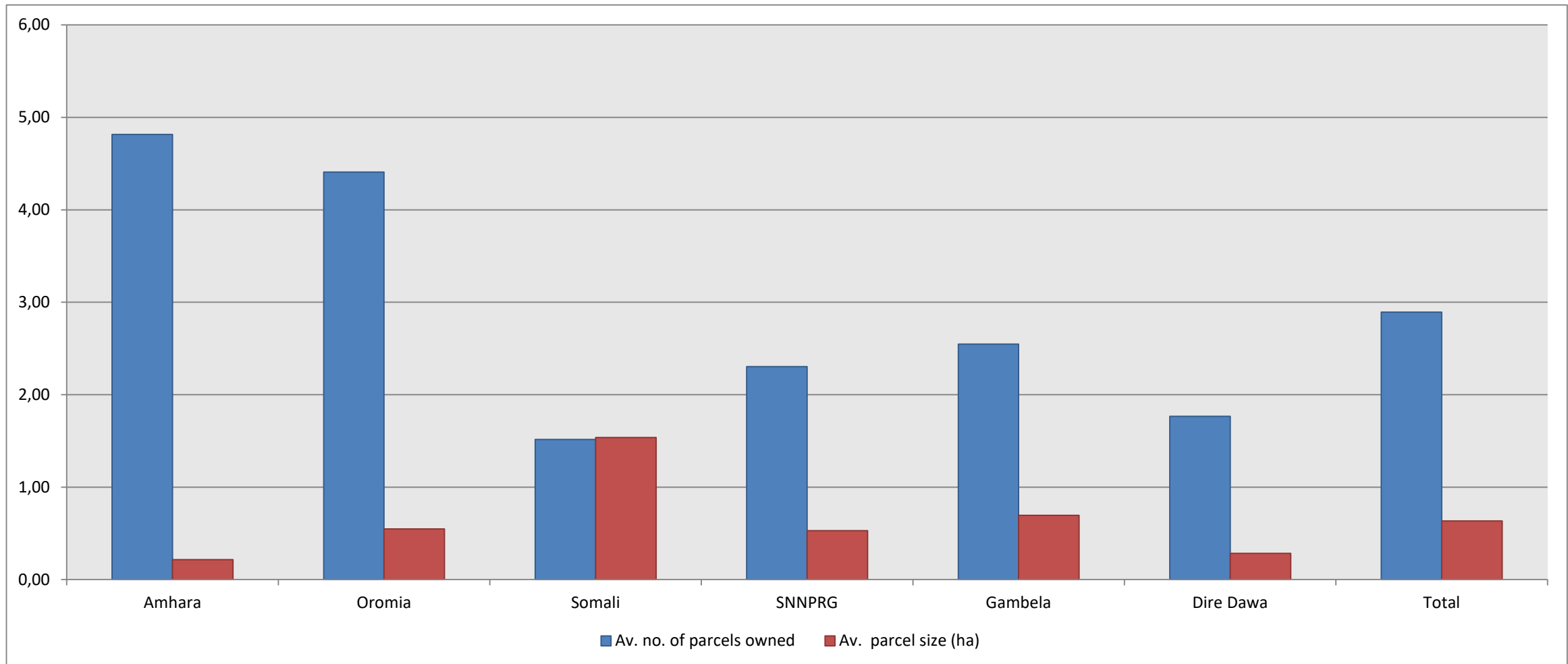
Parcel characteristics

Parcel characteristics		Amhara	Oromia	Somali	SNNPR	Gambela	Dire Dawa	Total
Soil type (%)	Dark soil	42	58	76	43	48	11	46
	Red soil	40	37	21	54	41	18	35
	Other soil type	17	5	2	02	11	60	17
Soil quality (%)	Good (Lem)	46	37	38	31	35	8	32
	Fair (Lem-Tef)	40	56	53	57	60	60	54
	Poor (Tef)	14	8	09	12	5	32	13
Slope of plot (%)	Flat	59	45	63	38	44	15	44
	Medium	31	46	30	44	52	54	43
	Steep	9	9	7	18	4	31	13
Plot distance (minutes)		18.5	13.1	24.1	11.5	11.3	24.6	17.2

Ownership, management and output control by gender

	Amhara	Oromia	Somali	SNNPRG	Gambela	Dire Dawa	Total
Plot owner							
Men	32.68	12.81	61.22	15.02	4.33	1.59	20.89
Women	5.63	5.66	15.31	9.82	9.39	14.29	7.4
Jointly	61.69	81.53	23.47	75.17	86.28	84.13	71.71
Plot manager							
Men	18.08	17.26	64.8	13.12	3.25		16.85
Women	3.45	3.43	12.76	8.23	7.94	14.29	5.42
Jointly	78.47	79.3	22.45	78.64	88.81	85.71	77.73
Output control							
Men	17.95	15.96	66.33	12.99	5.78		16.52
Women	4.15	4.04	16.33	9.82	8.3	14.29	6.42
Jointly	77.9	80	17.35	77.19	85.92	85.71	77.06

Farm size, and agricultural inputs

Plot characteristics	Meher season					
	Amhara	Oromia	Somali	SNNPR	Gambela	Dire D.
Area cultivated (ha)	0.7	1.8	2.0	1.0	1.4	0.4
Improved seeds (kg/ha)	8.8	49.4	1.5	7.6	1.0	0.0
C2 or C3 seeds (kg/ha)	3.2	15.8	0.3	2.0	0.0	0.0
Traditional seeds (kg/ha)	56.4	150.8	16.3	21.5	11.1	17.2
Fertilizer: DAP (kg/ha)	138.0	136.1	36.4	33.3	0.2	9.1
Fertilizer: Urea (kg/ha)	104.2	55.5	40.3	25.4	0.1	316.6
Manure (kg/ha)	441.3	410.7	23.3	277.1	8.0	500.2
Compost (kg/ha)	190.30	88.41	9.12	11.96	0.36	12.72
Irrigation use (%)	9.53	13.27	45.41	1.41		3.17
Agro-chem use (%)	37.88	58.42	8.16	16.47	6.14	3.17

Adoption of sustainable land management practices

	Regions					
	Amhara	Oromia	Somali	SNNPR	Gambela	Dire D.
Terracing	40.0	50.0	60.0	30.0	40.0	90.0
Water catchments	40.0	10.0	30.0	0.0	30.0	20.0
Contour ploughing	50.0	50.0	30.0	20.0	20.0	20.0
Planting grass	0.0	0.0	10.0	10.0	10.0	0.0
Restrict postharvest grazing	10.0	10.0	30.0	10.0	0.0	0.0
Using natural fertilizer	30.0	30.0	30.0	50.0	10.0	80.0
Crop rotation	70.0	60.0	20.0	30.0	70.0	40.0

Production, consumption and market participation

	Cereals	Pulses	Oil seeds	Vegetables	Fruits	Root crops	Cash crops	Spices
HHs producing (%)	87.6	25.6	2.85	11.4	22.25	21.5	27.95	1.8
Consumption share (%)	52.4	10.7	1.0	4.3	10.6	8.7	11.4	0.6
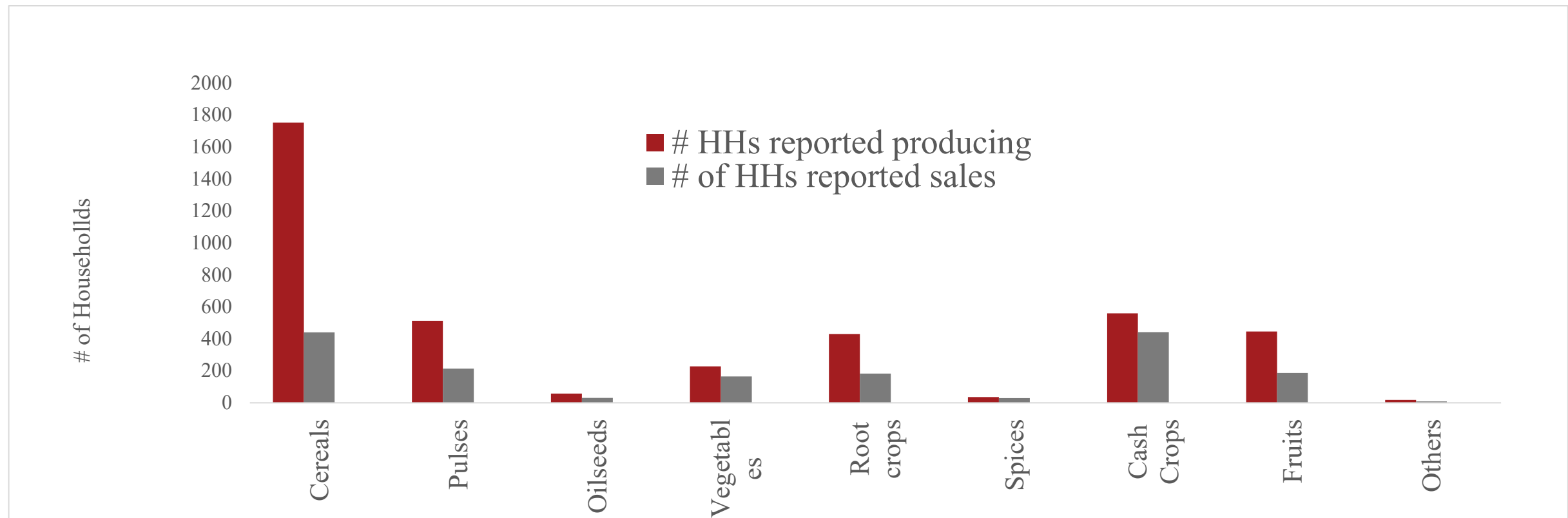
Agriculture: Livestock ownership, sales, and income

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Livestock

- Livestock rearing is a major source of livelihood in both the high- and lowland (pastoral) regions in Ethiopia.

- The mixed farming system is dominant in the highlands areas (89% households); minimizes risk- helps to cope with weather, disease and crop prices risks.

Livestock ownership creates:

- Access to high value products (meat, milk, butter, eggs)
- Augments family cash income from dairy products, eggs, chickens; sales of small ruminants
- Employment, food and nutrition security, etc.

Livestock

Ownership per household varies across regions:

Households' Cattle Ownership by region (Average # per HH)

Legend: ■ Bulls and Oxen   ■ Young bulls   ■ Cows   ■ Heifer   ■ Calves

Regions: Amhara (1,46), Oromia (2,26), Somali (2,84), SNNPR (1,55), Gambela (1), Dire Dawa (1,46)

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Households' Sheep & goat and poultry Ownership by region (Average # per hh)

Sheep, goat, poultry

Households' Equines ownership by region (Average # per hh)

Equines
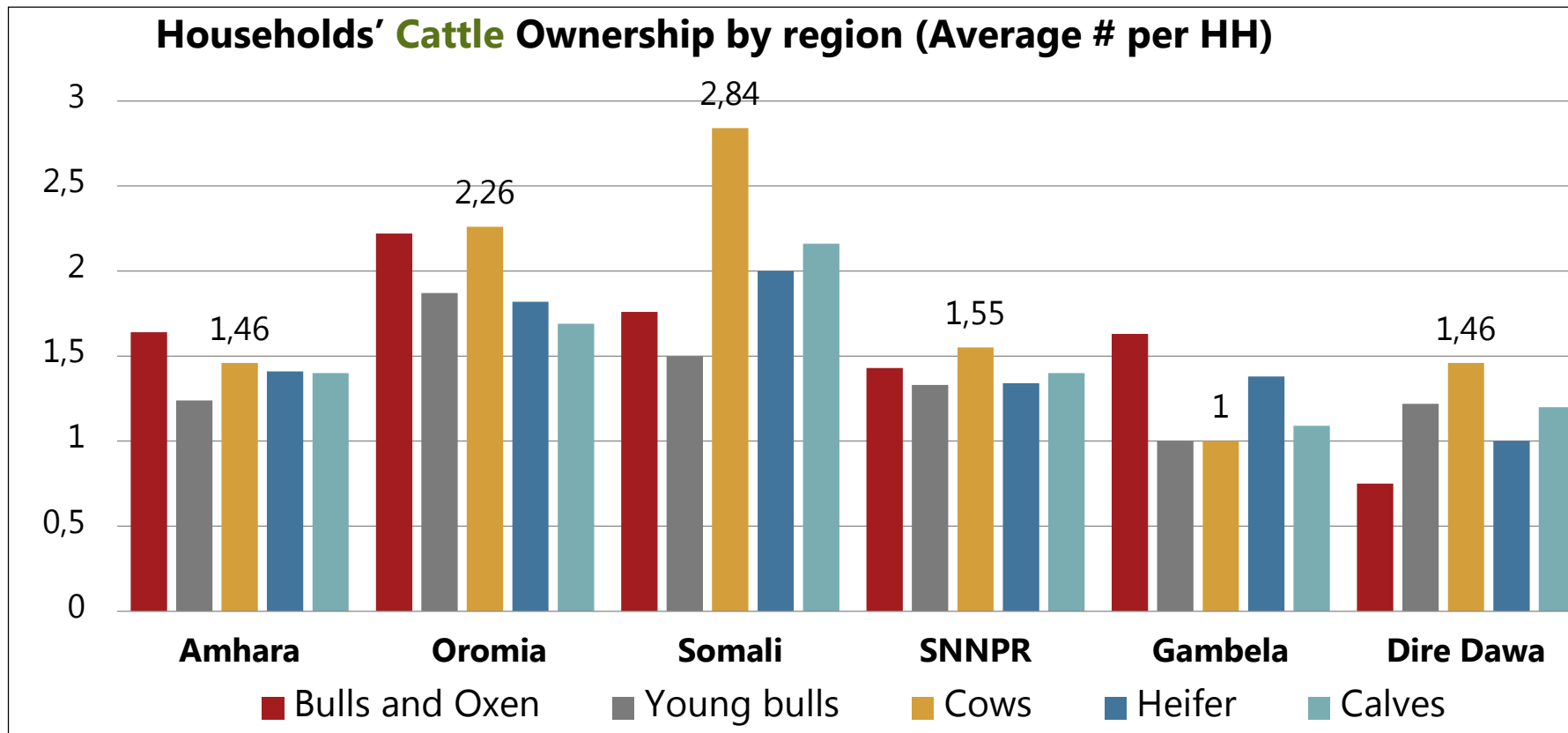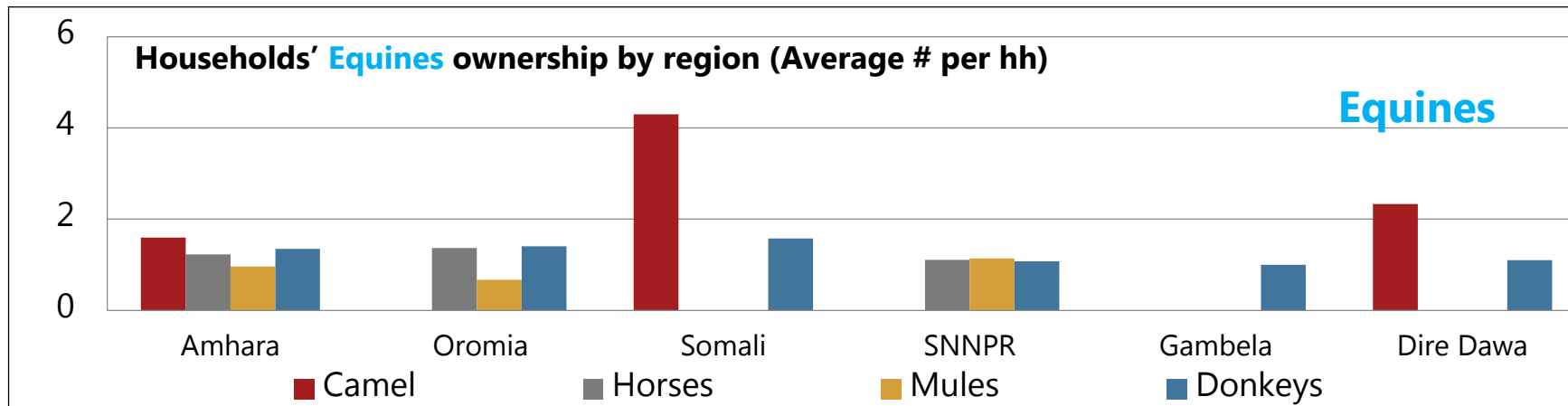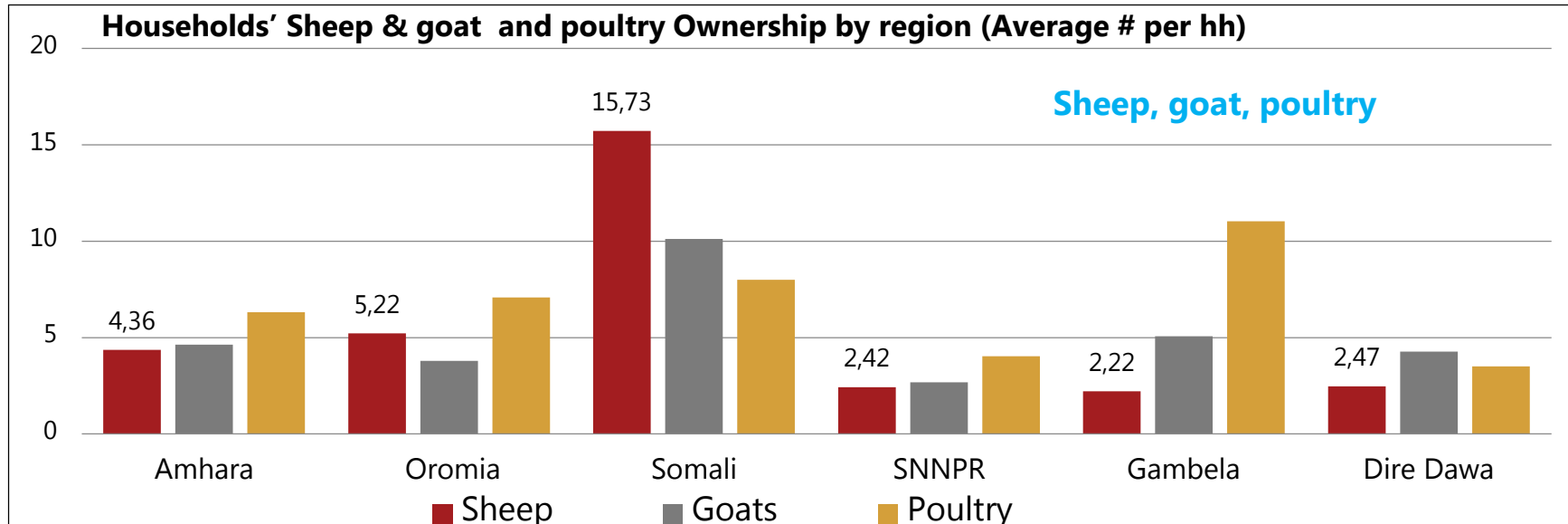
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- Of the responding 480 households, 264 (55%) had sold livestock to decrease the risk of drought.

- Households generate income often from sale of oxen/ bull, cow, sheep & goat, donkey, poultry. Income varies by region

Sample households' Average Income from the sale of Oxen/Bulls, Cows, Sheep, Goats, Donkeys (ETB '000, Annual)

Region	Oxen & Bull	Cow	Sheep	Goat	Donkey
Amhara	16,11	10,6	5,6	4,84	1,9
Oromia	21,72	13,9	7,5	5,89	2,7
Somali	35,5	9,2	9,1	9,73	
SNNPR	10,91	5,5	0,9	1,2	
Gambella	11,83	12,0	4,6	4,23	
Dire Dawa	17,33	7,4	2,3	3,93	
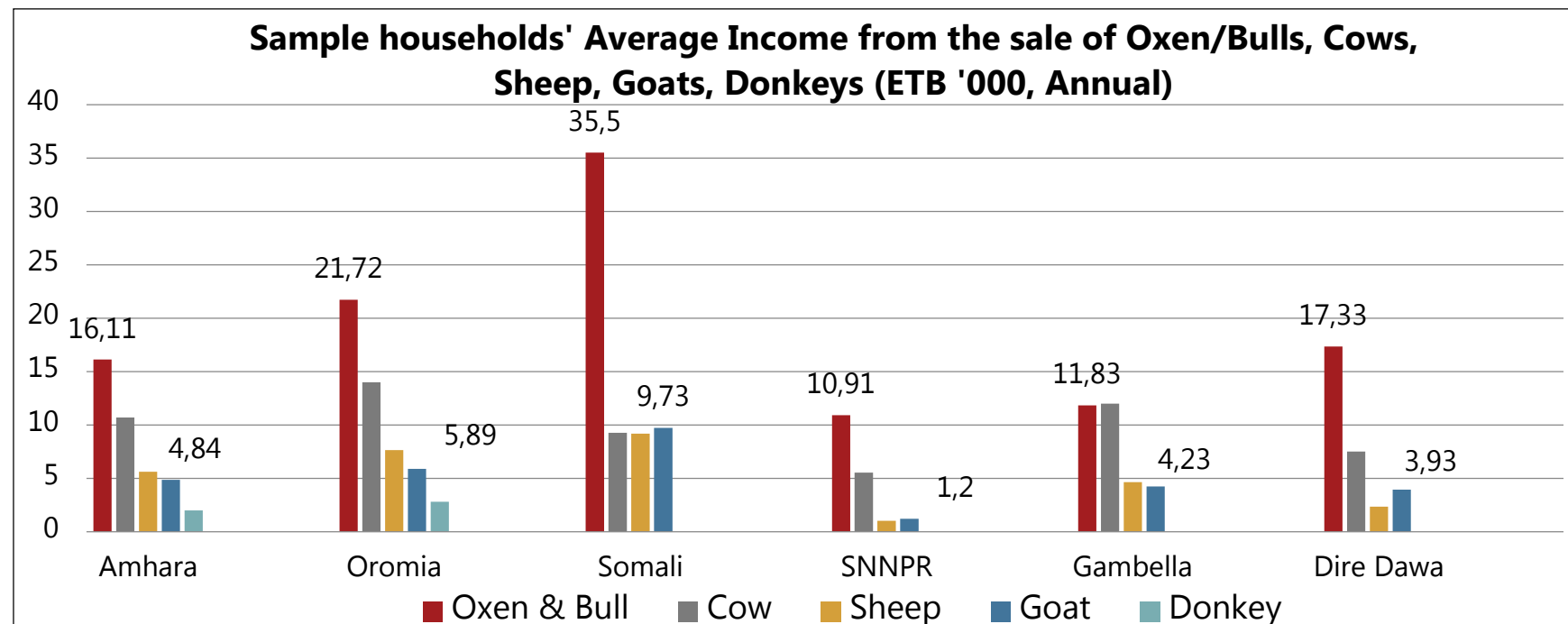
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- The current availability of grazing land is poorer than in the past.

Availability of grazing compared to the past
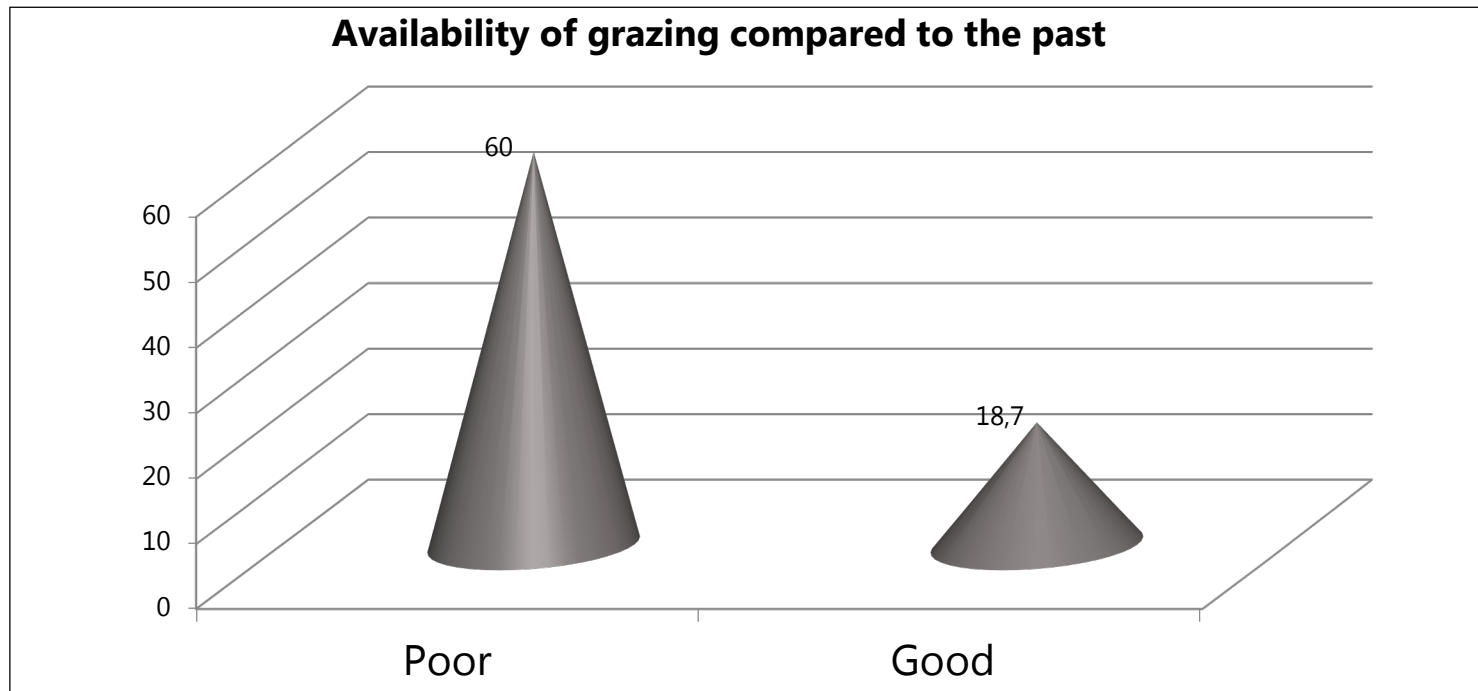
- Only 246 households (12.3%) reported they use modern feed.

Apiculture

Ownership of beehives by type

Percentage of households who own beehives by beehive type

- Traditional
- Transitional
- Modern

10,1
11,6
78,3

Ownership by region

Number of Beehives owner households (by region)

Region	Value
Amhara	65
Oromia	76
Somali	2
SNNPR	61
Gambela	18
Dire Dawa	1
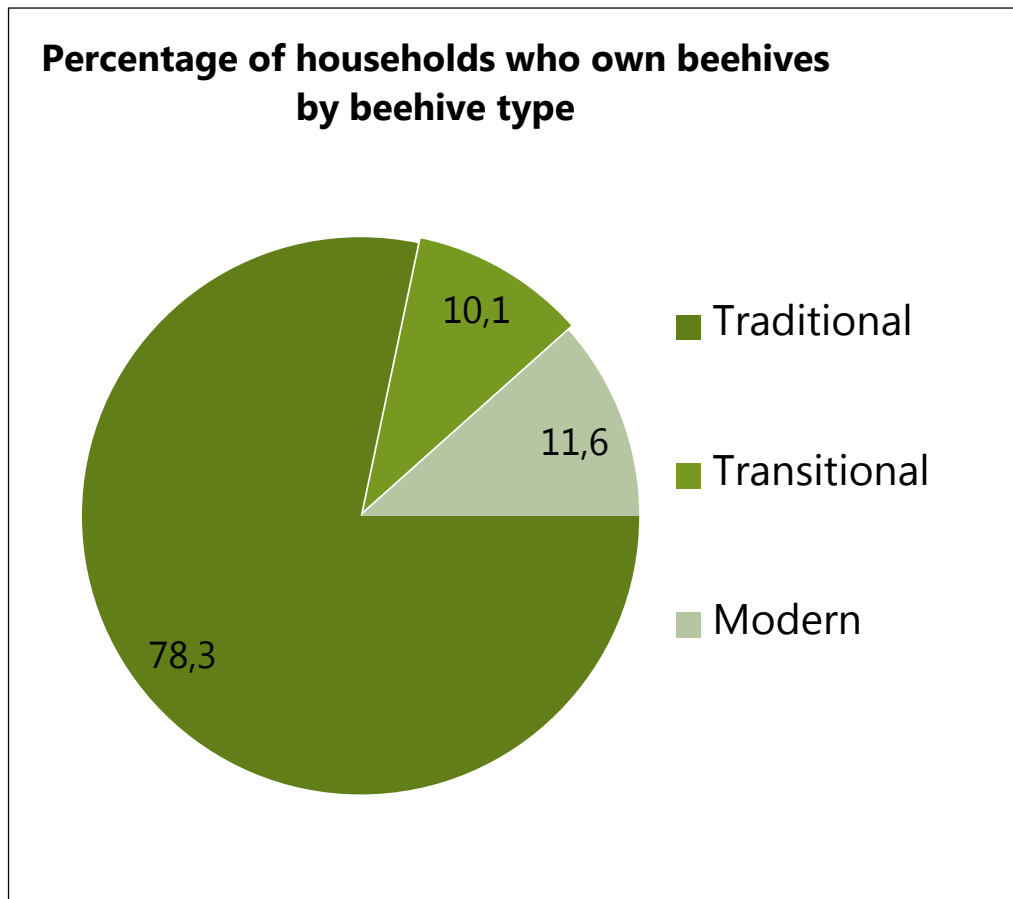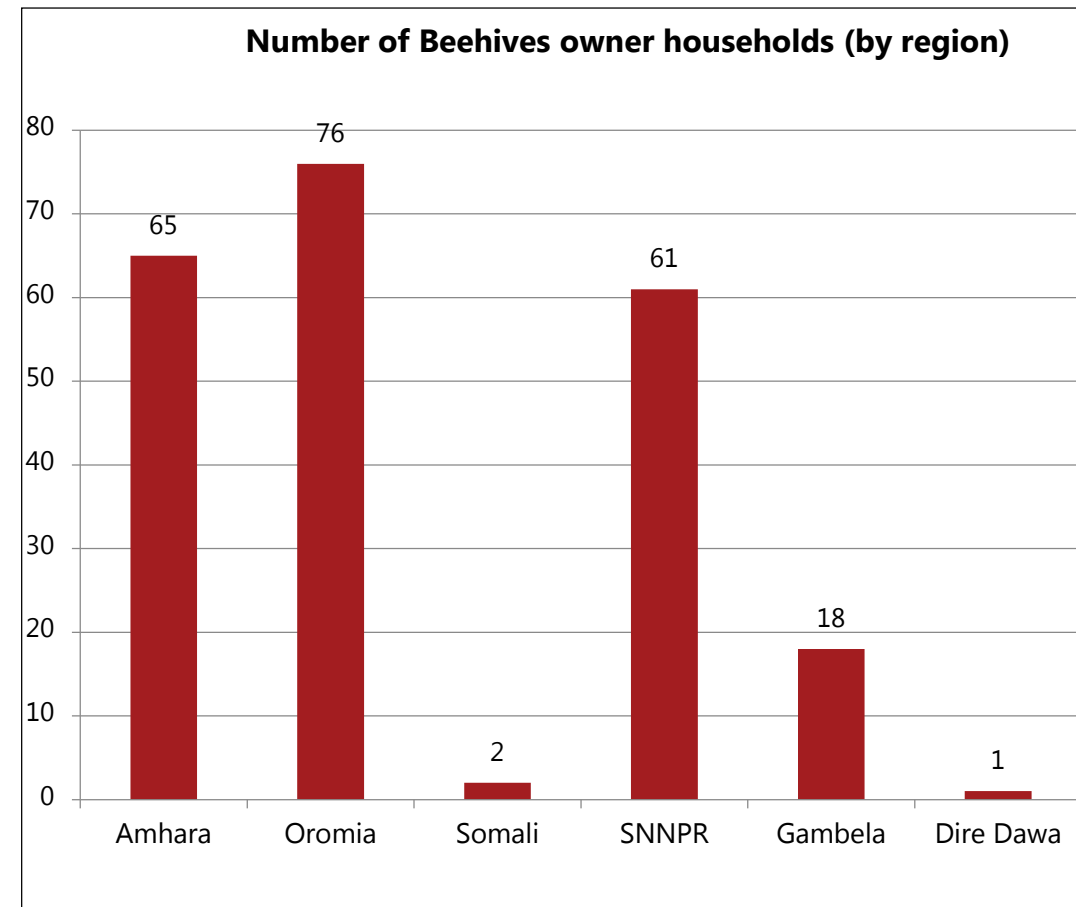
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Average Income from Honey Sold in ETB (by Region)

Bar chart showing Average earning (in ETB) by region:
- Amhara: 5.129
- Oromia: 5.569
- Somali: 1.200
- SNNPR: 1.755
- Gambela: 4.699
- Total: 4.315

Legend: ■ Average earning (in ETB)
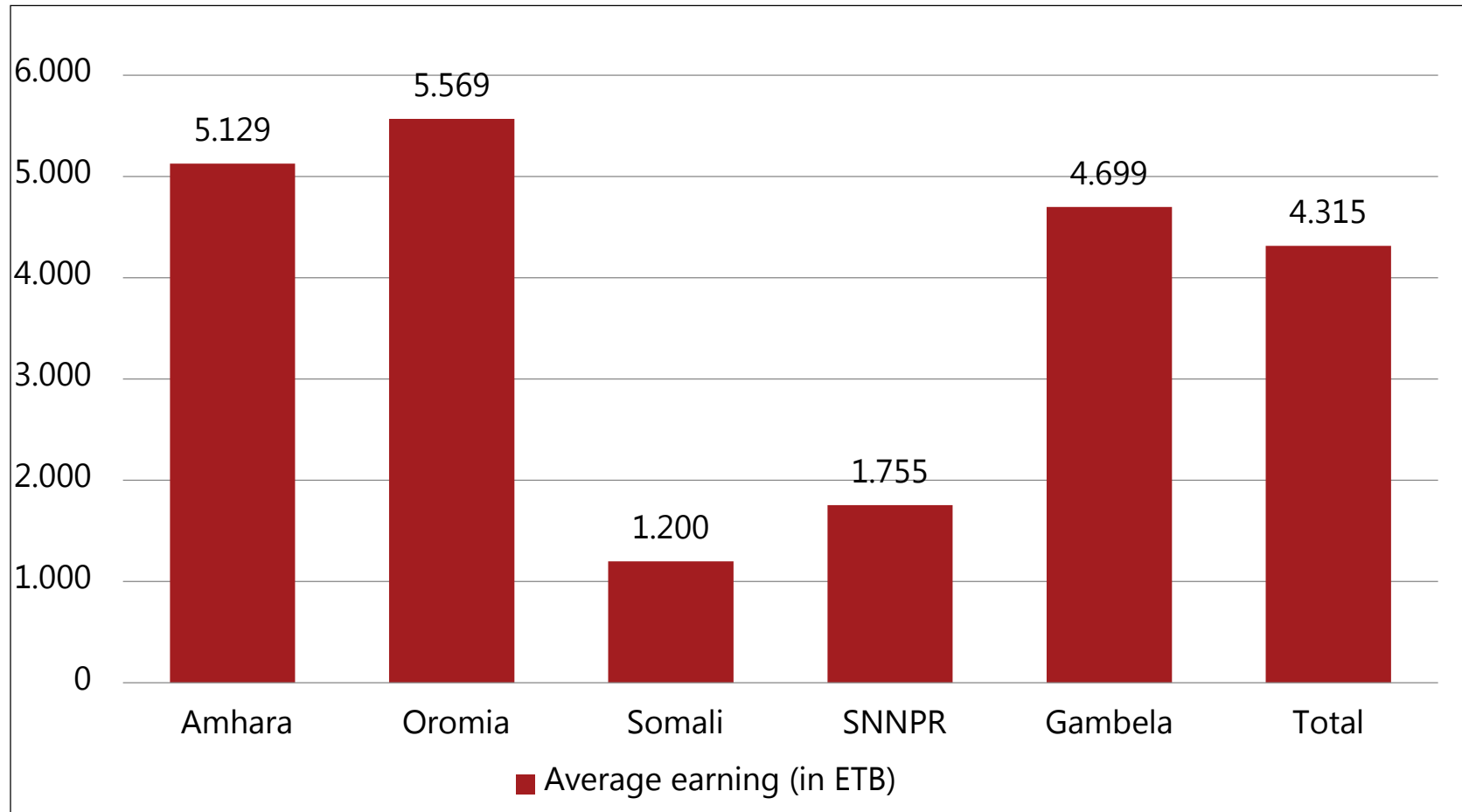
Long-term adaptive capacity of livestock

- As long-term adaptive or resilience capacity, households were asked whether they started to use various practices:

Long-term adaptive or resilience capacity used by sample HHs

Practice	Value
Mixing crop and livestock prodcution	50,0
Decreasing the # of livestock	25,7
Increasing the # of livestock	16,7
Changing from crop to livestock	6,0
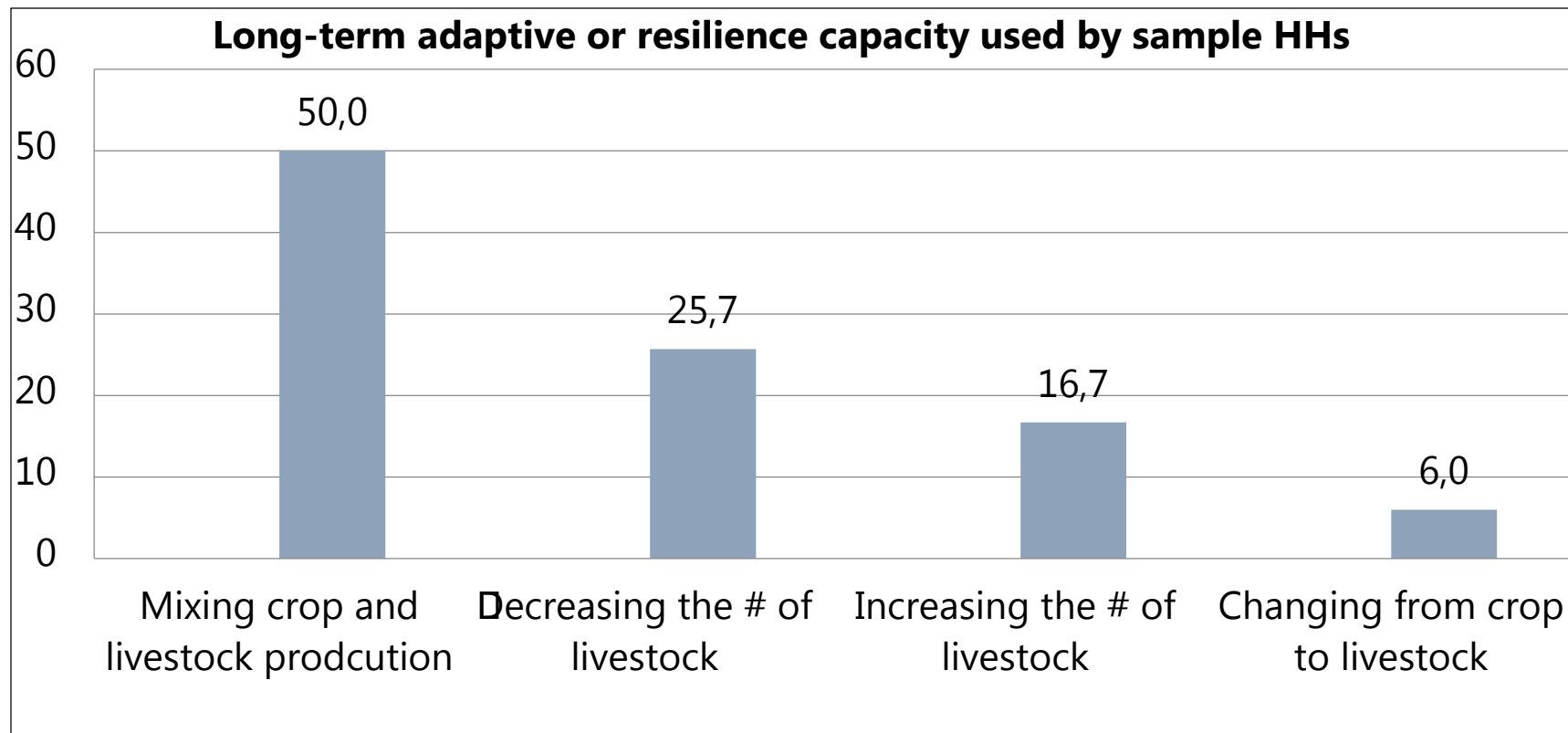
Key messages

- Livestock is a source of livelihood in highland & pastoral Ethiopia

- The mixed farming is dominant in the highlands (89% households); helps cope with adverse weather(mainly drought), disease and prices risks of crops.

- Livestock ownership:

  o Gives access to high value products (meat, milk, eggs, butter, honey); food and nutrition security, etc.

  o Augments cash income from dairy products, sales, honey, etc.

  o Creates employment (e.g. requires more labour), apiculture [the landless].

- However, poor availability of grazing land compared to the past is reported by 60% of households; only 19% as 'good.' Only 13% households use modern feed.

- Long-term resilience capacity, households use some practices

  o Mixed farming;
  o Decreasing or increasing the number of livestock,
  o Changing from crop to livestock

Non-farm activities

Dr. Hailu Elias
AAU

Engagement in Non-Farm employment

- Engagement in Non-Farm employment (NFE) is an important strategy for complementing farm income;

- 28 % or 557 HHs reported;

- Selling processed food and anything on the street account for 52%

- Average annual income from non-farm enterprises is **ETB 16,183** with high variation across households.

Figure 1: % of HHs engaged in non-fmr activities

- Household-owned shop 12%
- Barber 1%
- Transport service (motor bicycle, bajaj 3%
- Other (specify) 28%
- Selling anything on a street or in a market 20%
- Selling any processed food 36%
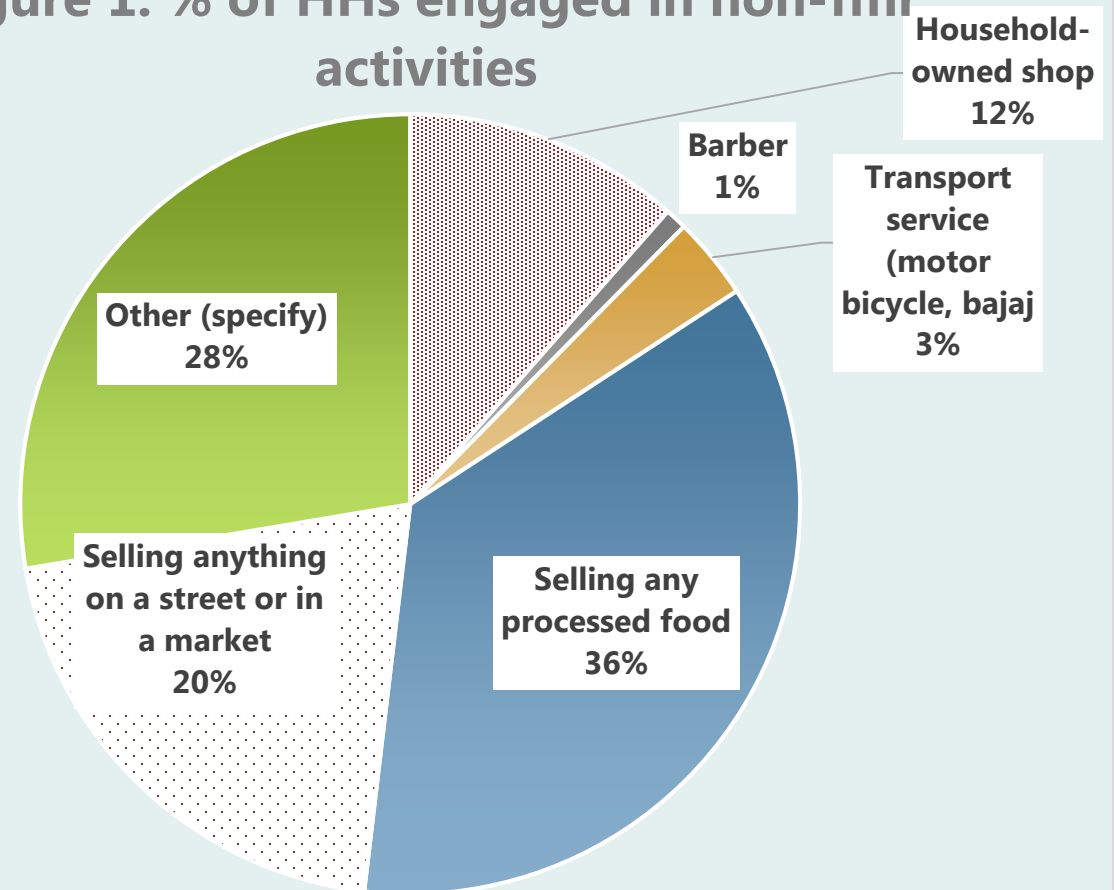
Engagement in Non-Farm activities by region

- Most households in Oromia are engaged in selling processed foods followed by SNNP and Amhara.

- Selling things such as firewood, charcoal, construction timber etc. ranks the second in the list for Amhara, SNNP and Oromia
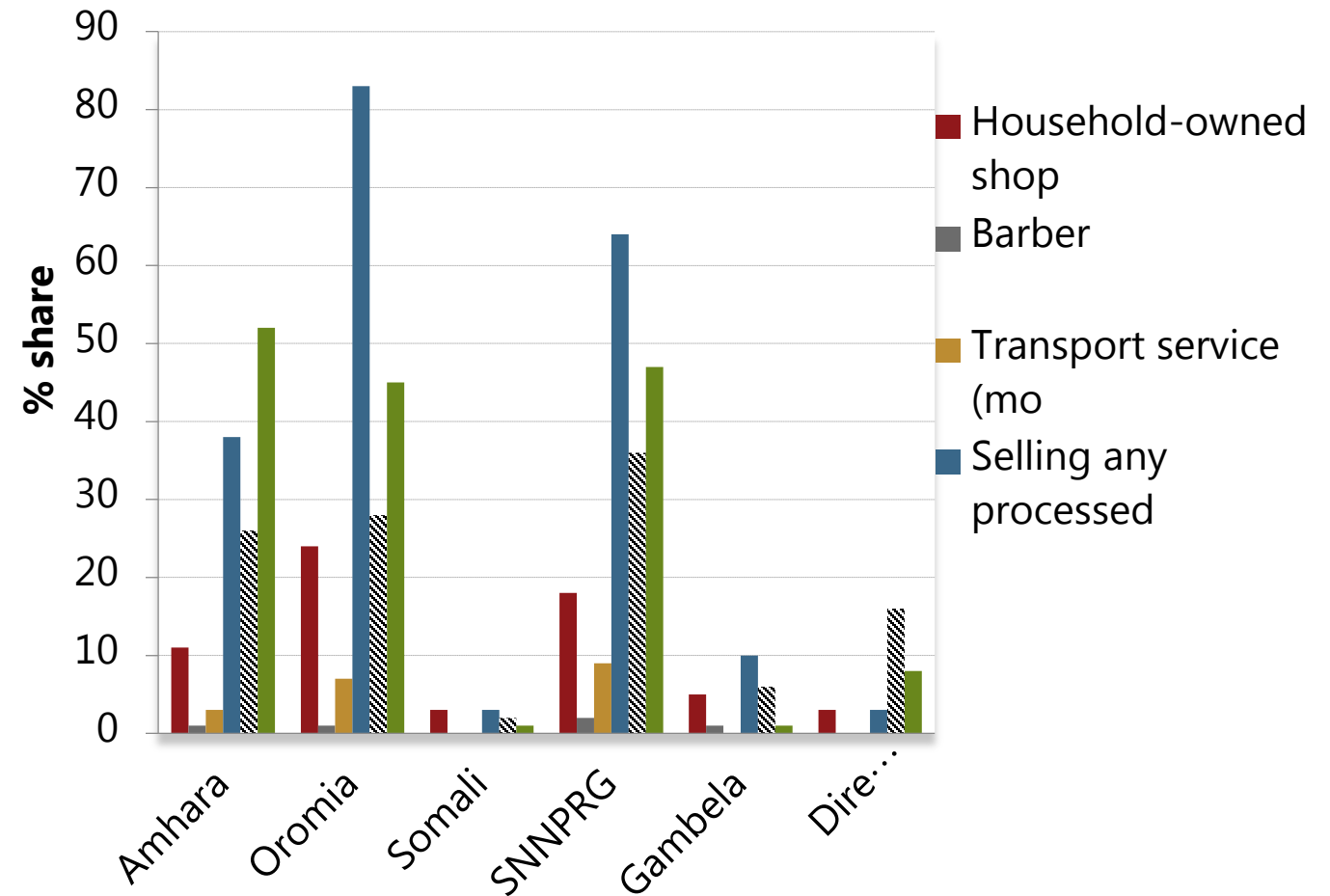
Number of months and place of work for those in operation

- 1-6 months and 7-12 months account 40% and 60% respectively;

- Most non-farm business activities in the study area are run either by the head or members of the household.

- 80 percent of the businesses hired no any employee while only 15 percent of the businesses hired 1 to 5 persons

Figure 3: Place where the enterprise operates

Bar chart — % share:
- Home, inside residence: 31,06
- Home, outside residence: 16,16
- Traditional Market: 29,98
- Shop in commercial area: 2,51
- Roadside: 5,39
- Mobile: 2,51
- River/Lake/Pond side: 0,18
- Construction site: 3,95
- Other (specify): 8,26
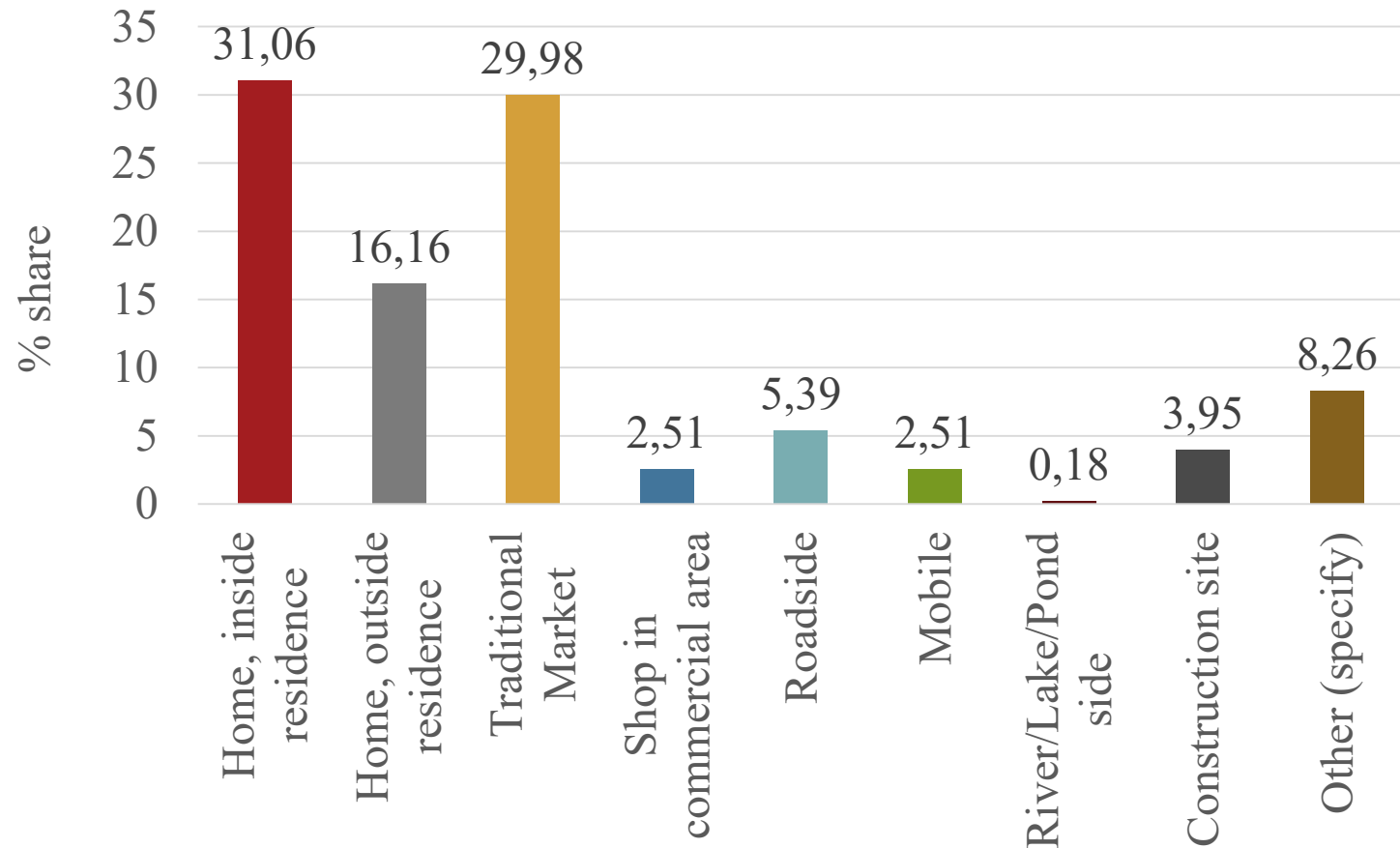
Engagement by program & non-program woredas

Fig 4: Contribution of income from sells of processed food to total HH income by program
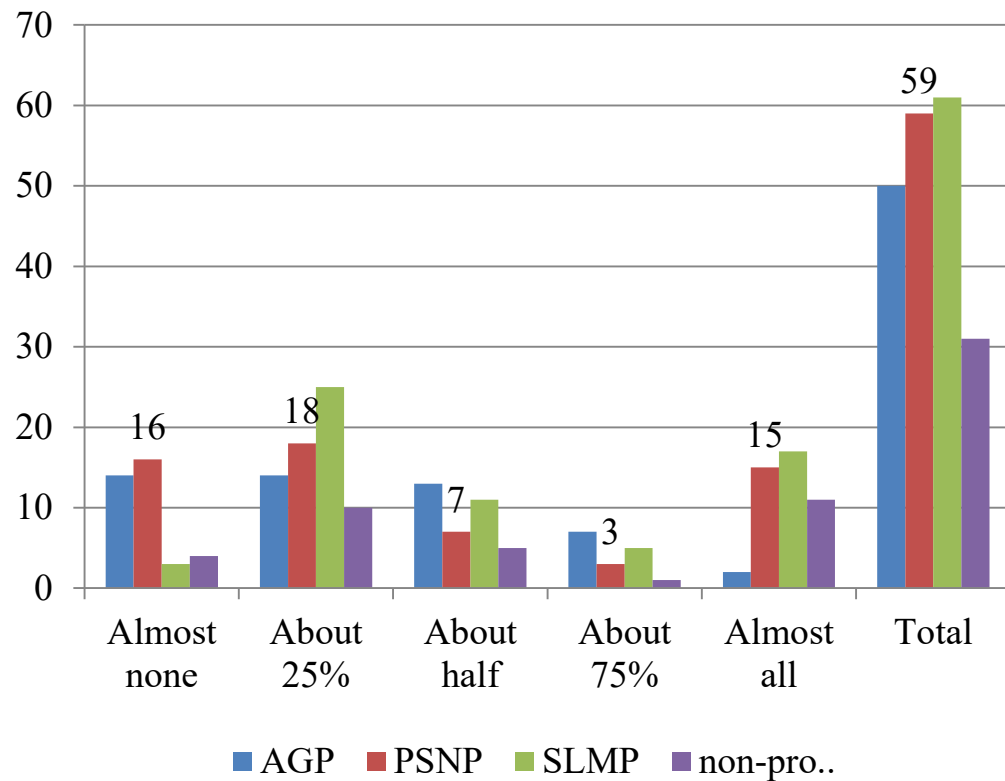
Fig. 5: Contribution of income from shop to total HH income by program
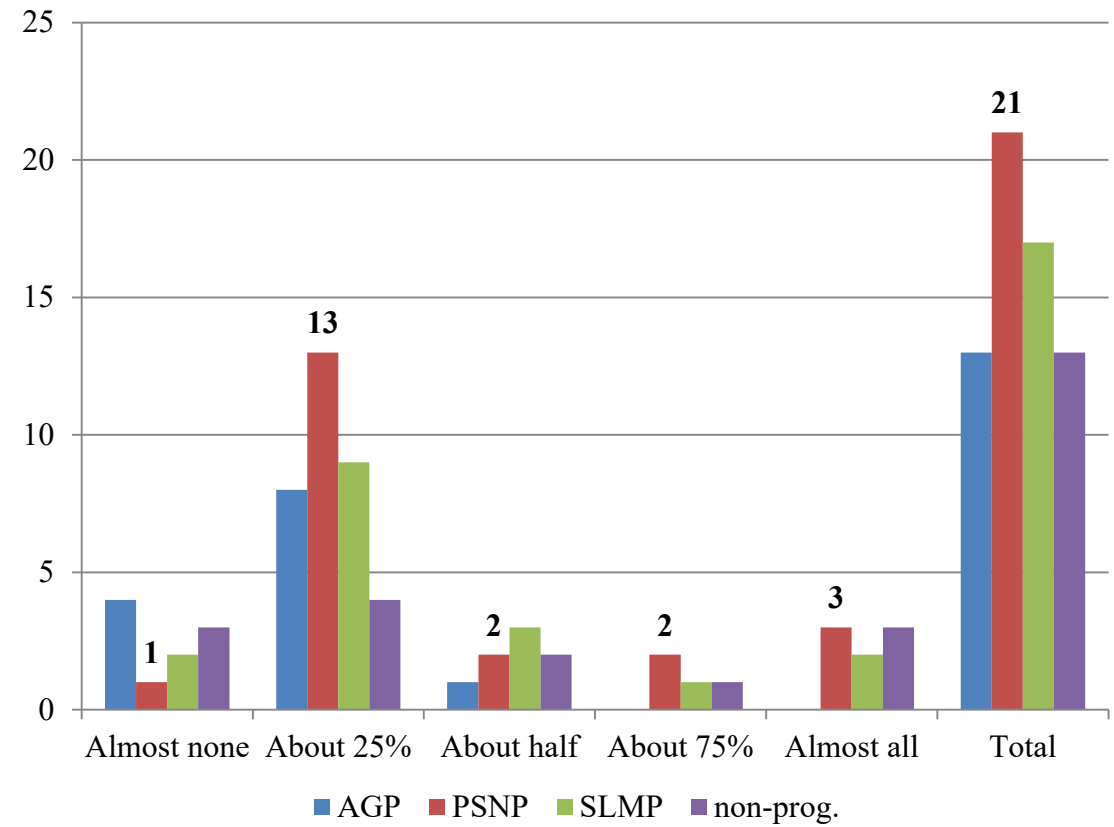
Engagement by program & non-program woredas

Fiure 6: Contribution of income from transport services to total HH income by program
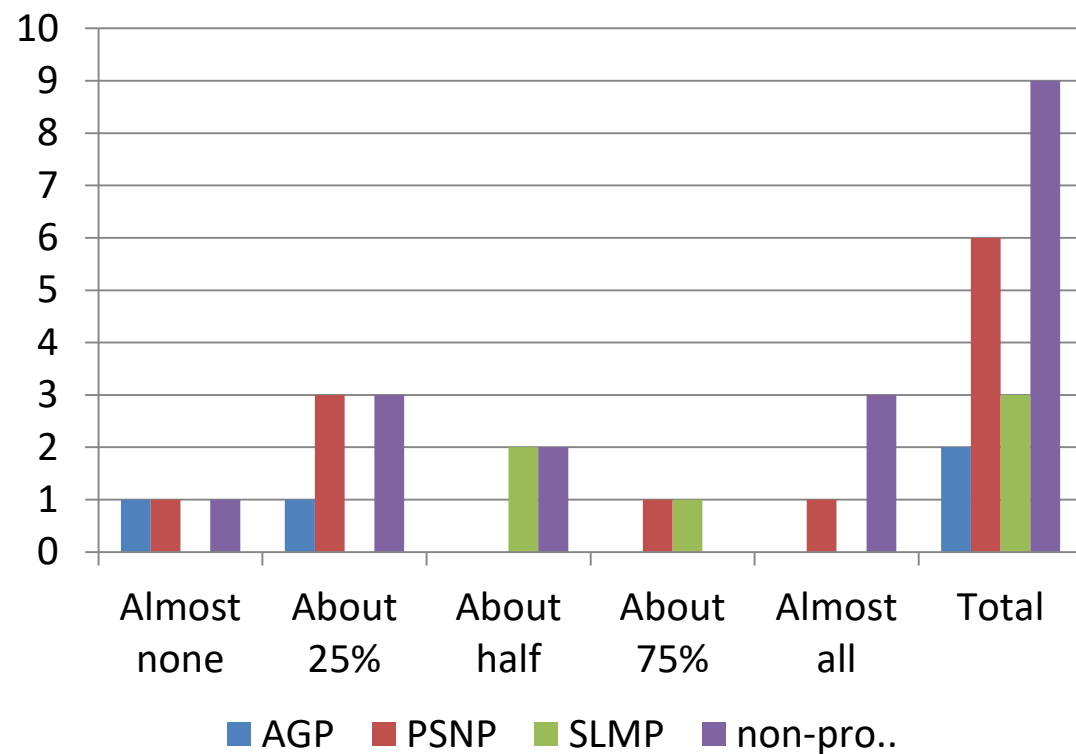
Fiure 7: Contribution of income from sells of processed food to total HH income by program
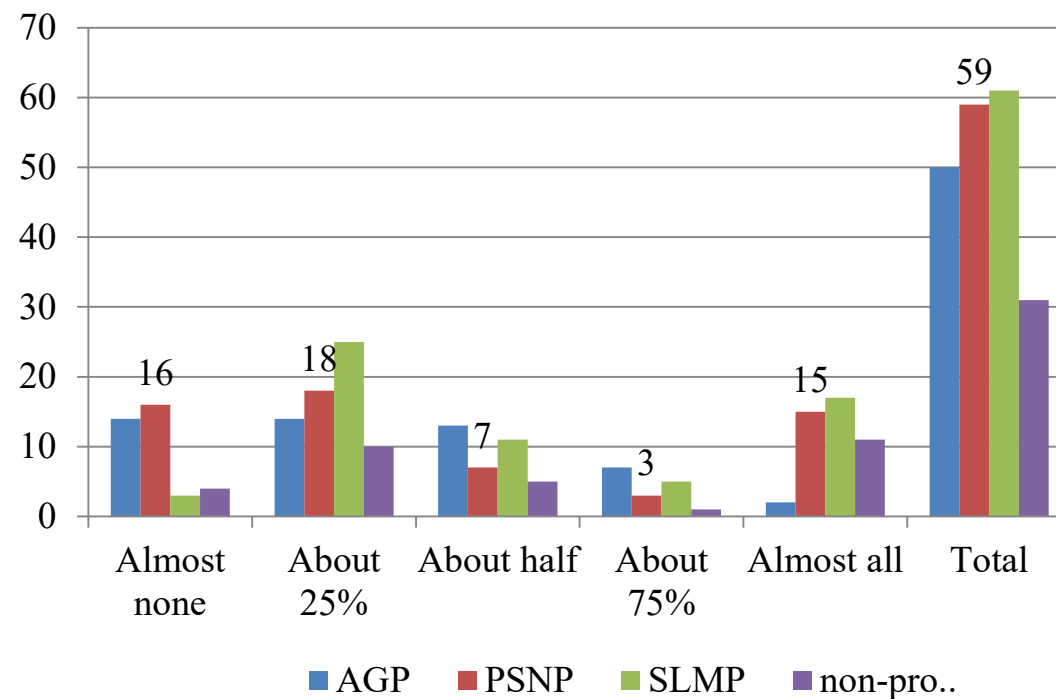
Contribution of NFE to family livelihood

Constraints

- Access to financial services (38 %)

- Access to markets (45 %)

- lack of access to electricity and training opportunities

Concluding remarks

- Remained traditional (operation area, type of product sold);

- In terms of contribution still it is highly important;

- How engagement contributed for building HH resilience?

Figure 8: Contribution of non-farm income to family livelihood

Very low 0%

Substantially high 21%

Low 10%

Neutral 11%

High 58%
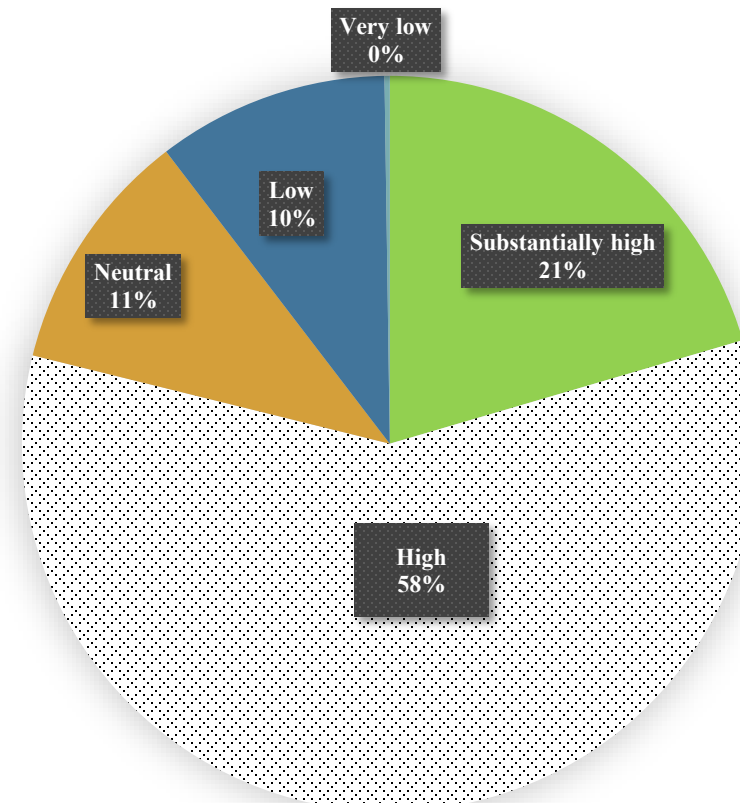
Other Income Sources

- The major alternative sources of income are wages/salaries (14%), remittances (11%) and land rental (6%).

- The average annual income from these sources is about **ETB 13,488 (**with a median of ETB 5,000)

Other Income Sources	Freq.	Percent
o Remittances	223	11
o Wages/salaries	276	14
o Pension	11	1
o Shop/Store/ House/Rental/ Car, Truck etc.	72	4
o Land rental	124	6
o Renting Horse cart pulled by donkey and	33	2

Highlights

- Engagement in non-Farm employment (NFE) is an important strategy for complementing farm income;
  - Examples: selling processed foods, firewood, charcoal, construction timber, owning small retail shops, barber shops, providing transportation services etc.
- Although it varies across regions and programs, contribution of NFE to HH income is still high
- Most non-farm business activities in the study area are run either by the head or members of the household and only 15 percent of the businesses hired 1 to 5 persons (i.e. still traditional)
- Key constraints: access to markets (45%) and access to financial services (38 %)
- Major alternative sources of income are wages/salaries (14%), remittances (11%) and land rental (6%).

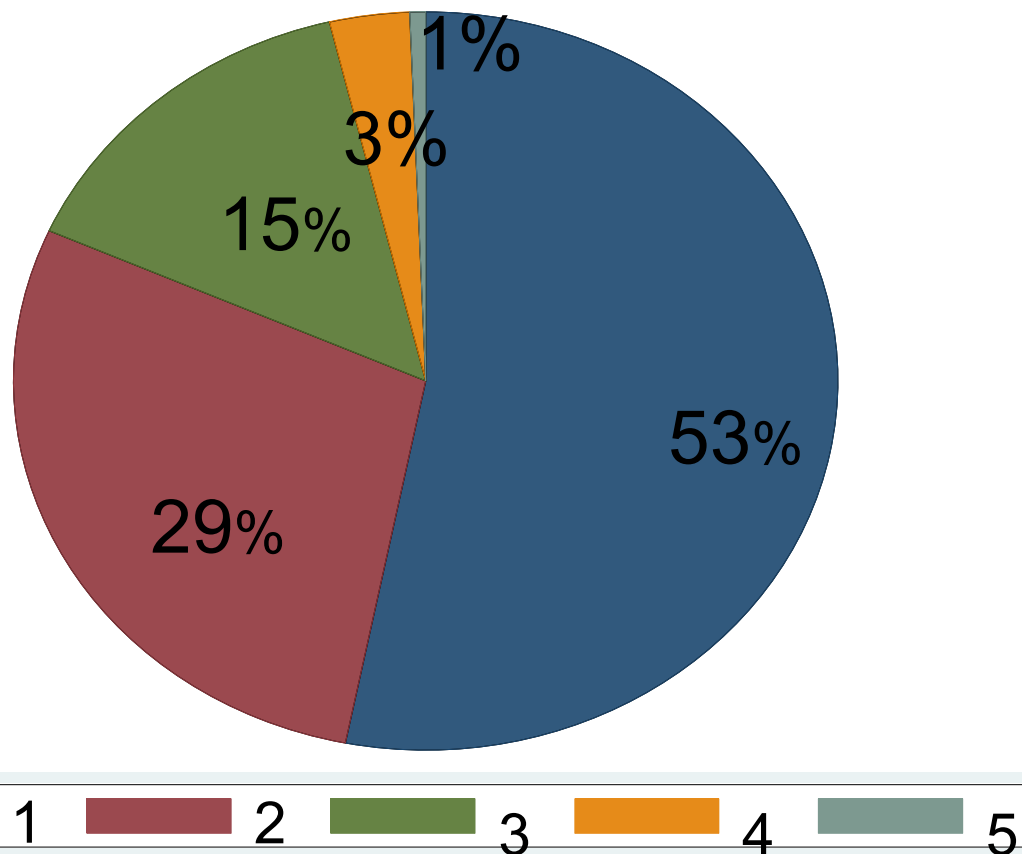# Drought exposure (at least one drought event in the past five years)
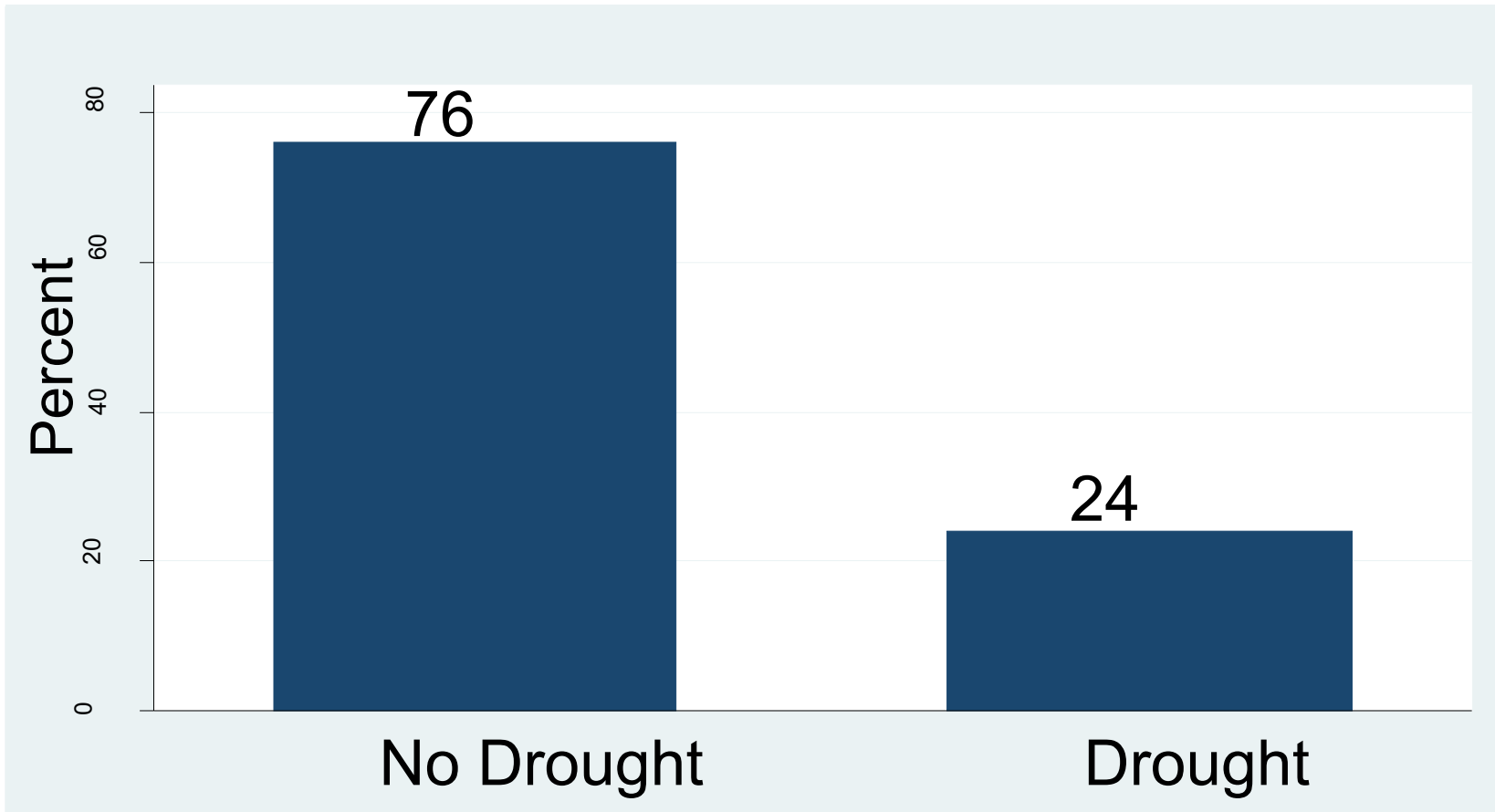
Source: Own Computation based on RCC Survey 2021

Drought exposure by region (at least one drought event in the past five years)
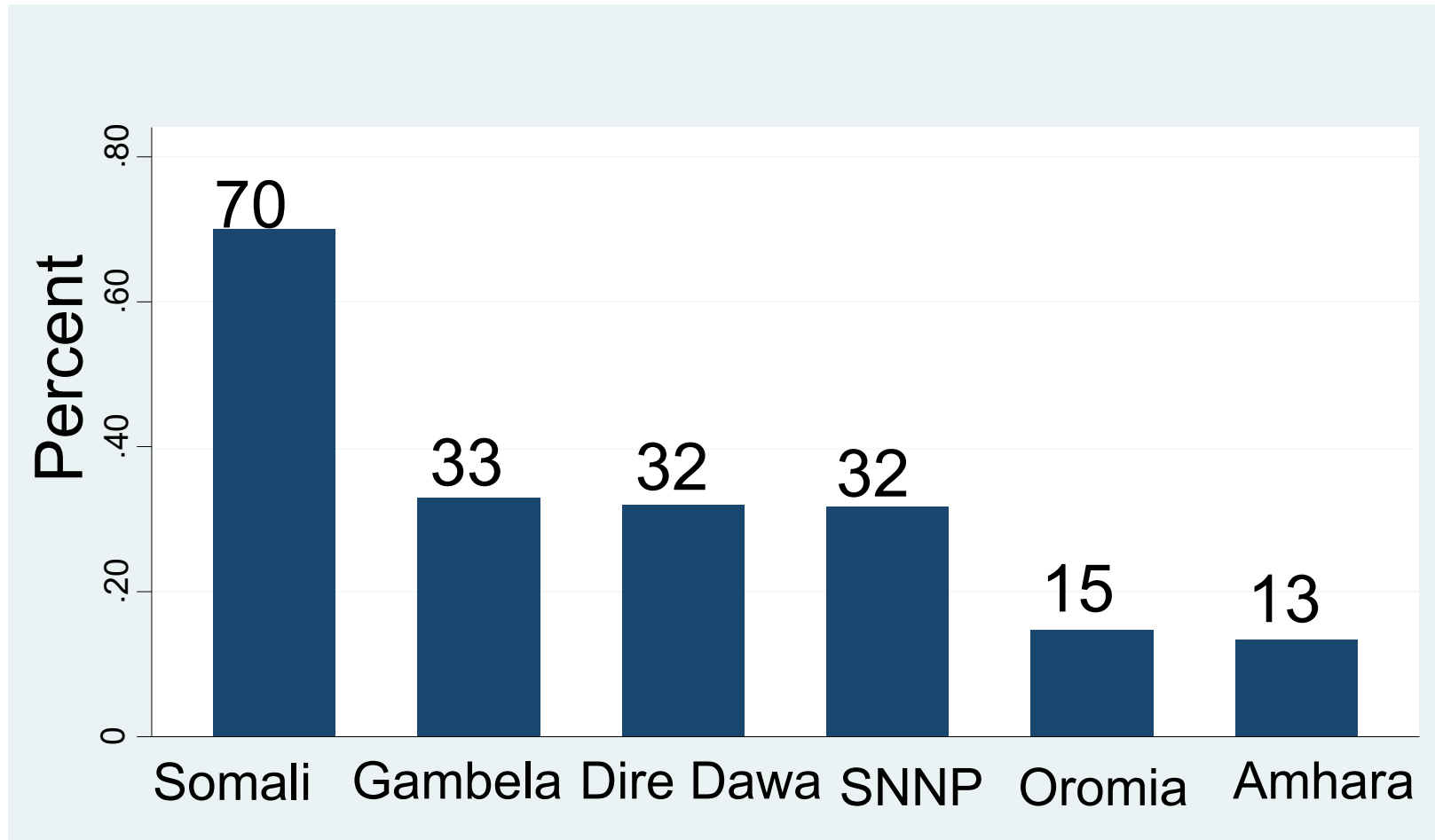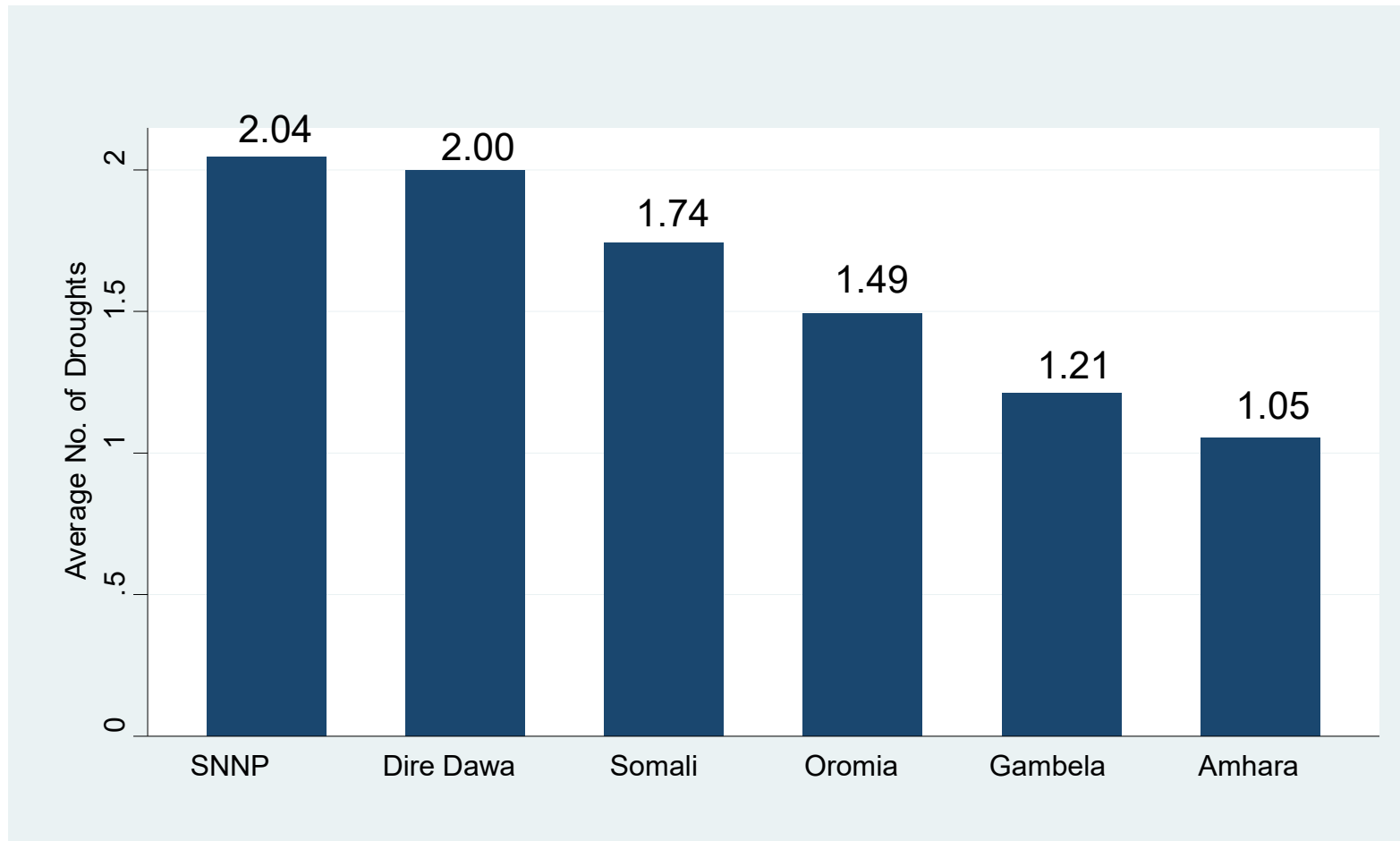

Source: Own Computation based on RCC survey 2021

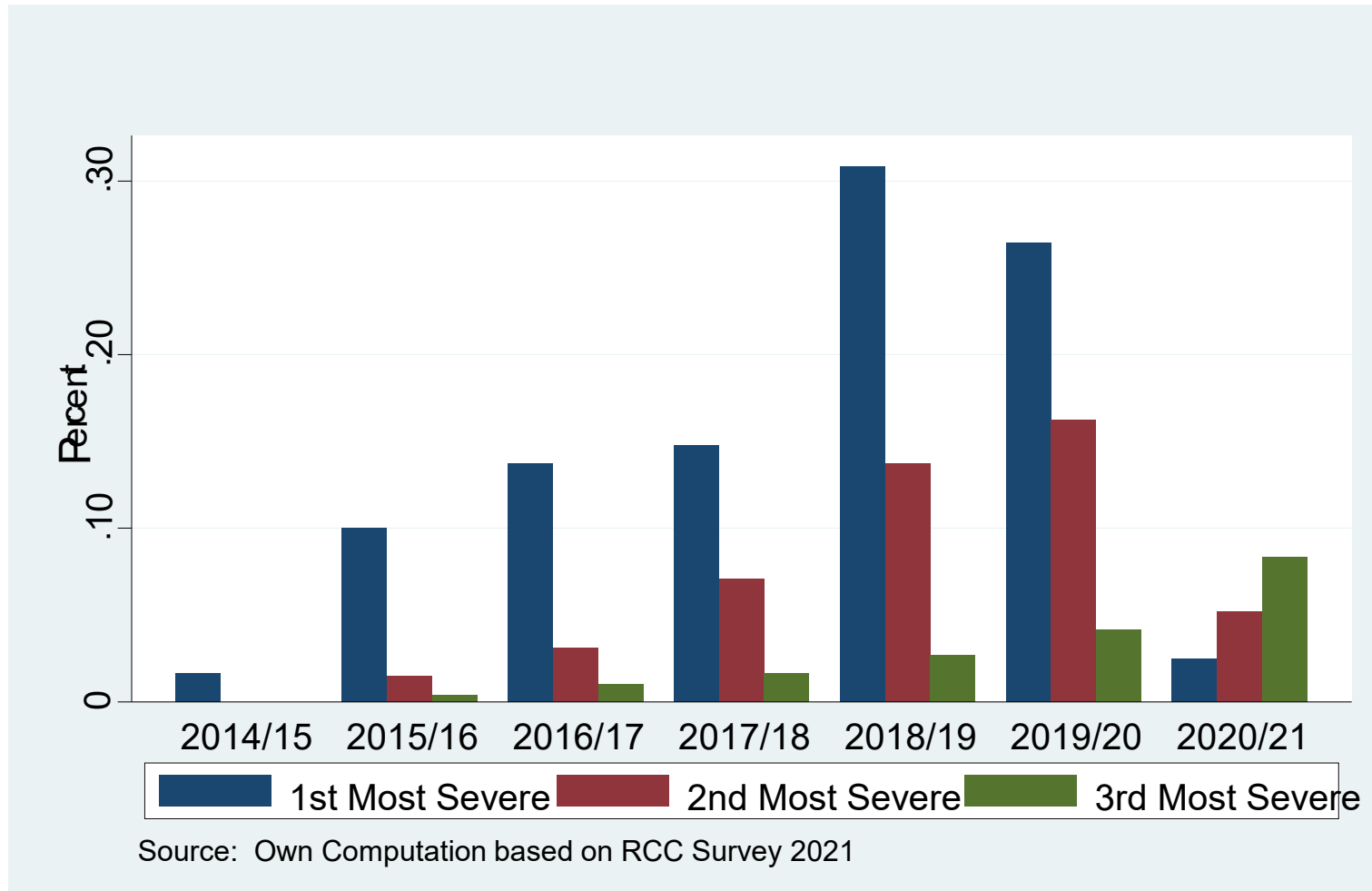# Number of droughts in the past five years

Source: Own Computation based on RCC Survey 2021

Average number of droughts by region

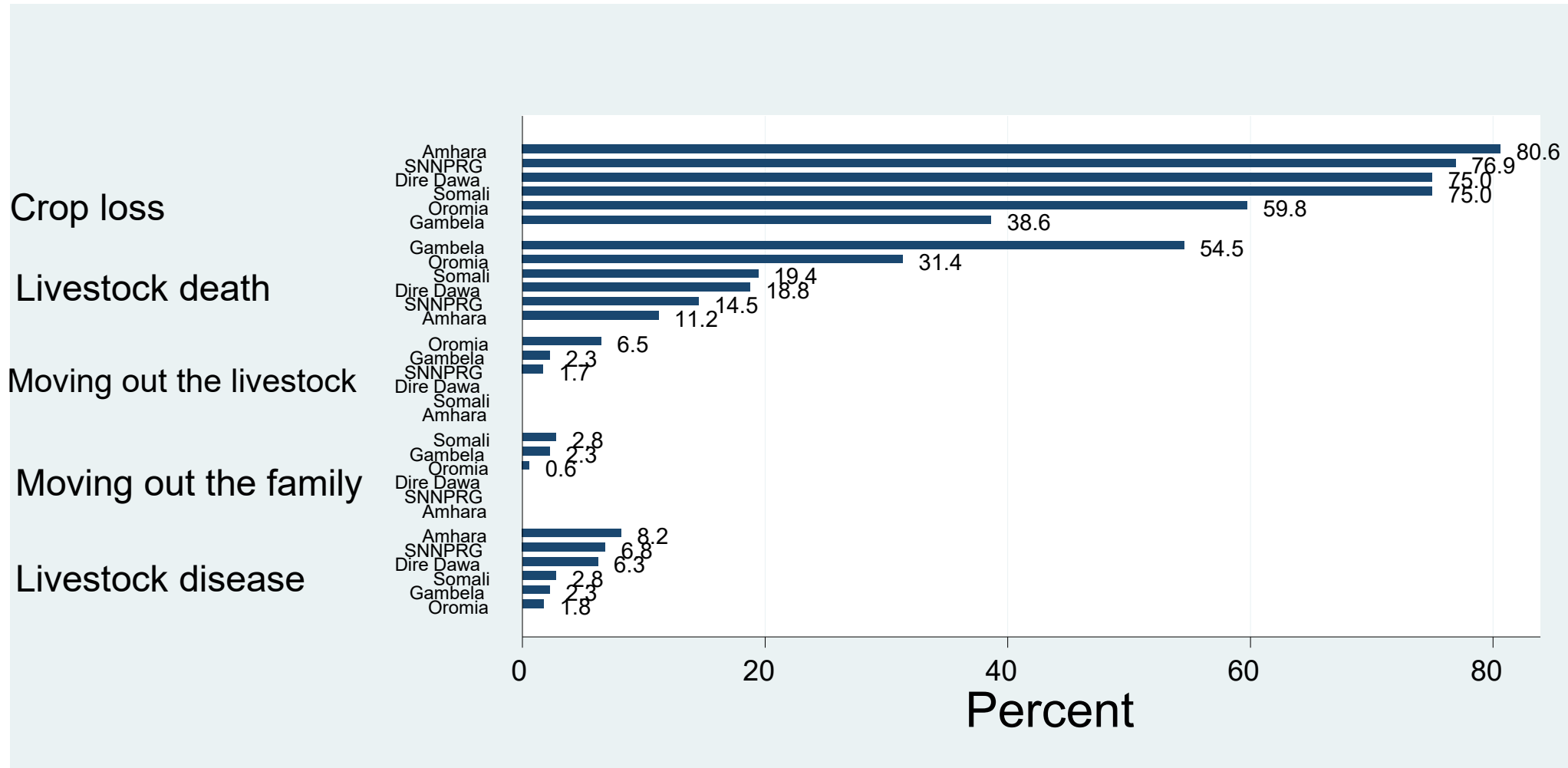Source: Own Computation based on RCC Survey 2021

Drought severity by year

Source: Own Computation based on RCC Survey 2021

Impact of drought in the past five years

	Mean	SD	Min	Max
Crop loss	0.8	0.4	0	1
Livestock death	0.2	0.4	0	1
Moving out livestock	0.0	0.1	0	1
Moving out family	0.0	0.1	0	1
Livestock disease	0.1	0.2	0	1

Impact of drought in the past five years, by region

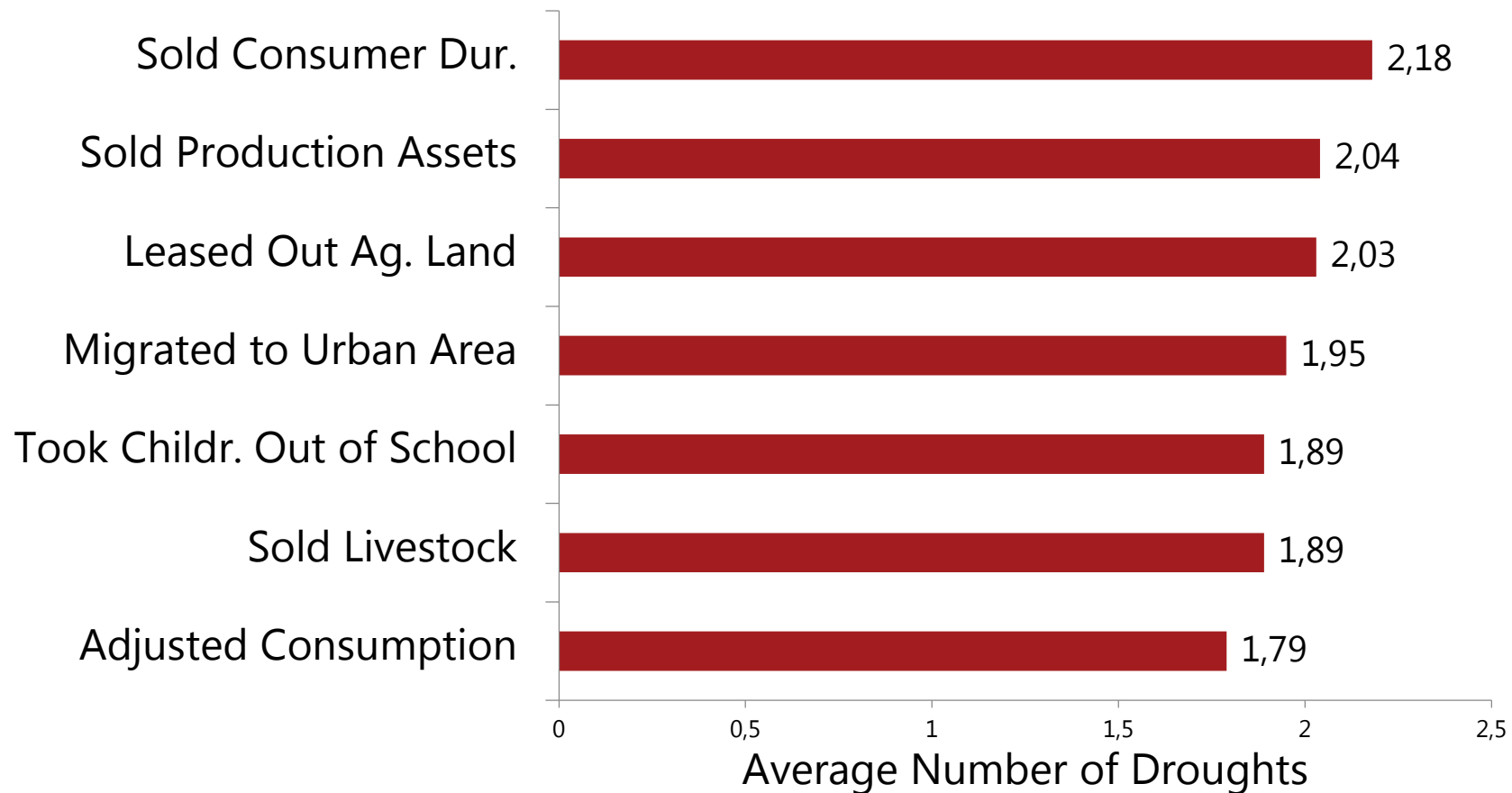Source: Own Computation based on RCC Survey 2021

Coping strategies
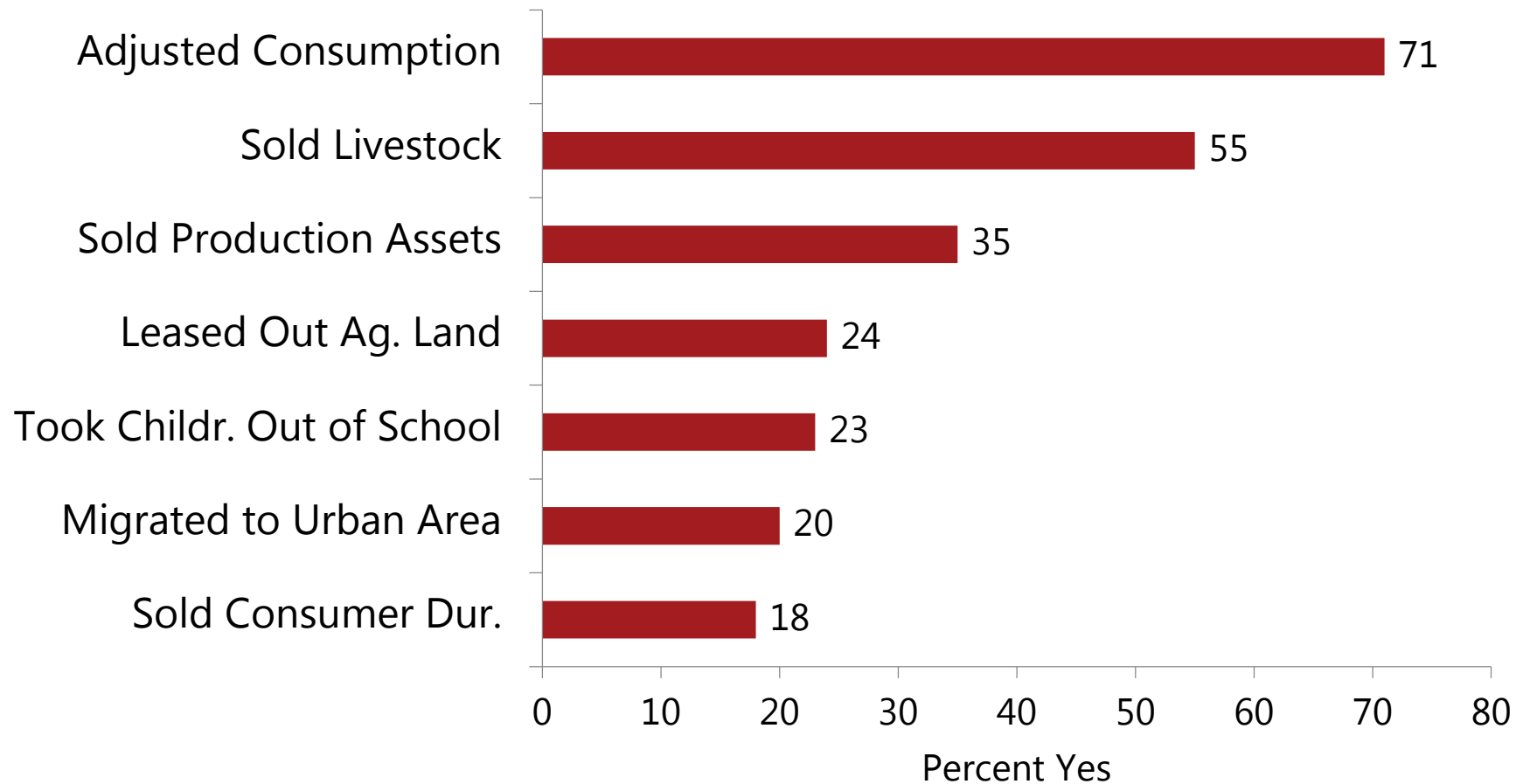
Coping strategies by gender of HH head

Coping strategy	Male	Female	Difference	P-value
Adjusted Consumption	0.7	0.74	-0.04	0.413
Sold Livestock	0.56	0.52	0.04	0.525
Took Childr. Out of School	0.23	0.20	0.03	0.432
Migrated to Urban Area	0.21	0.17	0.04	0.311
Leased Out Ag. Land	0.25	0.21	0.04	0.379
Sold Production Assets	0.35	0.34	0.01	0.570
Sold Consumer Dur.	0.18	0.20	-0.02	0.646

Coping strategy by number of droughts

Coping Strategy	Average Number of Droughts
Sold Consumer Dur.	2,18
Sold Production Assets	2,04
Leased Out Ag. Land	2,03
Migrated to Urban Area	1,95
Took Childr. Out of School	1,89
Sold Livestock	1,89
Adjusted Consumption	1,79

Coping strategies by farm- and non-farm income

Coping strategy	Farm-income only	Non-farm income	Difference	P-value
Adjusted Consumption	0.7	0.73	-0.03	0.447
Sold Livestock	0.52	0.63	-0.11	**0.020**
Took Childr. Out of School	0.20	0.29	-0.09	**0.042**
Migrated to Urban Area	0.18	0.26	-0.08	**0.046**
Leased Out Ag. Land	0.21	0.31	-0.10	**0.028**
Sold Production Assets	0.3	0.45	-0.15	**0.002**
Sold Consumer Dur.	0.14	0.27	-0.13	**0.003**

Coping strategies by household head's education
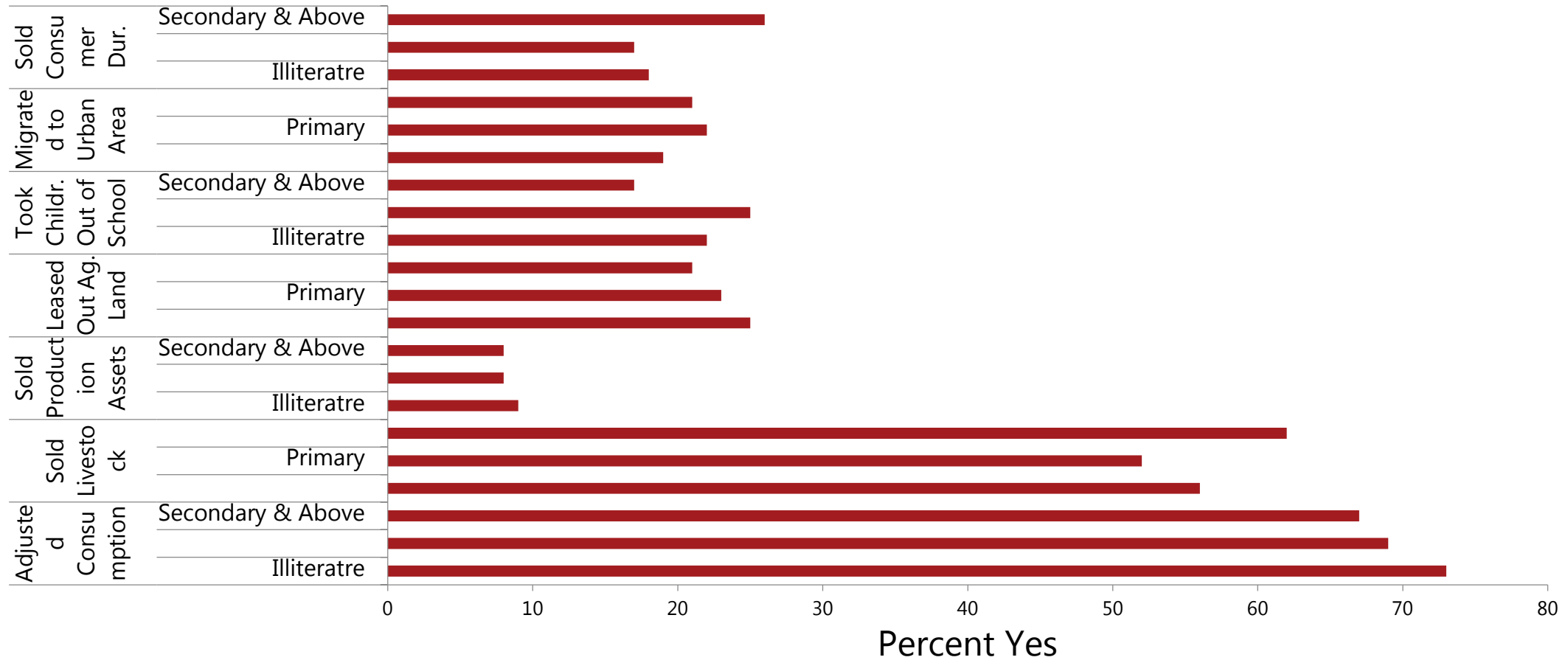
Key messages

On drought exposure:

- Regional heterogeneities in drought exposure in past five years
- Regional heterogeneities in number of droughts faced
- Crop loss most frequently reported impact of drought followed by livestock death (with regional heterogeneities)

On drought coping strategies:

- Adjusting consumption is most frequently reported coping strategy followed by selling livestock
- Heterogeneity in coping strategies:
  - selling consumer durables and selling production assets are the most important by number of droughts
  - almost all coping strategies reported by a larger proportion of households who received off-farm income than those with farm income only
  - leasing out agricultural land and adjusting consumption more frequently reported by illiterate household heads; and selling livestock and selling consumer durables more frequently reported by household heads with secondary and above education level

Introduction

- Resilience- is conceptualized as the ability of a unit/system to bounce back following an adverse shock (Holling 1973)

- In recent years- resilience is defined as a multi-dimensional concept

  ✓ Ability to absorb, anticipate, adapt and transform in the face of an adverse shock

- This conceptualization is used in our survey

- In addition, reliable measure of resilience capacities is important

  ✓ **Objective-** based on tangible factors like assets, income, livelihood strategies etc…

  ✓ **Subjective-** using households' own knowledge to assess their resilience capacity

Absorptive Resilience Capacity

Absorptive Resilience Capacity:

- short term coping capacity/capacity to reduce the immediate impact of a shock on livelihood

- Likelihood that Households bounce back from a **future** drought shock within 6 months

- Our survey shows limited absorptive resilience capacity

  - Unlikely to mitigate the immediate impact of a drought shock

- Assessed possible **heterogeneities** and **pillars** of absorptive resilience capacity

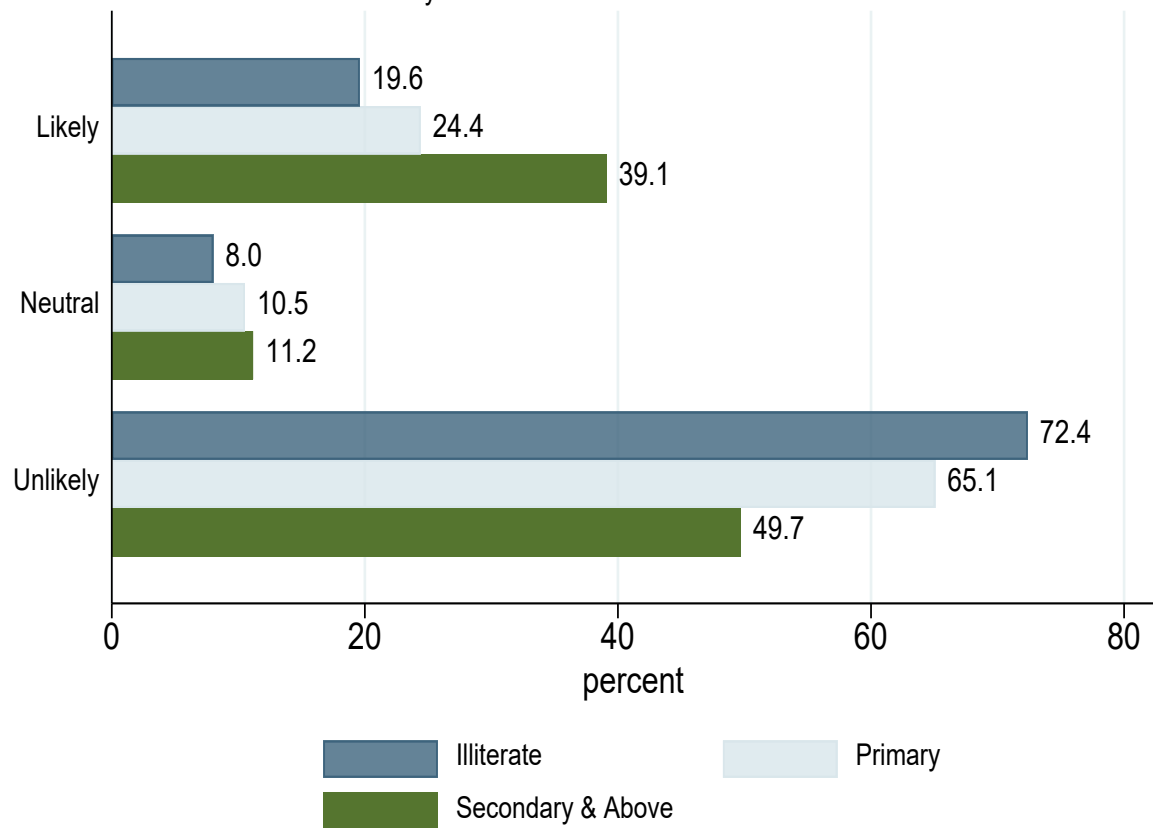Fig.5.9. Likelihood of Recovering from a Drought Damage in 6 mths

Category	Percent
Very likely	2.6
Likely	20.7
Neutral	9.3
Unlikely	42.5
Very unlikely	24.9
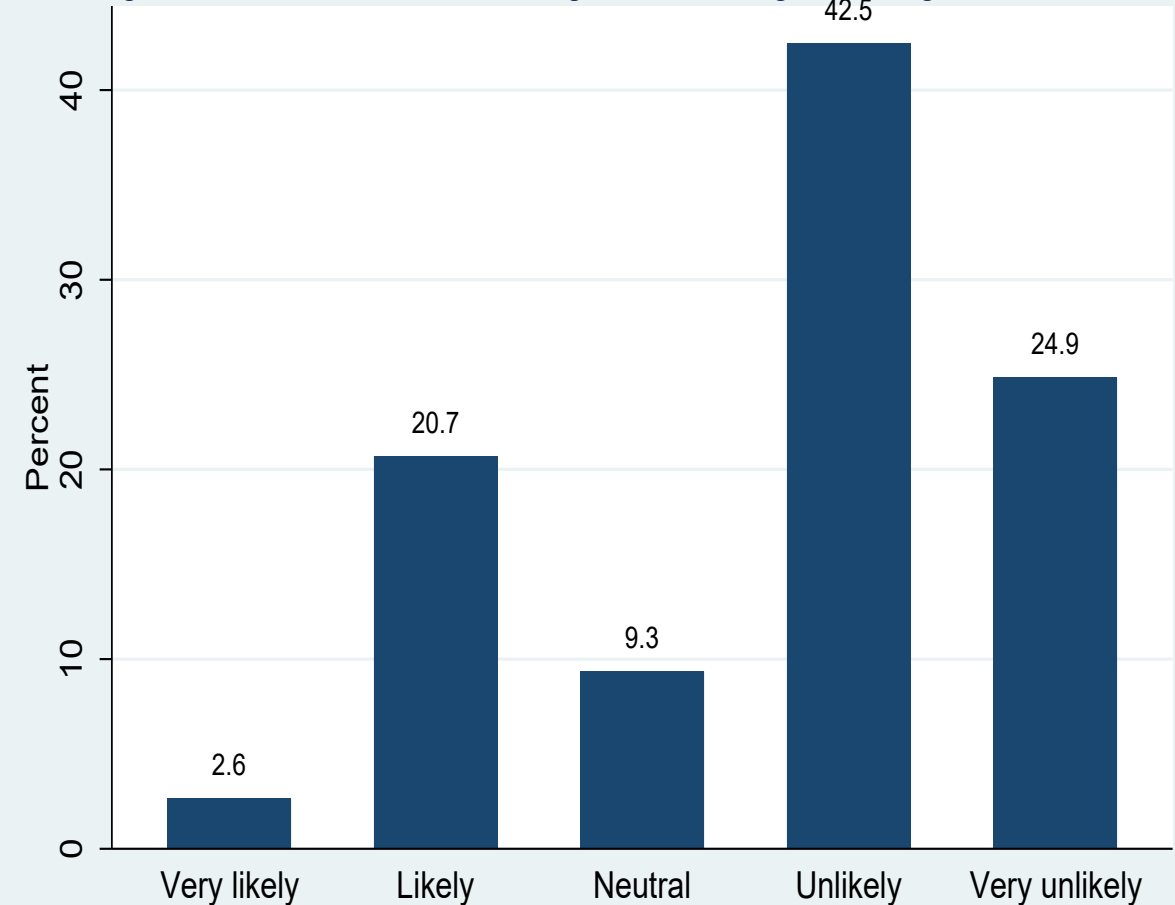
Source: Own Computation based on RCC Survey 2021

Absorptive Resilience Capacity- Heterogeneities

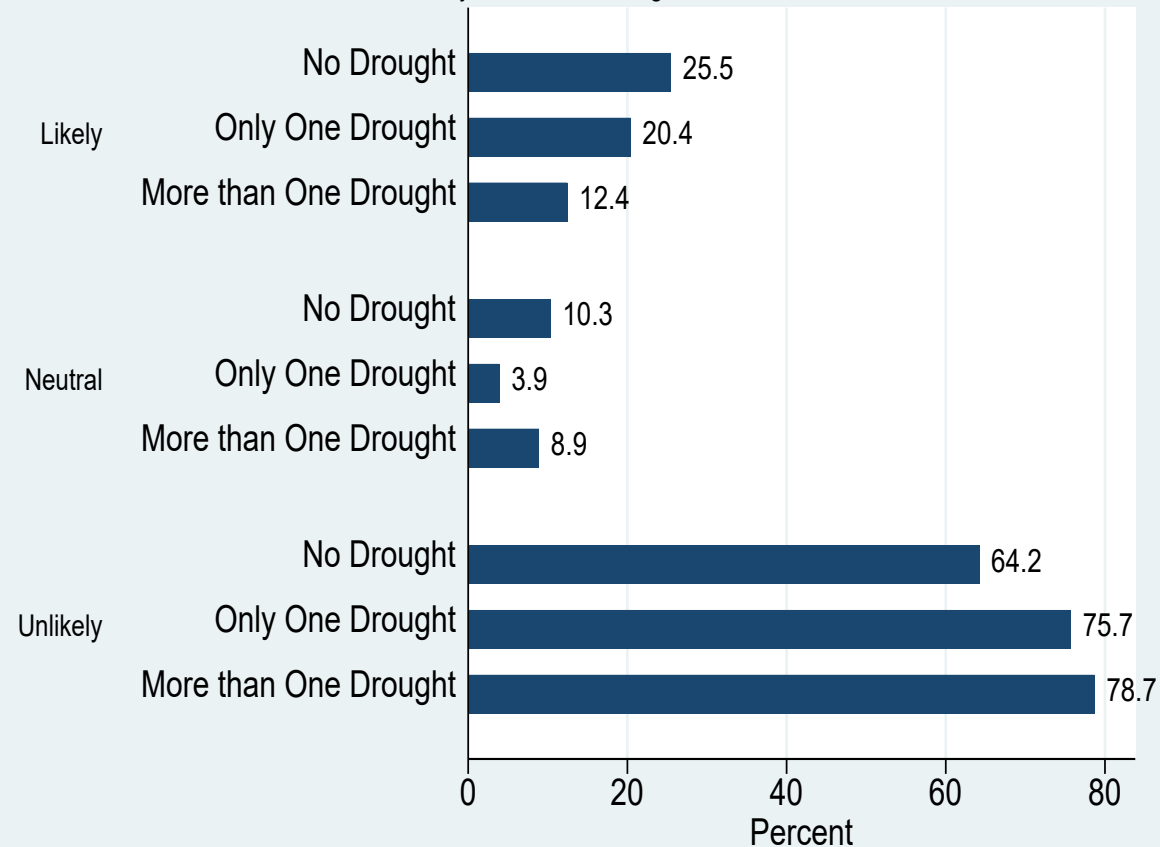

Fig.5.12. Recovering from a Drought Damage in 6 mths
By Education Level of the Head

Likely
- 19.6
- 24.4
- 39.1

Neutral
- 8.0
- 10.5
- 11.2

Unlikely
- 72.4
- 65.1
- 49.7

percent

Illiterate   Primary
Secondary & Above

Source: Own Computation based on RCC Survey 2021

Fig.5.11. Likelihood of Recovering from a Drought Damage in 6 mths
By Number of Droughts

Likely
- No Drought: 25.5
- Only One Drought: 20.4
- More than One Drought: 12.4

Neutral
- No Drought: 10.3
- Only One Drought: 3.9
- More than One Drought: 8.9

Unlikely
- No Drought: 64.2
- Only One Drought: 75.7
- More than One Drought: 78.7

Percent

Source: Own Computation based on RCC Survey 2021

Absorptive Resilience Capacity- Pillars

Summary Statistics on Pillars of Resilience

	Num. Obs.	Mean	Std.	Min	Max
Rely on Social Net.	2000	0.31	0.46	0.00	1.00
No. of Close Social Network	2000	1.55	4.24	0.00	100.00
No. of Distant Social Network	2000	1.74	13.44	0.00	500.00
Access to Formal Credit	2000	0.21	0.41	0.00	1.00
Can Borrow 500Birr	2000	0.62	0.49	0.00	1.00
Saved enough to Cope Drought	2000	0.16	0.36	0.00	1.00
Saving in the last 12 mths	2000	0.36	0.48	0.00	1.00

- Social Networks

- Access to finance

- Savings

- There are some heterogeneities

Absorptive Resilience Capacity- Pillars

- Social Networks

- Access to finance

- Savings

Mean Comparison of Pillars of Resilience: By Gender of the Head

	Male	Obs	Female	Obs	Difference	p-val
Rely on Family & Friends	0.31	1634	0.30	366	0.01	0.647
No. of Close Social Network	1.60	1634	1.33	366	0.28	0.129
No. of Distant Social Network	1.91	1634	1.00	366	0.91**	0.033
Access to Formal Credit	0.22	1634	0.18	366	0.04*	0.086
Can Borrow 500Birr	0.65	1634	0.49	366	0.16***	0.000
Saved enough to Cope Drought	0.16	1634	0.11	366	0.05***	0.009
Saving in the last 12 months	0.38	1634	0.28	366	0.10***	0.000

Adaptive Resilience Capacity

Adaptive Resilience Capacity:

- Long term capacity to take incremental adjustment by learning from past shocks

  - Likely to contribute to households' resilience in a more sustainable way

- How likely is the household to be able to successfully adapt to **future** drought induced threats?

- Majority of the households believe that they are unlikely to adapt to **future** drought-induced threats

  - This is true in all regions, but with some level of heterogeneity

By Gender and Head Education

	Likely to Adapt	Neutral	Unlikely to Adapt
Male	17.63	11.81	70.56
Female	12.02	12.57	75.41
Illiterate	12.89	12.49	74.62
Primary	17.58	11.48	70.93
Secondary & Above	32.40	11.17	56.42
Total	16.60	11.95	71.45

Anticipatory Resilience Capacity

Anticipatory resilience capacity:

- capacity to foresee climate extremes before the shock occurs through

  ➢ Learning from past droughts

  ➢ Access to climate information

- Probability that the HH is successfully **prepared to future** drought induced threats?

 ➢ Majority are unlikely - responses vary by gender, education and region

By Gender and Education

	Likely Prepared	Neutral	Unlikely Prepared
Male	14.57	14.63	70.81
Female	8.20	14.75	77.05
Illiterate	10.25	15.43	74.31
Primary	14.71	13.76	71.53
Secondary & Above	24.58	14.53	60.89
Total	13.40	14.65	71.95

Anticipatory Resilience Capacity

··· household learnt important lessons from past droughts and is fully prepared to a future drought event?

The household has learnt important lesson from past droughts
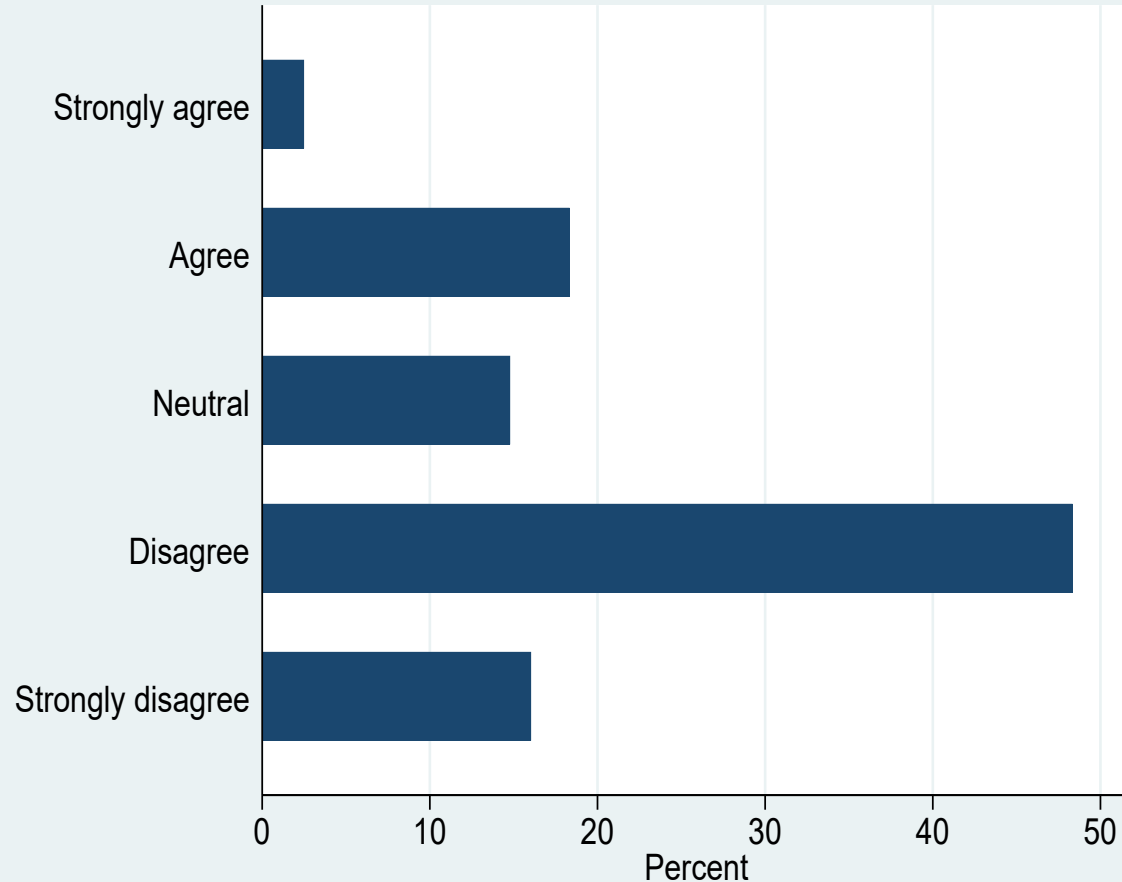
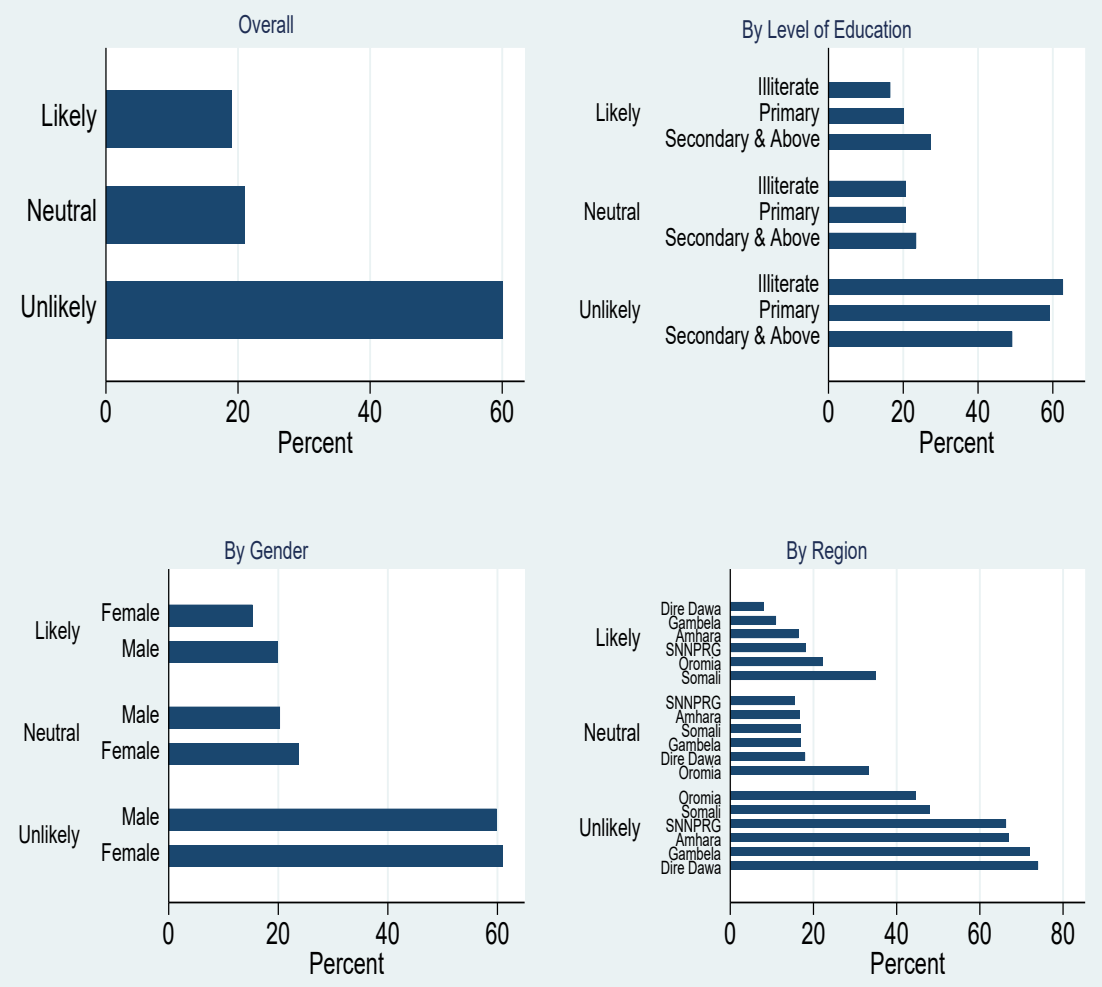Source: Own Computation based on RCC Survey 2021

The household has learnt important lesson from past droughts: By Level of Education
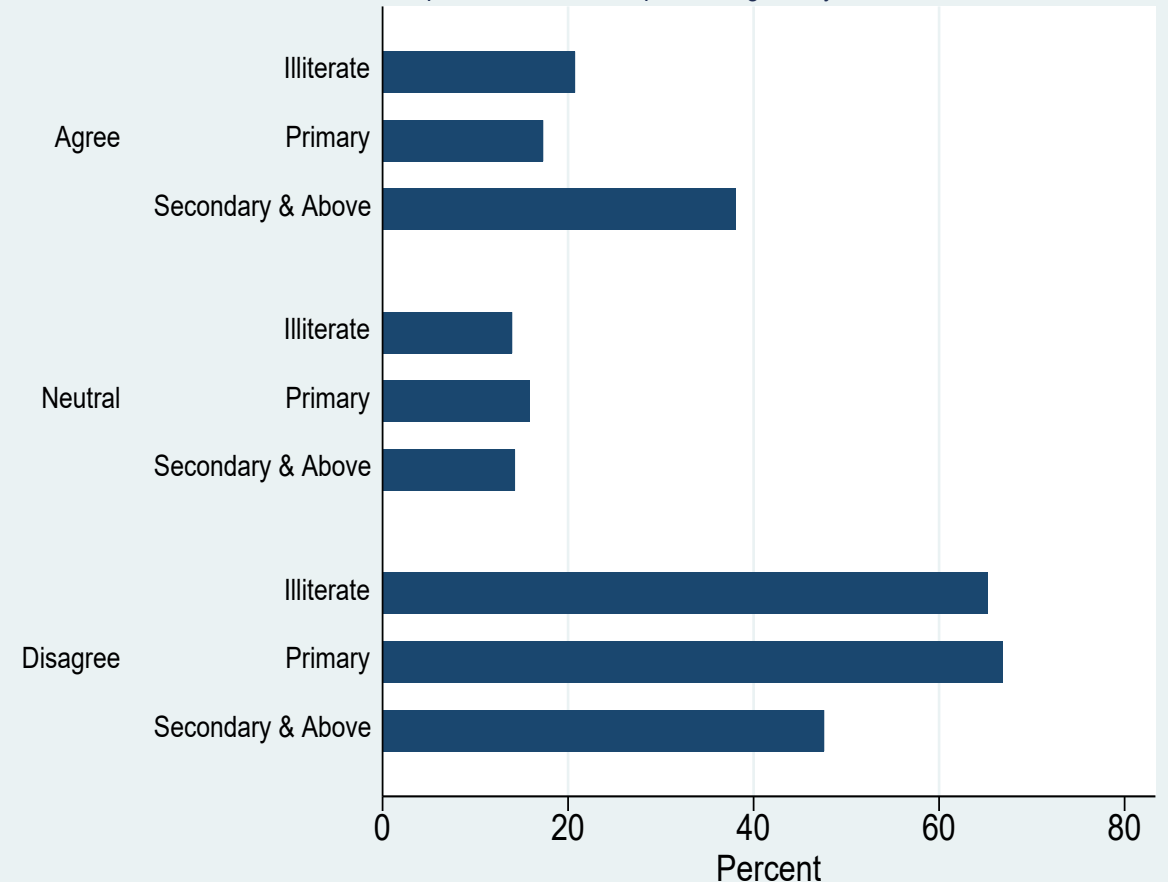
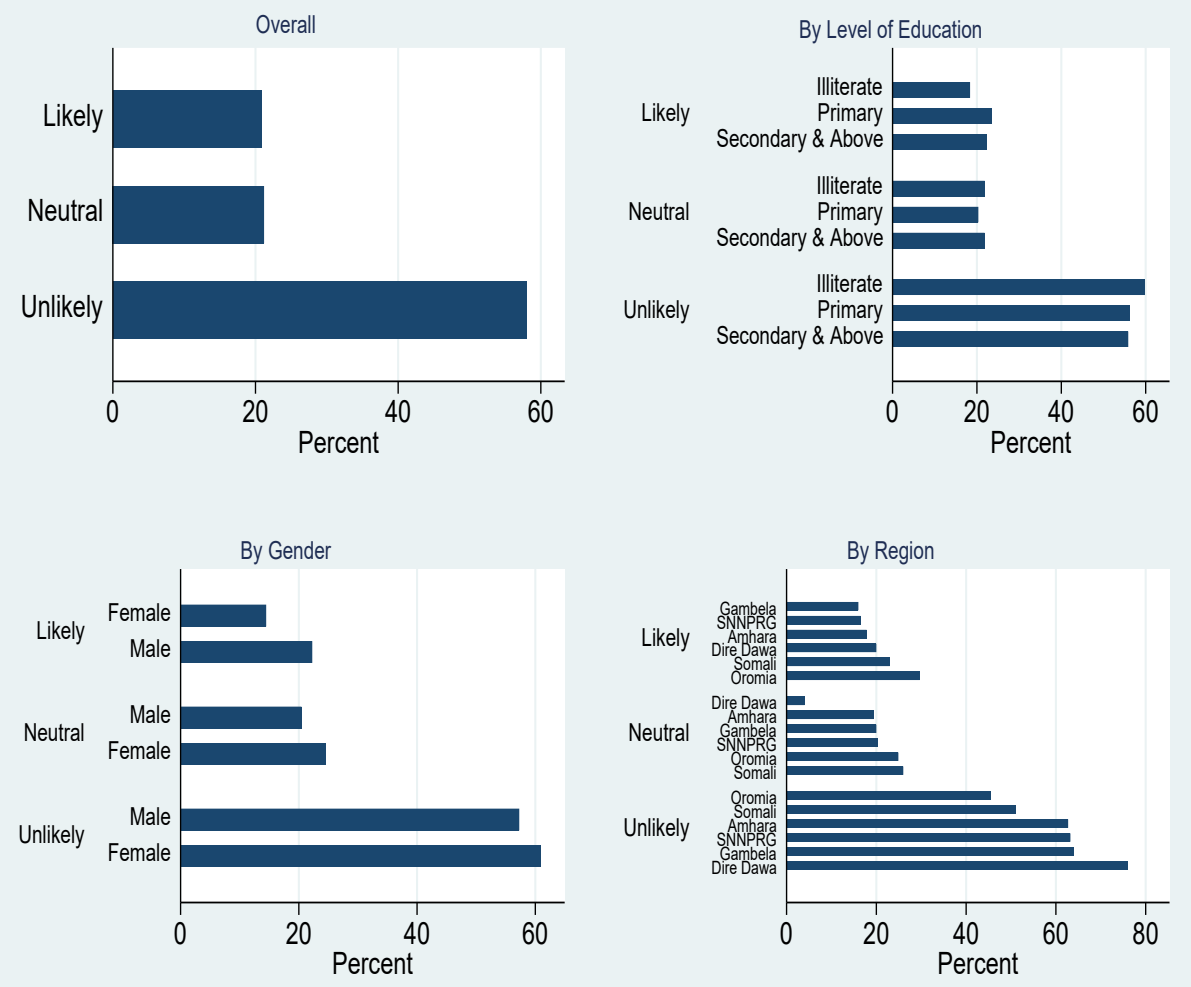Source: Own Computation based on RCC Survey 2021

Transformative Resilience Capacity

How likely is the HH Adapt to a drought induced threat by Changing its Primary source of income
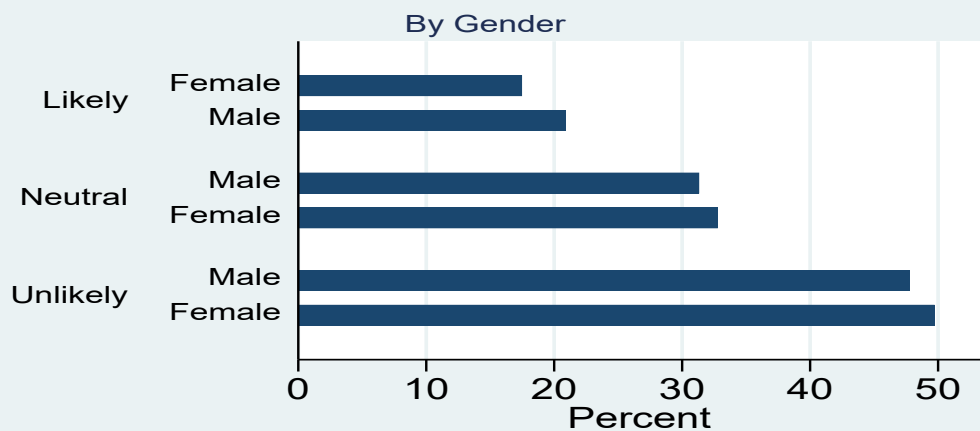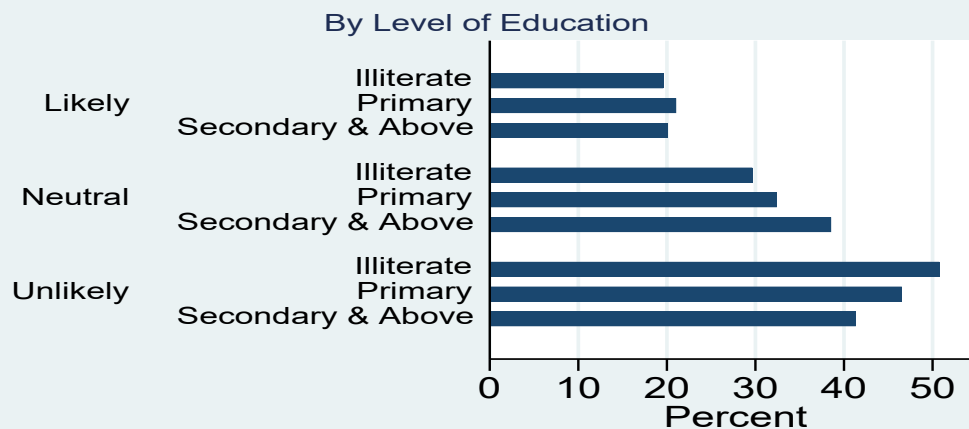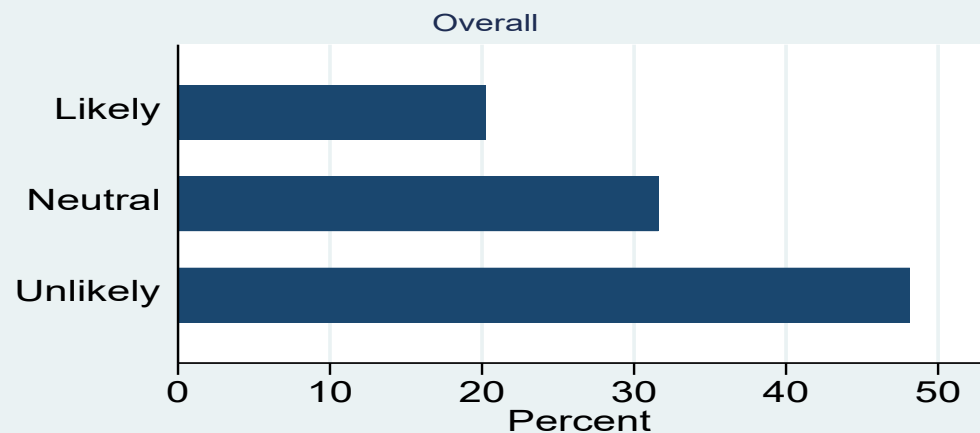
Source: Own Computation based on RCC Survey 2021

How likely is the HH Adapt to a drought induced threat by changing its way of life

Source: Own Computation based on RCC Survey 2021

Transformative Resilience Capacity···

How likely is the HH Adapt to a drought induced threat by Changing from Pastoralist to Sedentary
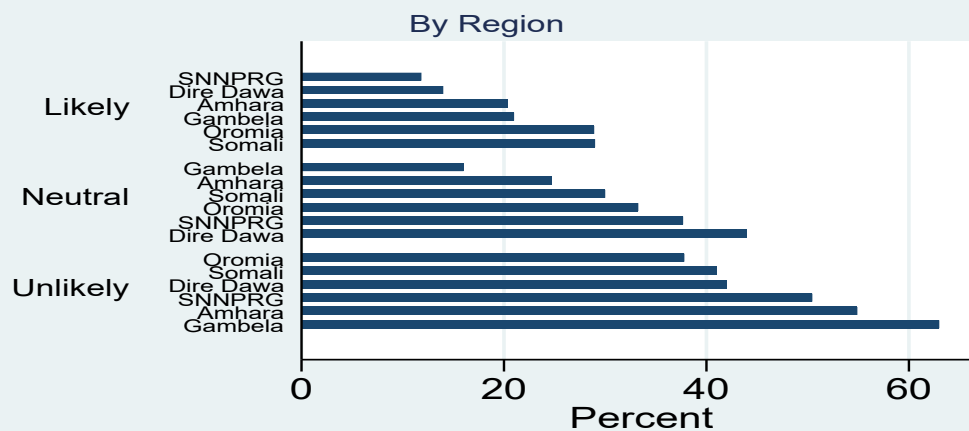
Source: Own Computation based on RCC Survey 2021

Takeaways

- Limited resilience capacity as reflected in households' own assessment

- Access to finance is key in building absorptive resilience esp. for females

- Repeated drought exposure

  - ✓ Limited learning effect from past droughts
  - ✓ Reduce resilience esp. in the case of absorptive capacity

- Heterogeneities by gender and education level of the head