



Food and Agriculture Organization  
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# Resilience analysis in Jordan

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# 1. Introduction

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# The Jordanian Context

“Despite being an upper middle-income country, Jordan maintains pockets of food insecurity, especially in communities that with protracted economic hosting refugees. It is home to **nearly 700,000 UN-registered Syrian refugees**.

Jordan is one of the world’s four most water-deficit countries. Due to scarce water supplies, recurrent drought, urbanization and desertification, agricultural production is insufficient, making Jordan a **net importer of food**” (WFP, 2017).”

Prevalence of Undernourishment (PoU) increased by almost 57% from 2009 to 2012 (WB data).

Despite the value added of Agriculture accounts only for less than 4 % of Jordanian GDP (WB data), in some rural areas it is still - in its economical and social dimensions- a fundamental sector of the economy (FAO,2012).



# Resilience

- Resilience is, nowadays, one of the key words in the policy debate on development economics. Measuring resilience and how it varies over time is extremely significant for policy makers and people living in risk-prone environments.
- A promising concept for understanding how the households cope with shocks and stressors
- Identification of how the combined effect of climate changes, economic forces and social conditions has increased the frequency and severity of risk exposure among vulnerable populations.



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## 2. RIMA: Resilience to Food Insecurity

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# The intervention

## Framework:

- FAO Strategic Objective 5: “Increase the Resilience of Livelihoods from Disasters”
- The Resilience Index Measurement and Analysis (RIMA) is a model used to measure resilience capacity and effectiveness of resilience-oriented policies in the high profile countries
- RIMA has been applied in over 10 countries

## Aims:

- Analyse the resilience capacity of Jordan households as well as to assess their ability to cope with idiosyncratic and covariate shocks
- Enhance Jordan’s capabilities in dealing with its humanitarian and development needs.



# Methodology

- **Resilience Capacity Index (RCI)** estimated through the FAO-RIMA approach
- Resilience **pillars** estimated through FAO-RIMA:
  - **Access to Basic Services (ABS)**
  - **Assets (AST)**
  - **Social Safety Nets (SSN)**
  - **Adaptive Capacity (AC)**
- Observed **variables**, employed to estimate the pillars (e.g. wealth index, average education, access to improved sanitation, Tropical Livestock Units -TLUs, etc.)
- **Food security indicators** (food consumption, Food Consumption Score – FCS, etc.)



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# 3. Data and descriptive statistics

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# Dataset

- **Jordan 2013 Household Expenditure and Income Survey (HEIS)** by the Jordan Department of statistics (DoS)
- Partial sample: 7898 households
- Representative at the national, governorate, district and sub-district level (sample weights)



## RIMA indicators

Pillar	Variable
Access to Basic Services (ABS)	Service closeness (education, health, security)
	Service satisfaction (transports, water, health)
	Daily water supply
	Stable access to water
	Public water
Assets (AST)	Wealth index
	Residential buildings for household use
	Animal index
	Land lots
	Tools and equipments for production
Social Safety Nets (SSN)	Subsidies from National Aid Fund (NAF)
	Public transfers (value)
	Private transfers (value)
Adaptive Capacity (AC)	Average years of education
	Education level of the Household Head
	Dependency Ratio (inverse)
	Participation index
Food Security Indicators (FS)	Food consumption (pc)
	Food Consumption Score (FCS)



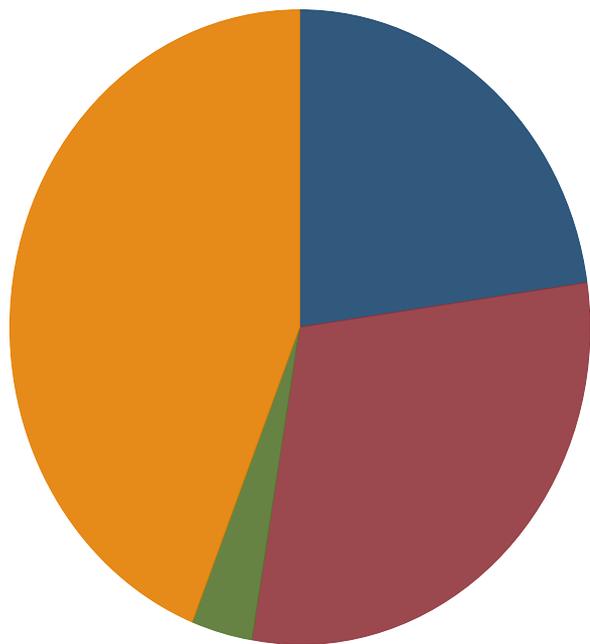
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# 4. Resilience analysis: baseline results

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## Which are the most important pillars?

Pillars' share  
National Level



Average RCI Value (0-100): 60.059

Assets (**AST**) and in particular Adaptive Capacity (**AC**) are highly linked to Resilience Capacity, and they strongly contribute to household capacity to **absorb, adapt to and recover from shocks**.

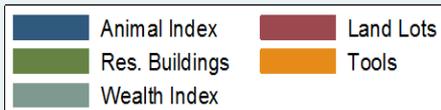
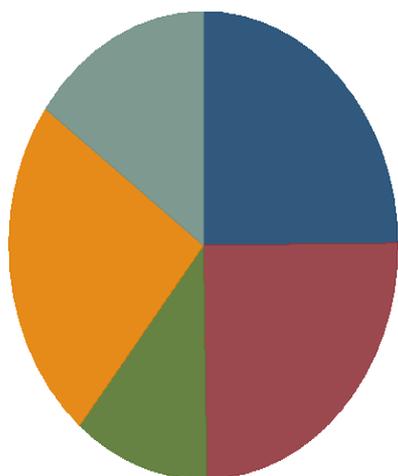
Access to Basic Services (**ABS**) appears to be less relevant, while the role of Social Safety Nets (**SSN**) is negligible.

Investments should focus on improving these pillars that can boost resilience capacity.

## ... And the most important variables?

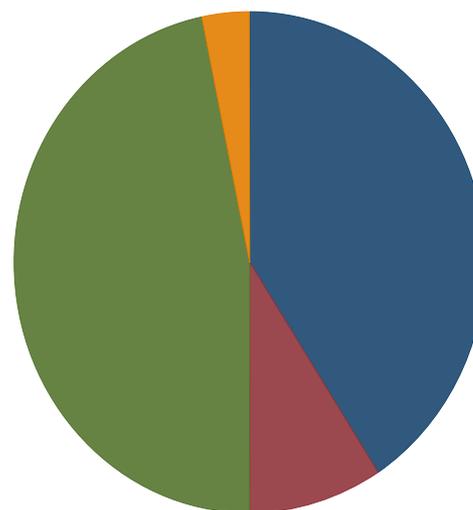
**Assets (AST)**

Variables' Share  
AST



**Adaptive Capacity (AC)**

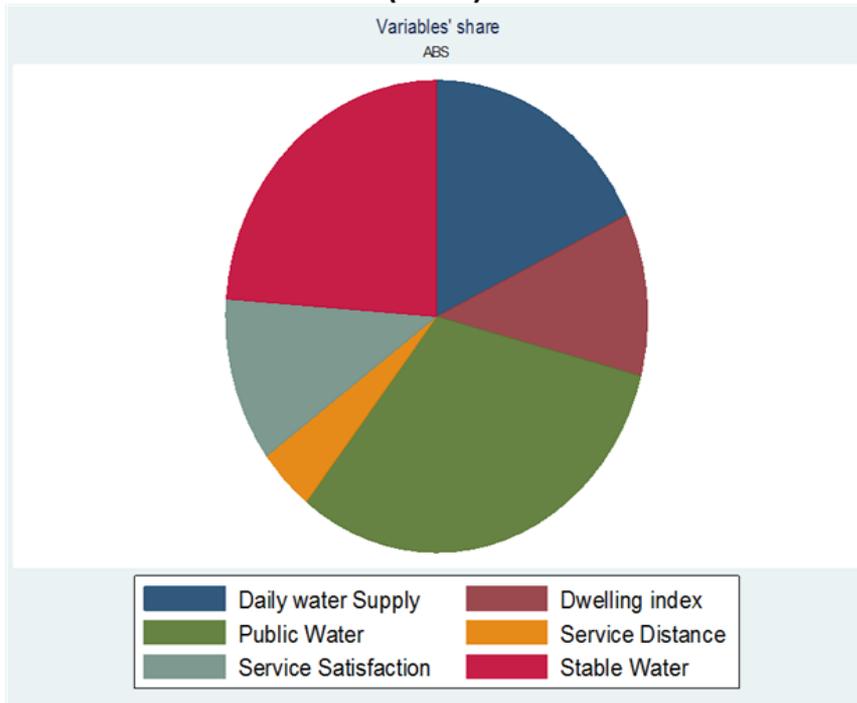
Variables' share  
AC



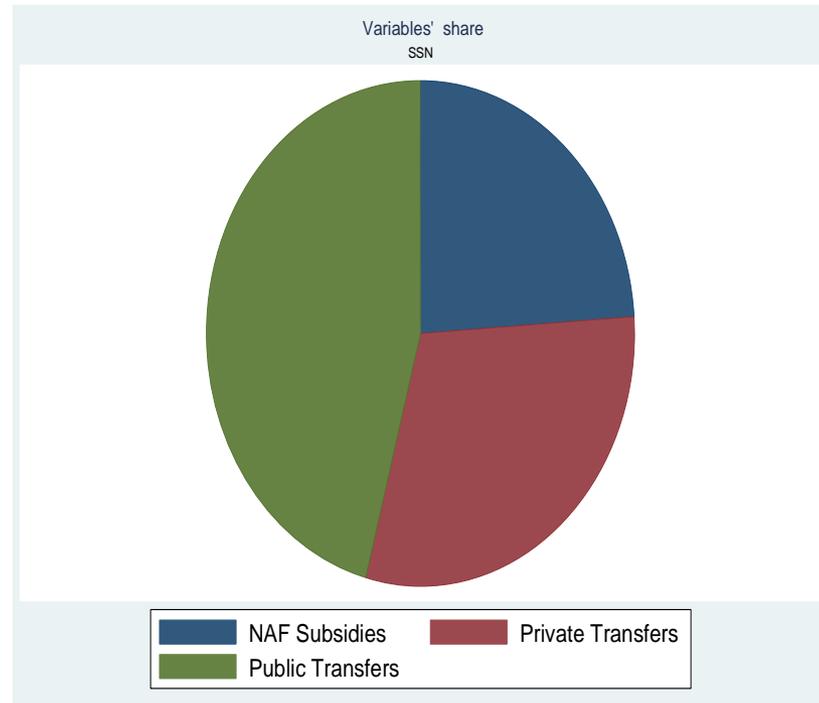
### Previous findings:

- “Food insecurity is linked to a large extent to the education level of the head of household. Households whose heads are illiterate or barely literate are more at risk of food insecurity and vulnerability” (The State of Food Security in Jordan 2013-2014, DoS)

### Access to Basic Services (ABS)



### Social Safety Nets (SSN)



#### Two types of intervention:

- 1) Enhance the role of Social Safety Nets (SSN) and Assets (AST) is key for an overall increase in resilience
- 2) Boost Access to Basic Services and Adaptive Capacity (AC) (e.g. access to water, education, income diversification) in the least resilient areas/categories is crucial to reduce inequality in resilience capacity



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# 5. Resilience analysis: heterogeneity

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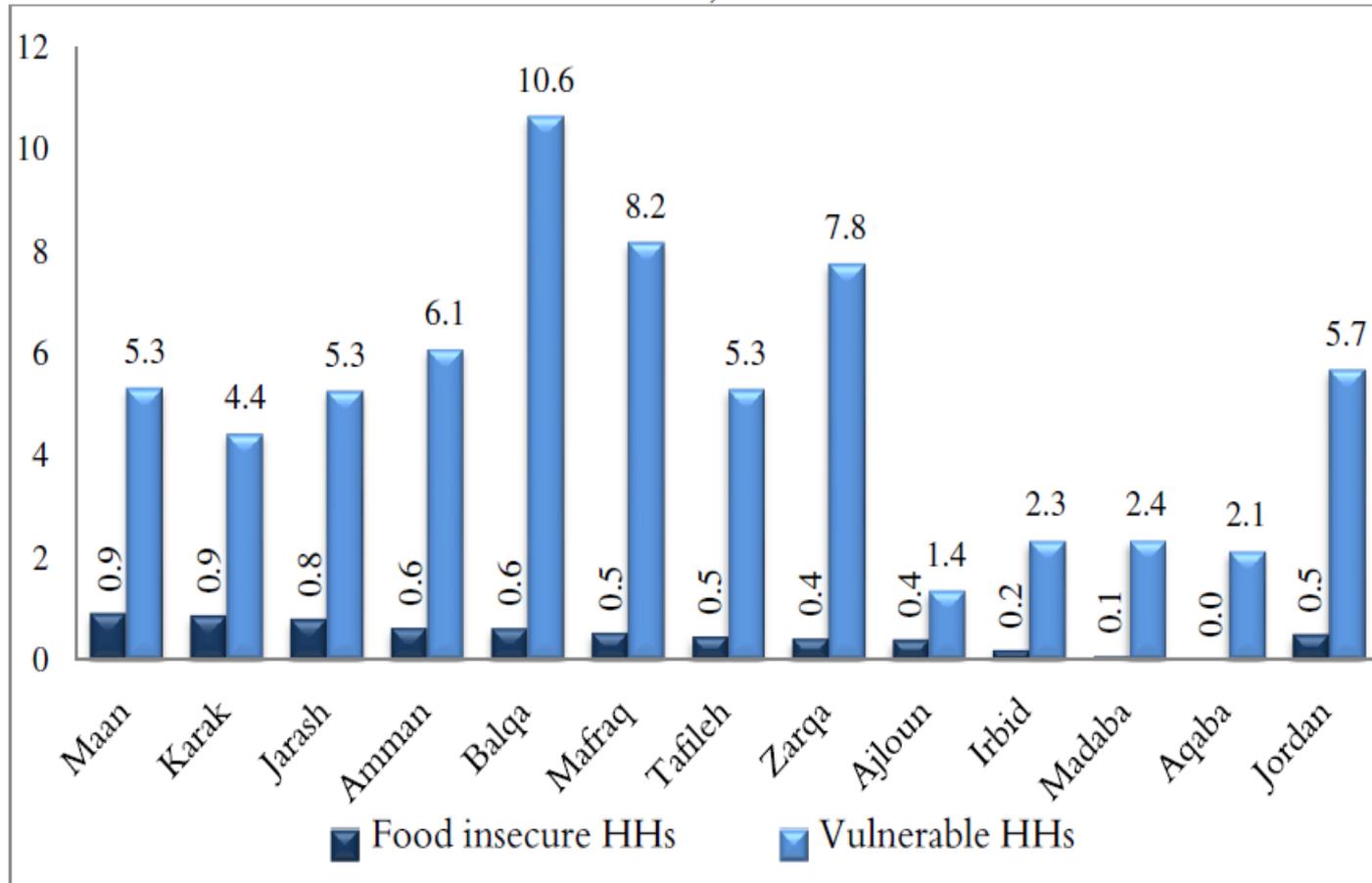


## RCI heterogeneity

	RCI Average
Aggregate	60.059
Rural	58.595
Urban	60.914
Female HH	55.732
Male HH	60.738
Amman	60.598
Balqa	54.738
Zarqa	54.179
Madaba	60.968
Irbid	68.314
Mafraq	54.680
Jarash	57.604
Ajlun	67.035
Karak	59.929
Tafiela	56.859
Ma'an	61.329
Aqaba	56.838
Jordanian HH	60.251
Non-Jordanian HH	56.004

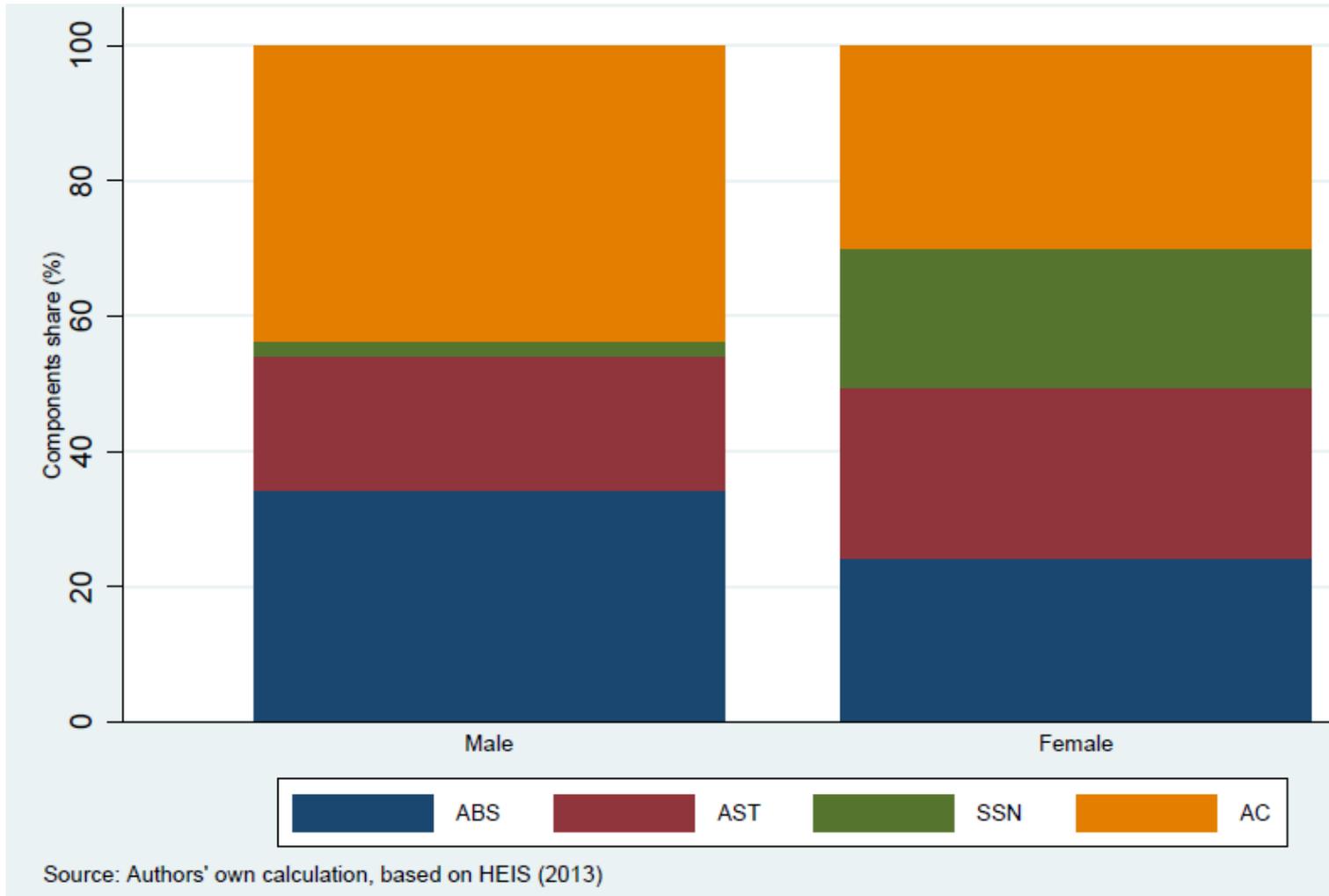


## Consistency with Jordan DoS findings

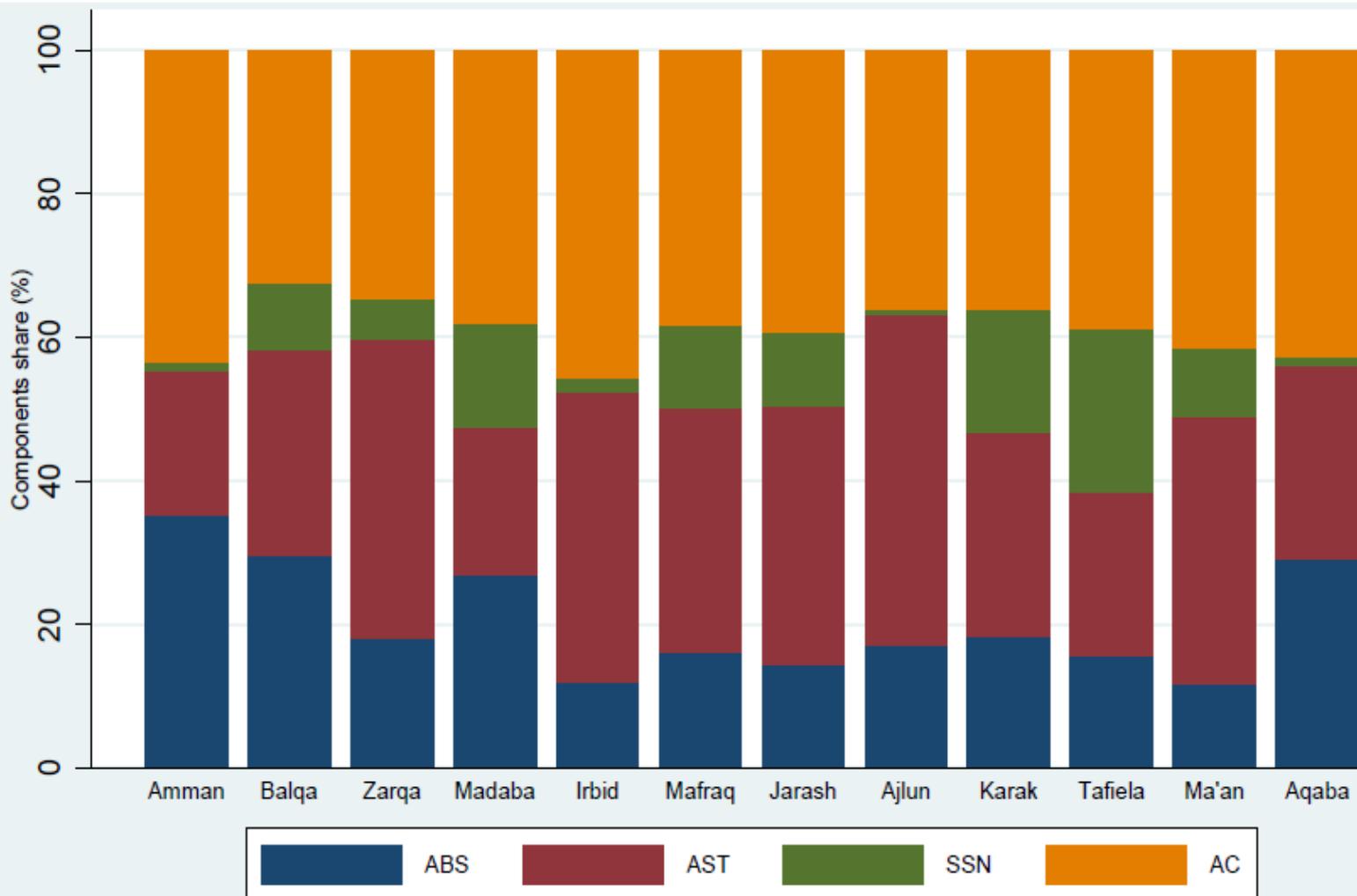


Source: DoS, Household Expenditure and Income Survey; Food Security Survey.

## Share of components (pillars): gender

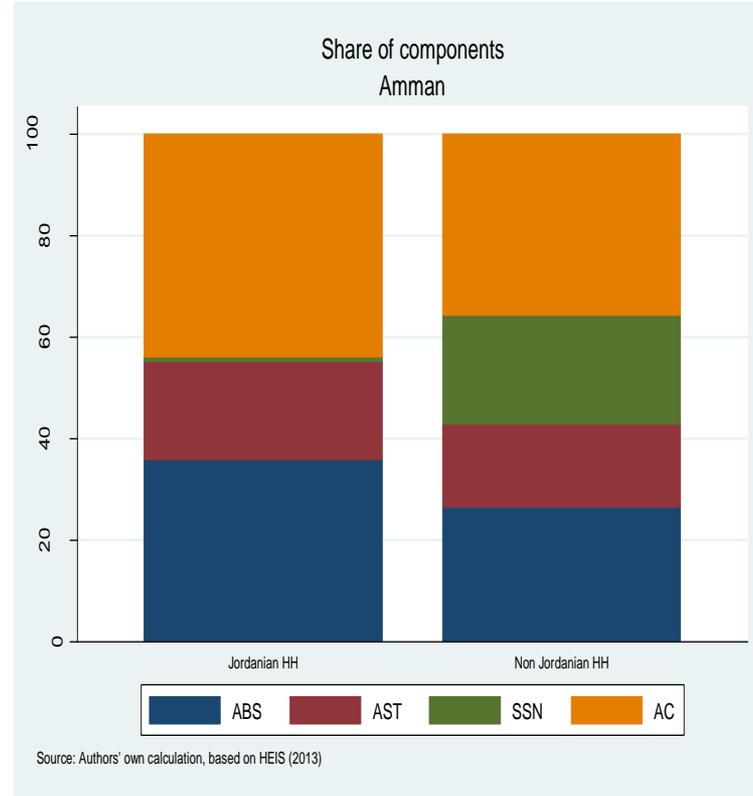
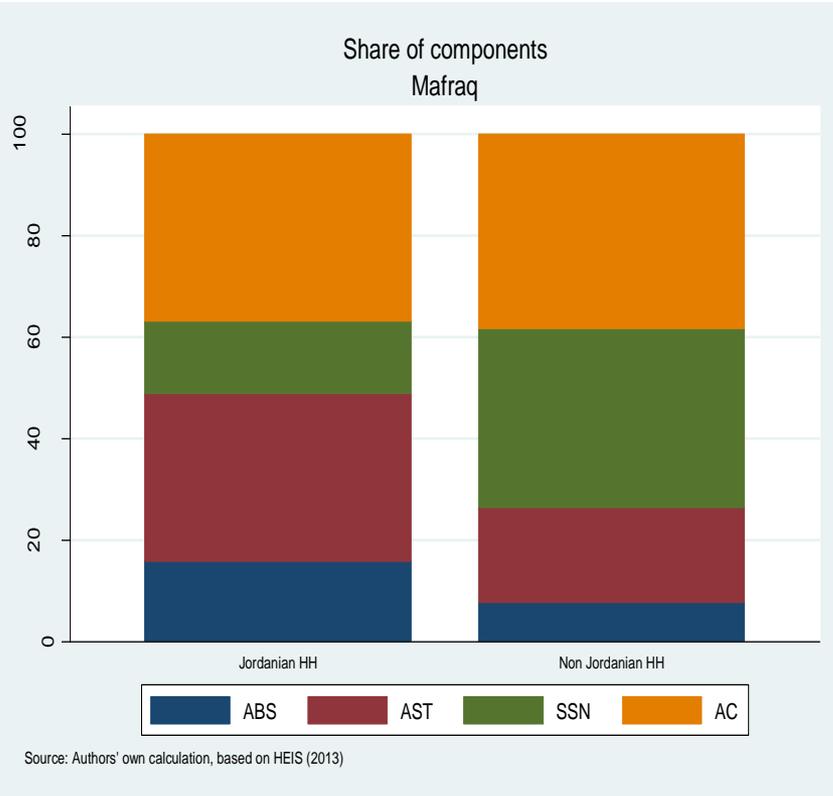


## Share of components (pillars): governorates



Source: Authors' own calculation, based on HEIS (2013)

## Jordanian vs Non-Jordanian households



We detect heterogeneity not only in between resilience capacity, but also in the components of the RCI between Jordanian and Non-Jordanian households in most governorates.



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## 6. RCI and shocks

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## RCI and shocks: OLS results

As expected, idiosyncratic (food and illness) shocks and covariate ones (i.e. droughts, especially if prolonged over time) significantly decrease household resilience capacity.

In particular, an OLS regression shows the following shocks have a **negative and statistically significant impact (at the 1 percent level) on resilience capacity:**

Idiosyncratic shocks: **food shocks** (i.e. eating no food for a whole day) and **illness** of a household member.

Covariate shocks: **Agricultural Stress Index (ASI)**

Consistently, the **Normalized Difference Vegetation Index (NDVI)** has a positive and significant impact.

Furthermore, covariate shocks have an even bigger impact when they are prolonged over time.



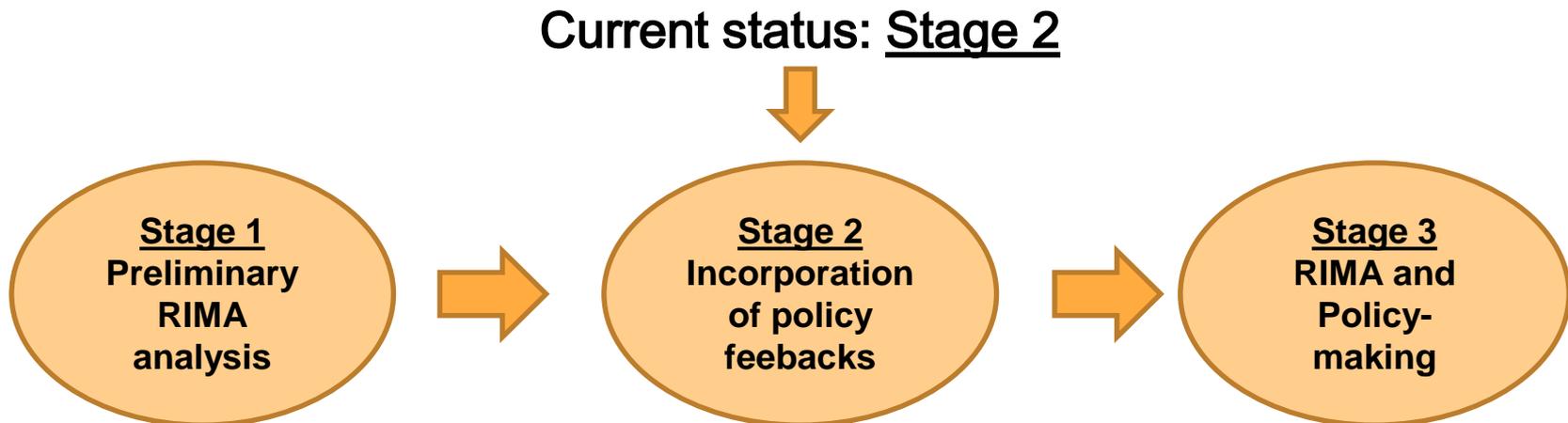
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# 7. Next steps: policy links and potential extensions

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## Next steps: policy links and potential extensions

- Need to tailor RIMA over key policy research questions
- Compare the core findings emerged with the main socio-economic policies currently implemented in Jordan
- **Extensions:** Exploration of **resilience dynamics over time** and the causal relationship with shocks through the use of longitudinal data





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# THANK YOU!

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