

Energy Poverty Conference 2024

DATE

6th November 2024

VENUE

ESRI, Whitaker Square, Sir John Rogerson's
Quay,
Dublin 2



Shedding Light on Energy Poverty

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ENERGY POVERTY CONFERENCE

6th November 2024



**AN INSTITIÚID
UM THAIGHDE
EACNAMAÍOCHTA
AGUS SÓISIALTA**
ESRI ECONOMIC & SOCIAL
RESEARCH INSTITUTE

This investigation

1. Analysis of common —and complementary — measures of energy poverty.
2. Proposal of new indicators to measure and monitor energy poverty.
3. Estimation across time and heterogeneity across groups
4. Comparative analysis —advantages and limitations.

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Context

- Latest EU level discussion on energy poverty indicators.
(Directorate-general for Employment, Social Affairs & Inclusion, 2024)
 - Data sources: SILC and HBS
 - Four main indicators: IAAW, AUB, M/2, and 2M.
 - Strengths, weaknesses and trade-offs: frequency, reliability, robustness.
 - Overlaps between EPI's: little overlap by pairs, and no further overlap.
 - Breakdown of EPI's: big overlap with income poverty.
 - Conclusion: composite, and self-reported – IAAW and AUB – preferred
- Our current work addresses this issue and takes several steps forward.

Analysis

- Multiple sources data:
 - HBS
 - SILC
 - BER-SILC
 - Energy Prices (SEAI)
 - Meteorological data (JRC)
- Calculated, estimated and analyzed:
 - 10 energy poverty indicators
 - 2 proposal for future work
 - 14 complementary indicators

ENERGY POVERTY INDICATORS AND SOURCES OF CALCULATIONS AND ESTIMATIONS

	HBS	SILC	BER-SILC
HSEEI	Calculated	Estimated	Estimated
LSEEI	Calculated	Estimated	Estimated
HAEE	Calculated	Estimated	Estimated
LAEE	Calculated	Estimated	Estimated
IAAW	Estimated	Calculated	Calculated
AEB	Estimated	Calculated	Calculated
LIHC	Calculated	Estimated	Estimated
LEE	Estimated	Estimated	Calculated
LILEE	Estimated	Estimated	Calculated
EPG	Calculated	Estimated	Estimated
MIS	Estimated	Estimated	Estimated
MES	Estimated	Estimated	Estimated

	HBS	SILC	BER-SILC
Gross Income	Calculated	Calculated	Calculated
Disposable Income	Calculated	Calculated	Calculated
Percentage of income spent on energy	Calculated	Estimated	Estimated
Share of population in income poverty	Calculated	Calculated	Estimated
Share of population renting a home	Calculated	Calculated	Estimated
Low energy efficiency	Estimated	Estimated	Calculated
Physical condition of homes	Calculated	Calculated	Estimated
Housing costs	Calculated	Calculated	Estimated
Transport costs	Calculated	Estimated	Estimated
Energy costs	Calculated	Estimated	Estimated
Energy consumption	Estimated	Estimated	Calculated
Energy efficiency	Estimated	Estimated	Calculated
Energy prices	Estimated	Estimated	Estimated
Exposure to extreme temperature days	Estimated	Estimated	Estimated

Calculated
 Estimated

Analysis

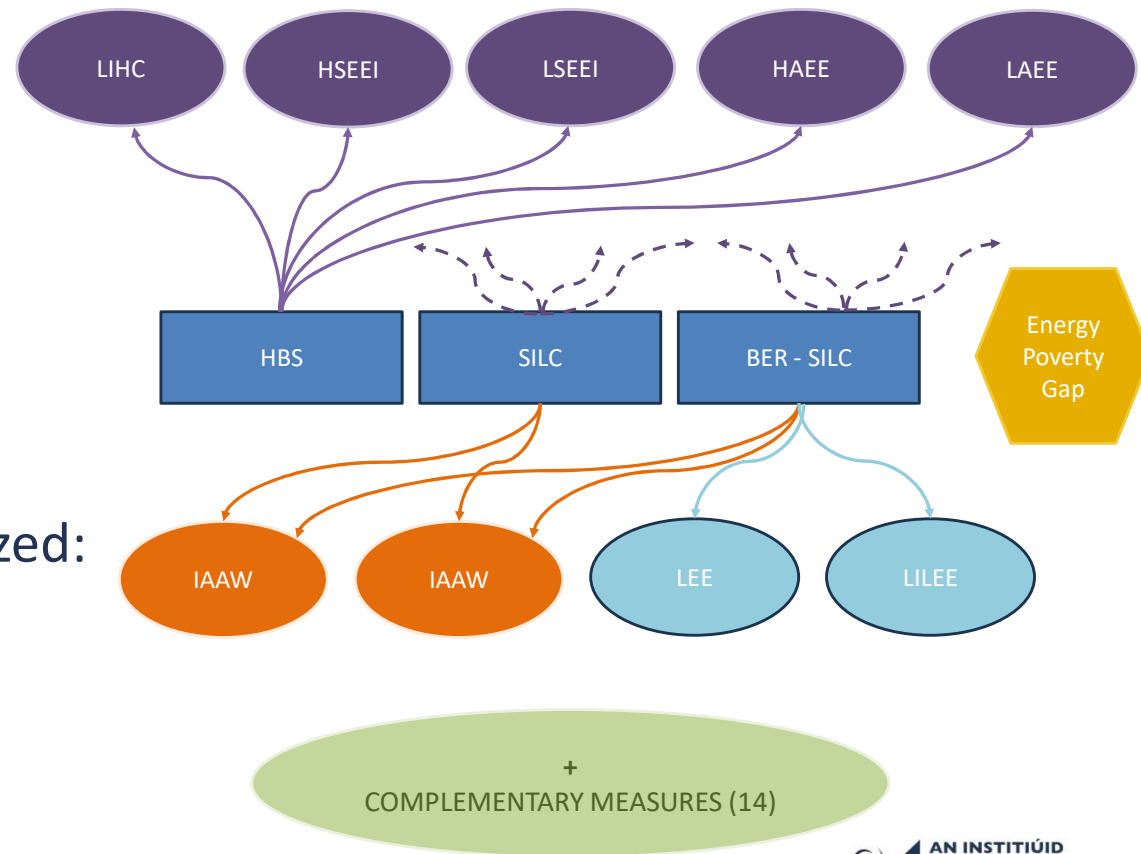
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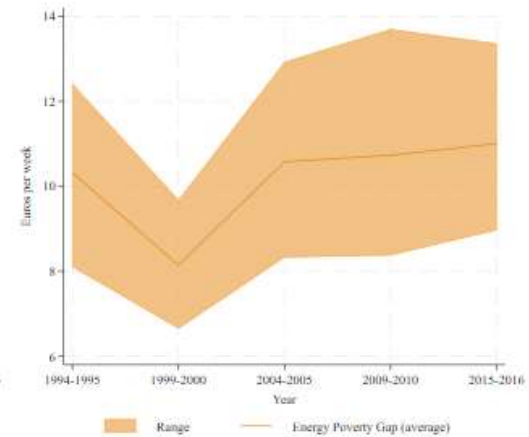
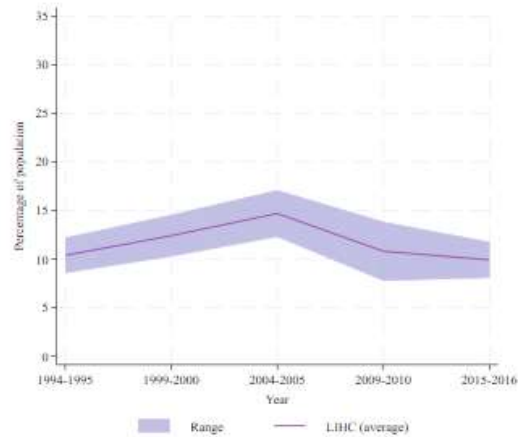
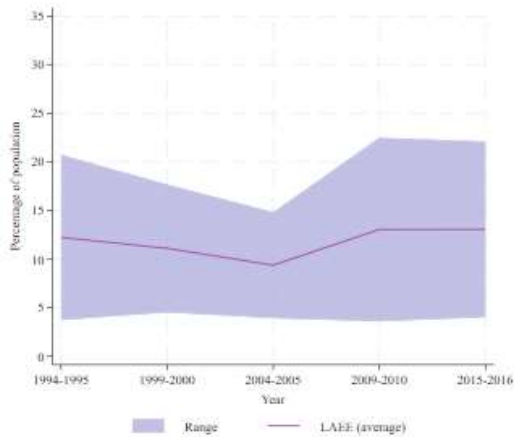
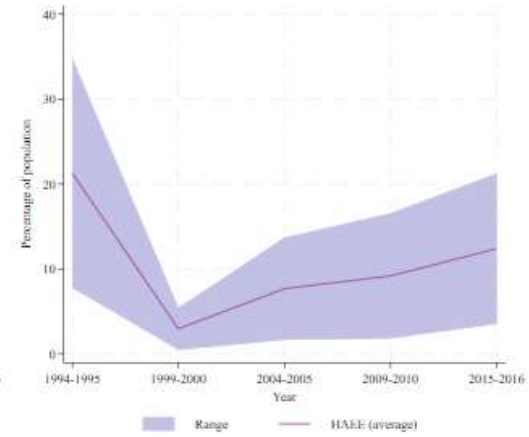
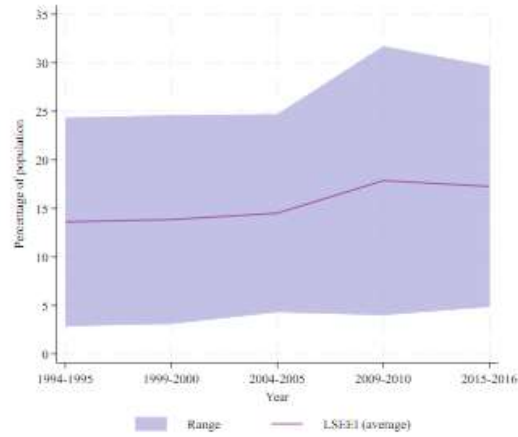
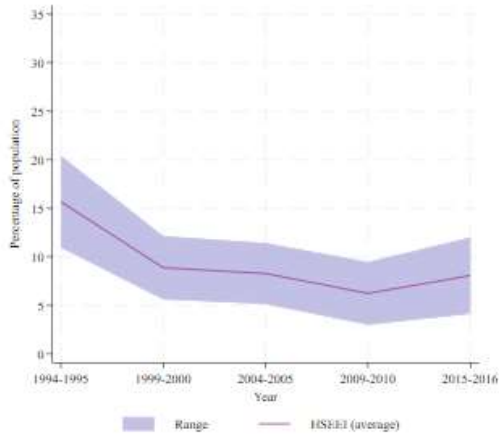
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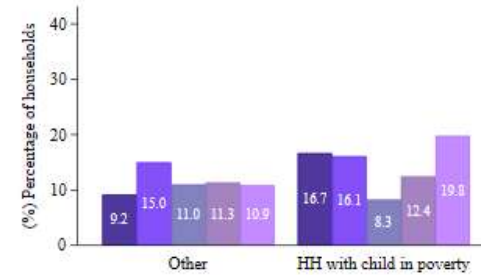
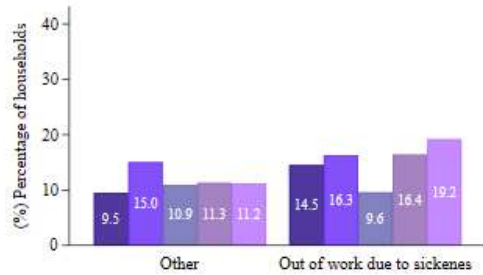
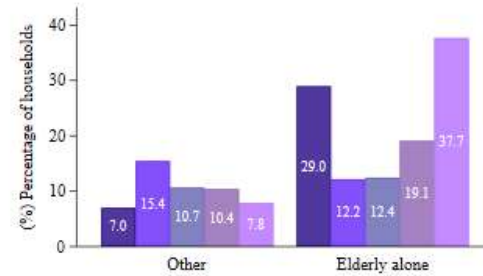
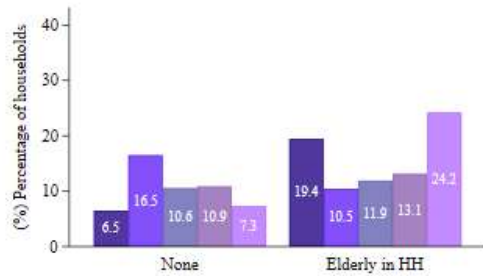
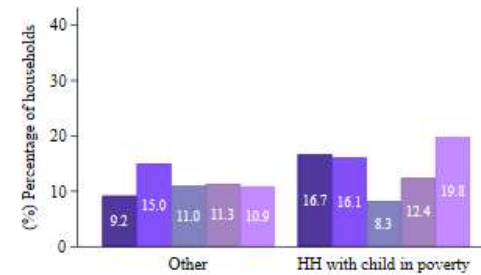
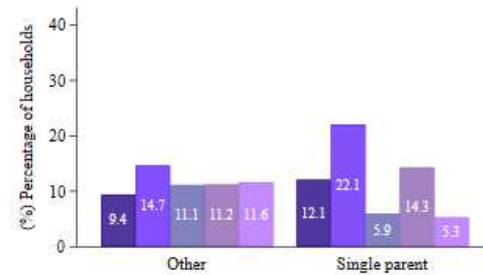
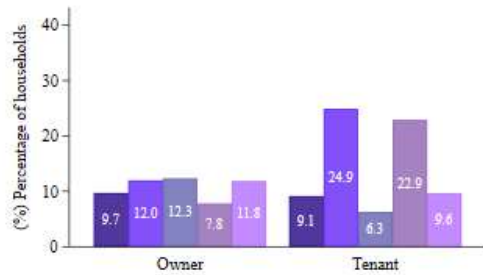
ENERGY POVERTY INDICATORS AND SOURCES OF CALCULATIONS AND ESTIMATIONS



HBS – Expenditure Based Indicators' Trends



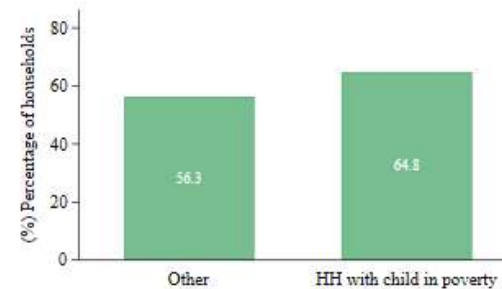
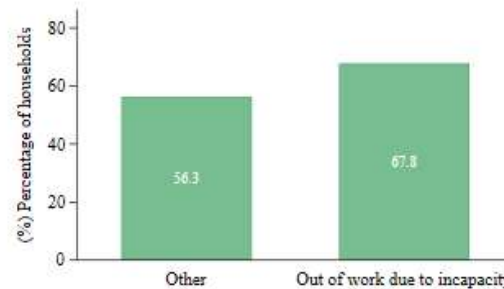
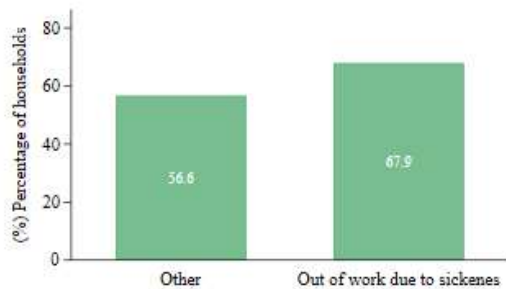
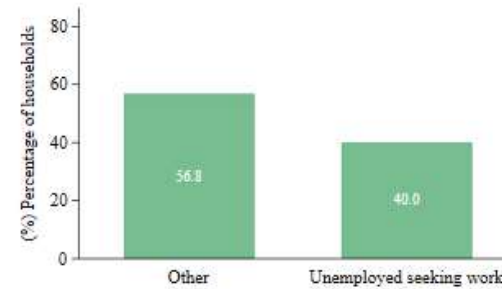
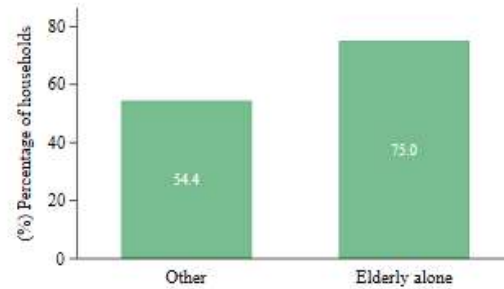
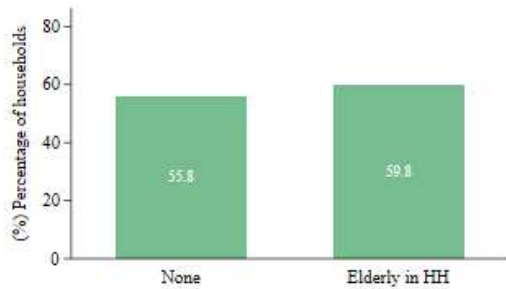
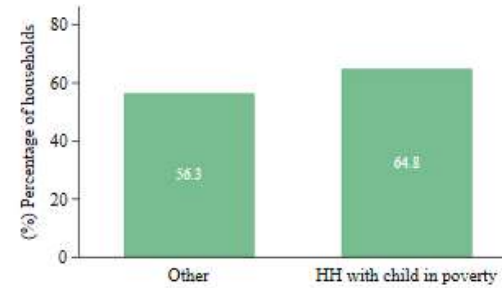
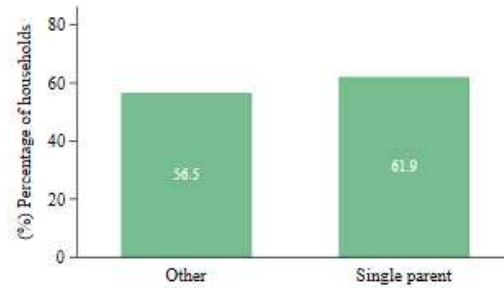
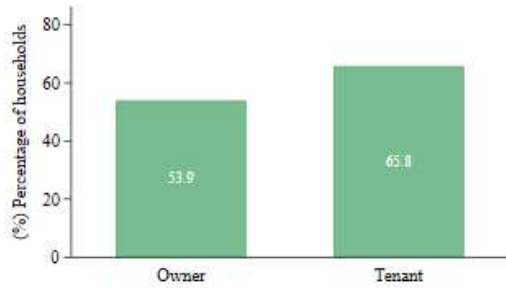
HBS – Mean of indicators across vulnerable groups



HBS – Composite Indicator



HBS – Composite indicator across vulnerable groups

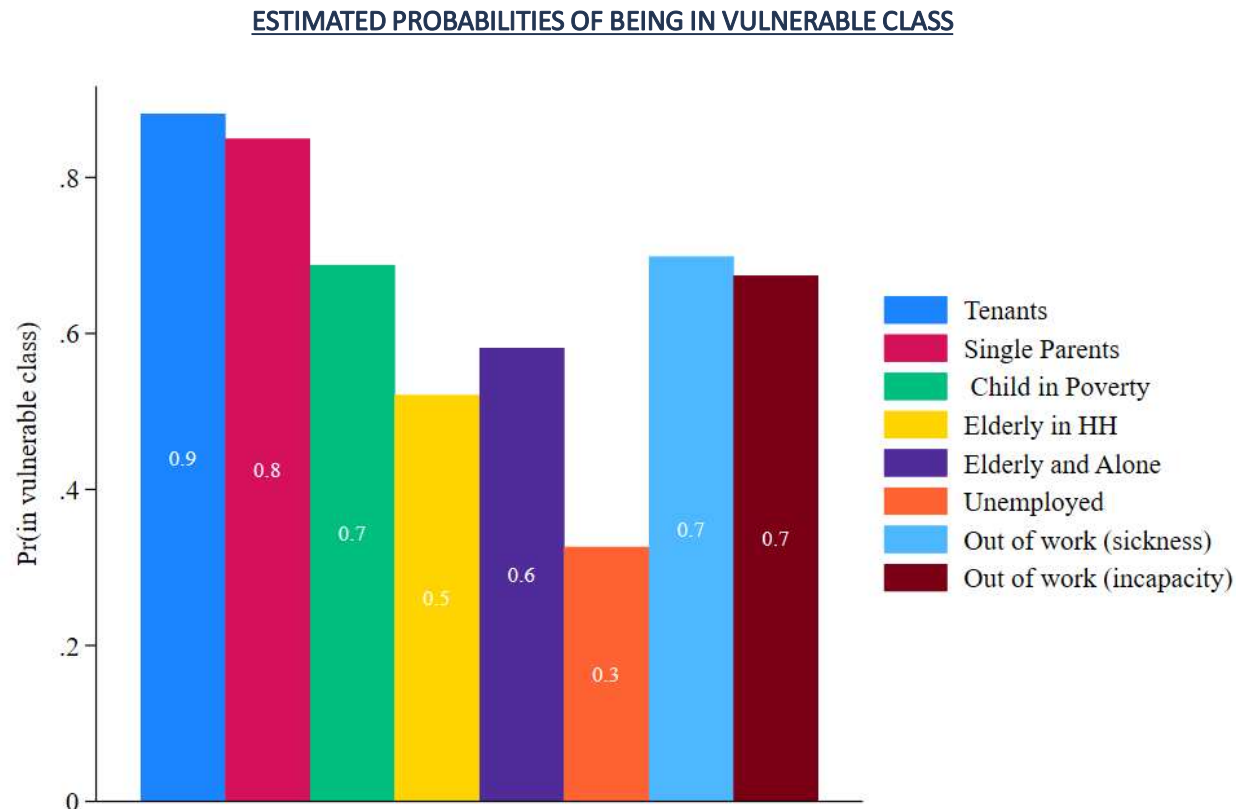


HBS – Latent class analysis (preliminary results)

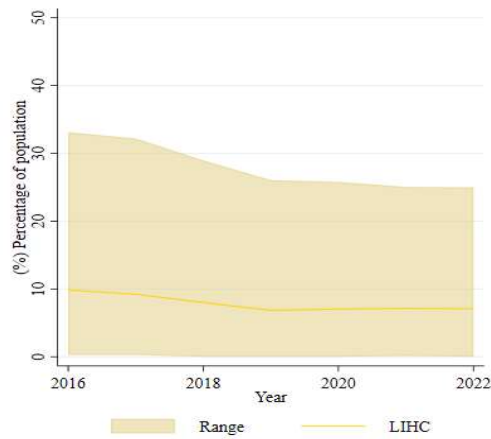
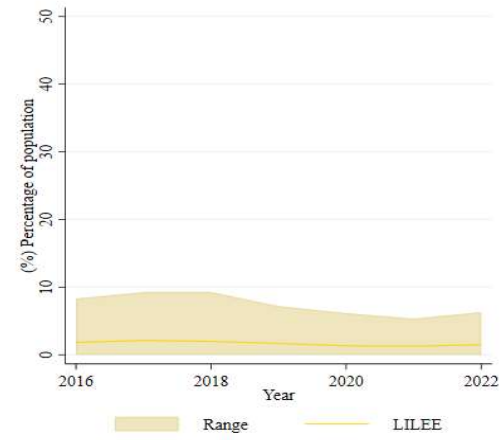
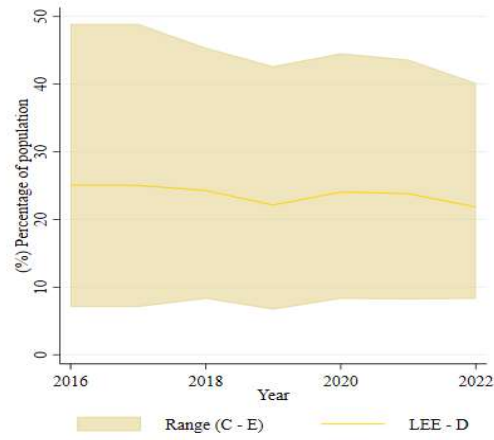
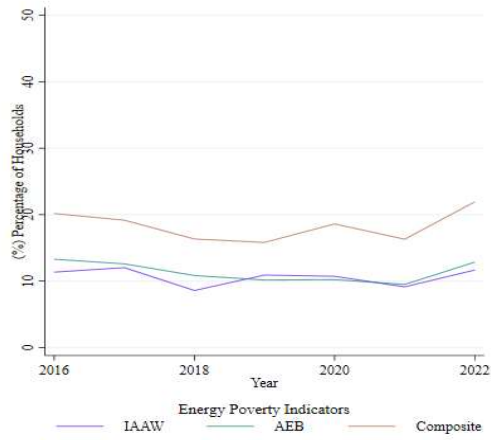
ESTIMATION OF LATENT CLASS POSTERIOR PROBABILITIES

	Class 1		Class 2	
Energy poverty composite indicator	0.5771308	(0.0039)	0.5542046	(0.0047)
Income poverty	0.258191	(0.0034)	0.2010287	(0.0037)
Rural area	0.0945977	(0.0042)	0.7386271	(0.0058)
Old building	0.7278837	(0.0035)	0.7564677	(0.0041)
Tenant status	0.359627	(0.0041)	0.0681804	(0.0028)
Detached housing	0.0440065	(0.0047)	0.9987583	(0.0076)

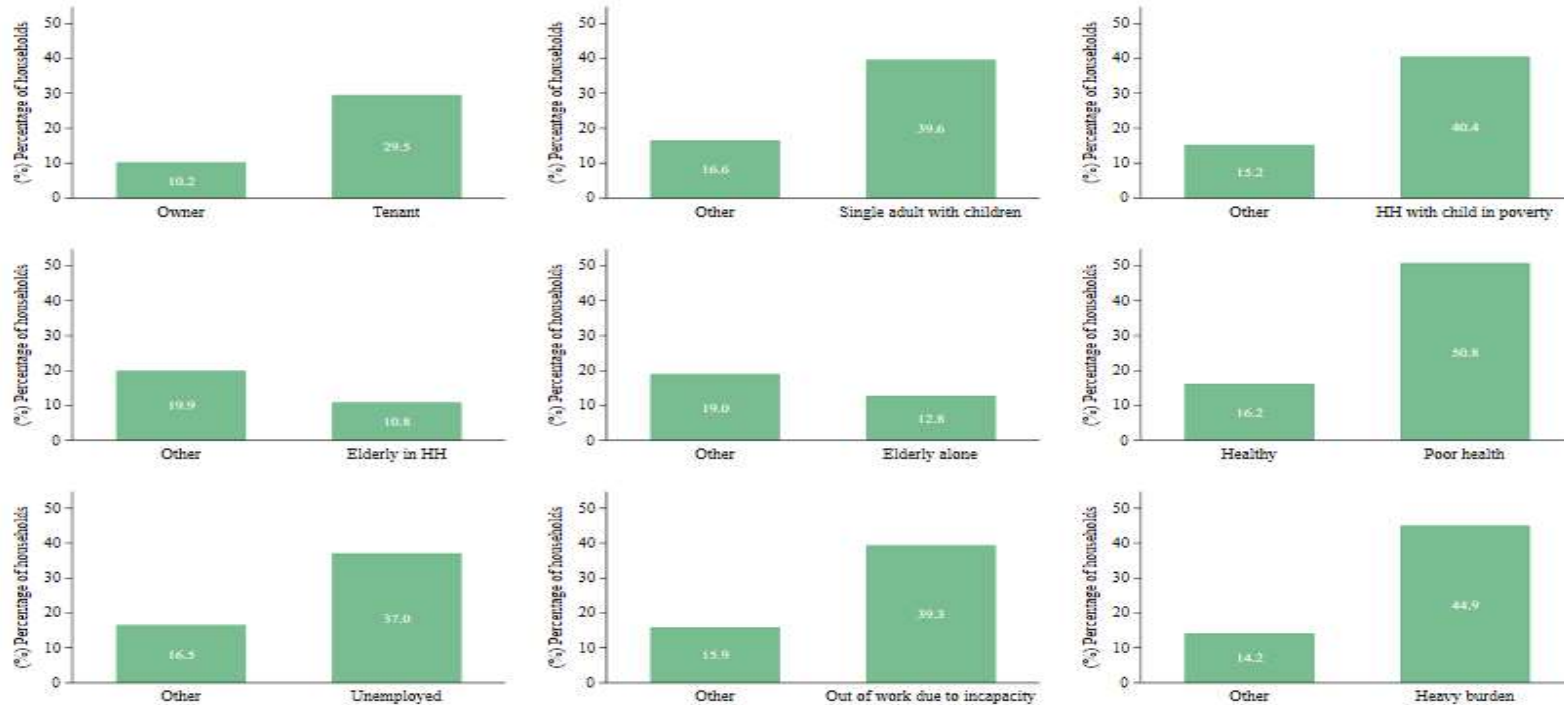
HBS – Latent class analysis (preliminary results)



BER-SILC – Indicators' Trends



BER-SILC – Composite indicator across vulnerable groups



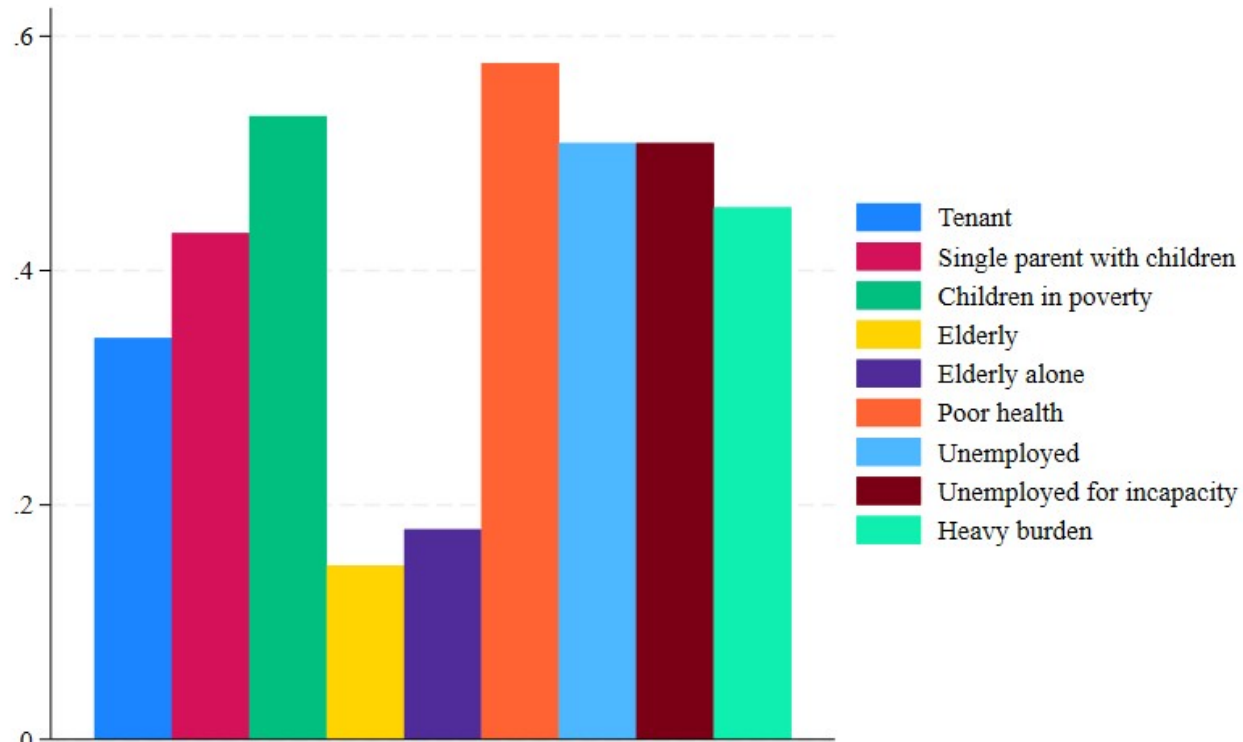
BER-SILC – Latent class analysis (preliminary results)

ESTIMATION OF LATENT CLASS POSTERIOR PROBABILITIES

	Class 1		Class 2	
Energy poverty composite indicator	0.038	(0.005)	0.670	(0.027)
Income poverty	0.113	(0.005)	0.429	(0.018)
NDI	0.032	(0.008)	0.880	(0.026)
Rural	0.128	(0.004)	0.079	(0.008)
EPR - E	0.110	(0.004)	0.129	(0.010)
EPR - F	0.042	(0.003)	0.043	(0.006)
EPR - G	0.032	-0.002	0.059	-0.007

BER-SILC – Latent class analysis (preliminary results)

ESTIMATED PROBABILITIES OF BEING IN VULNERABLE CLASS



Q&A

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