

# Living in housing cooperatives with energy in focus:

Resident perspective in Czechia and Poland.

## RESEARCH REPORT 02/2025

IBS: Jan Frankowski, Joanna Mazurkiewicz,  
Aleksandra Prusak, Jakub Sokołowski

UCEEB: Soňa Stará, Wojciech Bełch, Tomáš Vácha,  
Michal Nesládek

# Project ENBLOC: ENaBLing energy transition in postsocialist hOusing Cooperatives. | :

What role do housing institutions play in accommodating energy transition, and how can HCs serve as agents of change?

## Project goals

- preparing the [database](#) and typology of HCs in both countries
- comparing the internal/external policies of HCs
- assessing the HC's readiness to engage in the energy transition

## Contribution

- organising knowledge about HCs in PL and CZ
- measuring added value from cooperativeness in energy transition
- evaluating the retrofit effectiveness for HCs inhabitants
- demonstrating registry data application in housing studies



NARODOWE CENTRUM NAUKI

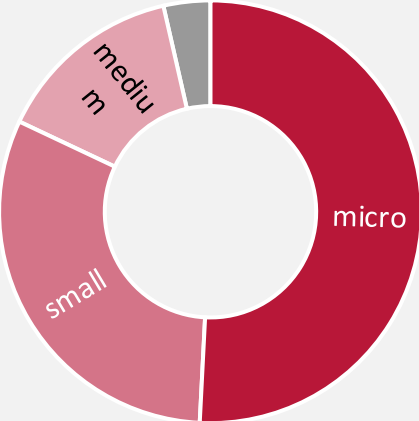
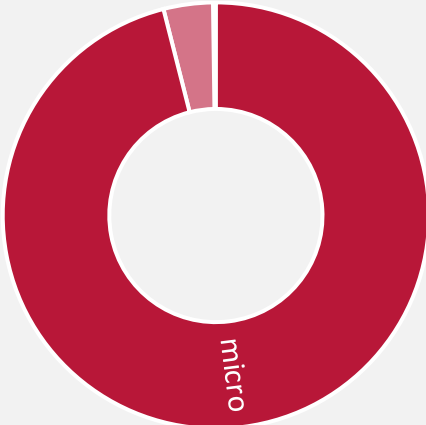


UNIVERZITNÍ  
CENTRUM  
ENERGETICKY  
EFEKTIVNÍCH BUDOV  
ČVUT V PRAZE



instytut  
badań  
strukturalnych

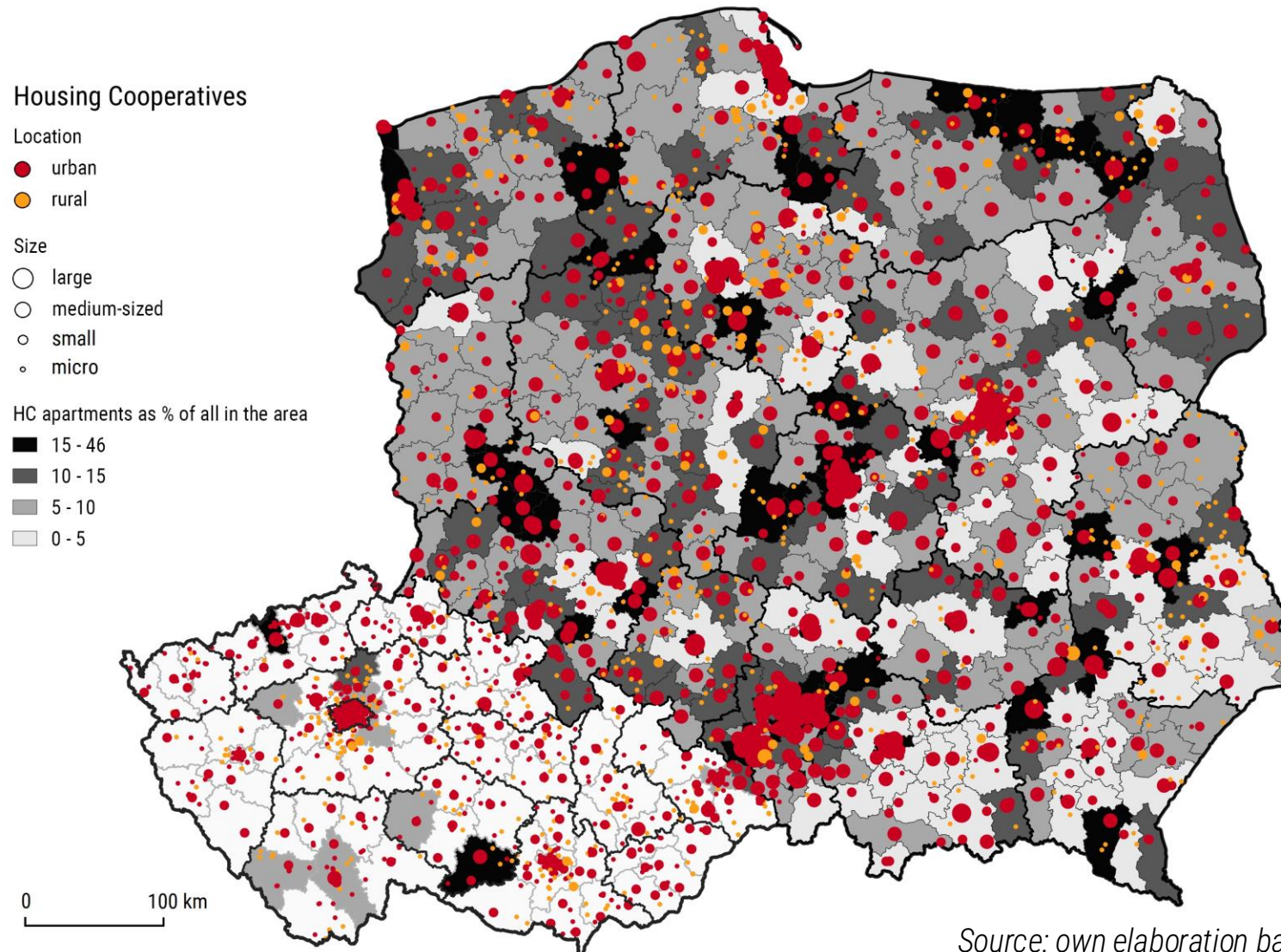
# Polish housing cooperatives are larger and have a greater share of housing market than Czech ones

Criteria	Poland	Czechia
Active entities	3436	7775
% of all apartments	15% (2.3 million)	3% (0.14 million)
% of urban	81%	96%
Age	47% registered before 1989	97% (re-)registered after 1989
Size		

Source: own elaboration based on Polish and Czech administrative data.



# In Poland, housing cooperatives play a significant role in the vast majority of local housing markets, in opposite to Czechia



Source: own elaboration based on Polish and Czech administrative data.

# This report provides an overview of housing stock conditions and resident perspectives on energy in Polish and Czech housing cooperatives and associations

---

- > What do we know about the residents of multi-family buildings?
- > What does this knowledge tell us about their energy-related needs?
- > What do we know about the housing conditions and views on energy among residents of multi-family buildings?
- > What are the most commonly declared attitudes toward energy-related issues among residents of multi-family buildings?
  - > What types of behaviour are most prevalent among multi-family building residents?
  - > How do residents perceive their local engagement, sense of agency, and trust in housing institutions?
  - > To what extent does the scale of the cooperative / association influence these perceptions?
- > Among which citizen groups are conditions most favourable for implementing energy investments? Conversely, which socio-demographic groups express the greatest concerns regarding such initiatives?
- > In what areas do the views of housing cooperative residents and housing association members differ? Are there any notable differences between Poland and Czechia in this matter?



# Results:

## Housing and energy conditions



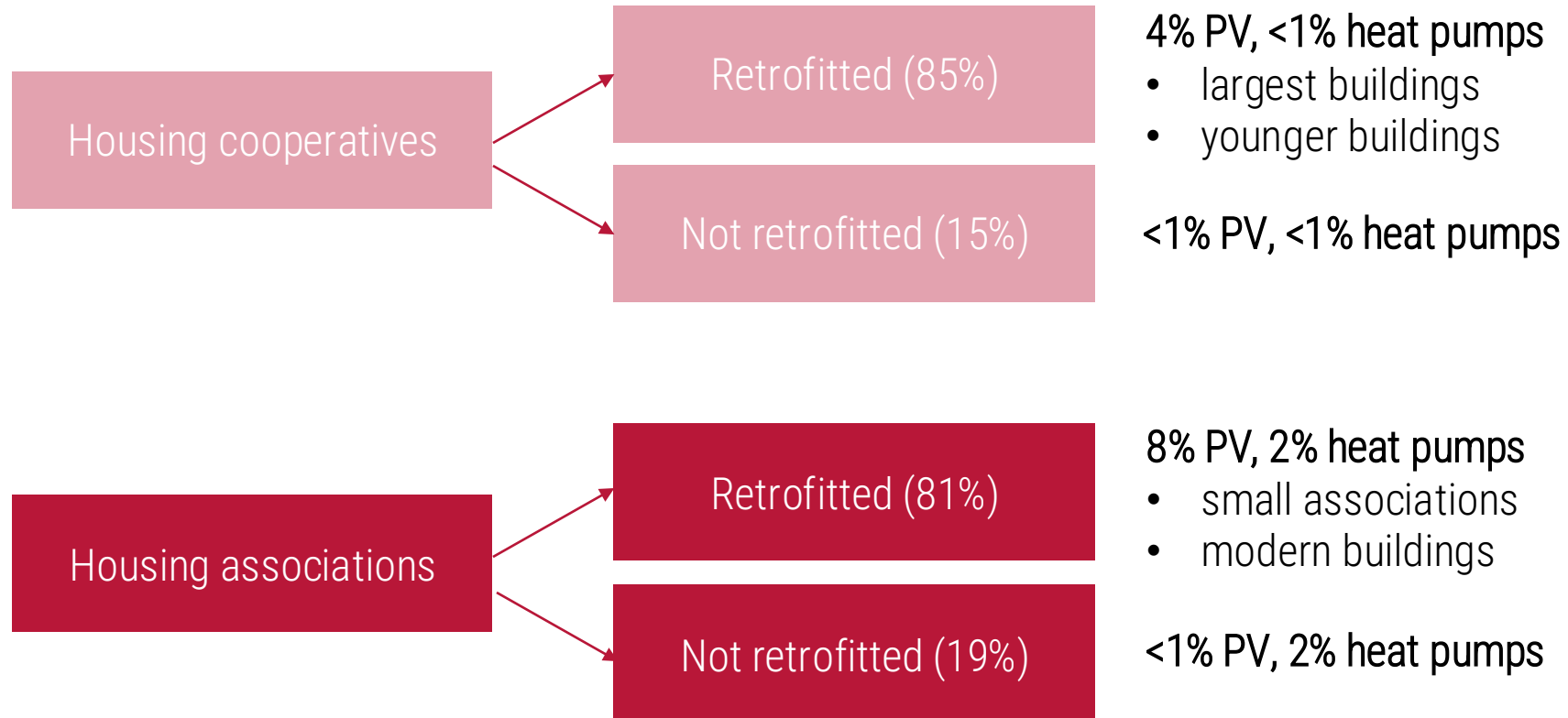
# Housing cooperative buildings are older, larger buildings and have less diversified heating sources than housing associations

Criteria	Housing cooperatives	Housing associations																
Building age	75% of buildings before 1989	60% of buildings before 1989																
Number of apartments in a building	<table><tr><th>Category</th><th>Percentage</th></tr><tr><td>50 and more</td><td>~35%</td></tr><tr><td>10-49</td><td>~48%</td></tr><tr><td>less than 10</td><td>~18%</td></tr></table>	Category	Percentage	50 and more	~35%	10-49	~48%	less than 10	~18%	<table><tr><th>Category</th><th>Percentage</th></tr><tr><td>50 and more</td><td>~22%</td></tr><tr><td>10-49</td><td>~48%</td></tr><tr><td>less than 10</td><td>~30%</td></tr></table>	Category	Percentage	50 and more	~22%	10-49	~48%	less than 10	~30%
Category	Percentage																	
50 and more	~35%																	
10-49	~48%																	
less than 10	~18%																	
Category	Percentage																	
50 and more	~22%																	
10-49	~48%																	
less than 10	~30%																	
Roofs	above 80% are flat	above 60% are flat																
Heating	80% are connected to district heating in case of local heating: gas and coal most popular	55% are connected to district heating in case of local heating: gas and coal most popular																

Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



The scale of PV adoption is twice as high in housing association buildings (7%) compared to housing cooperatives (3,5%)



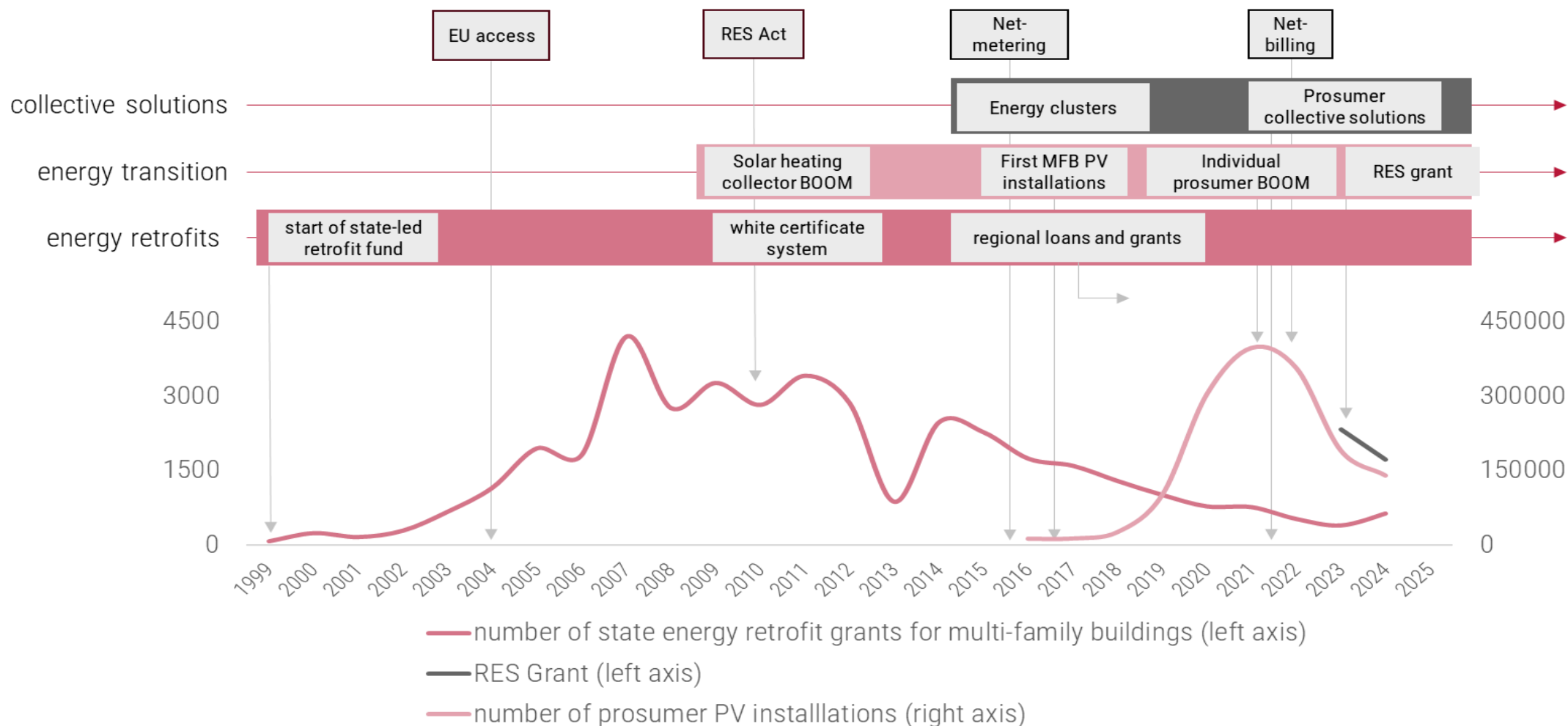
Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



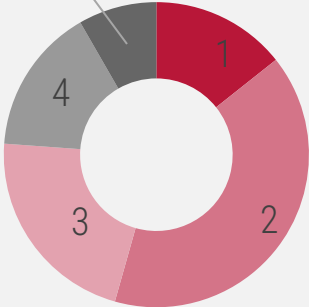
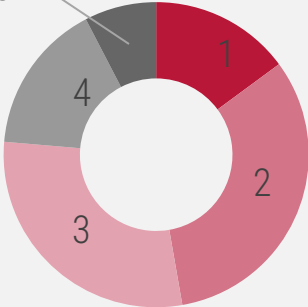


# The energy transition is driven by regulatory shifts and by its internal dynamics

## – moving from individual retrofits toward collective solutions.



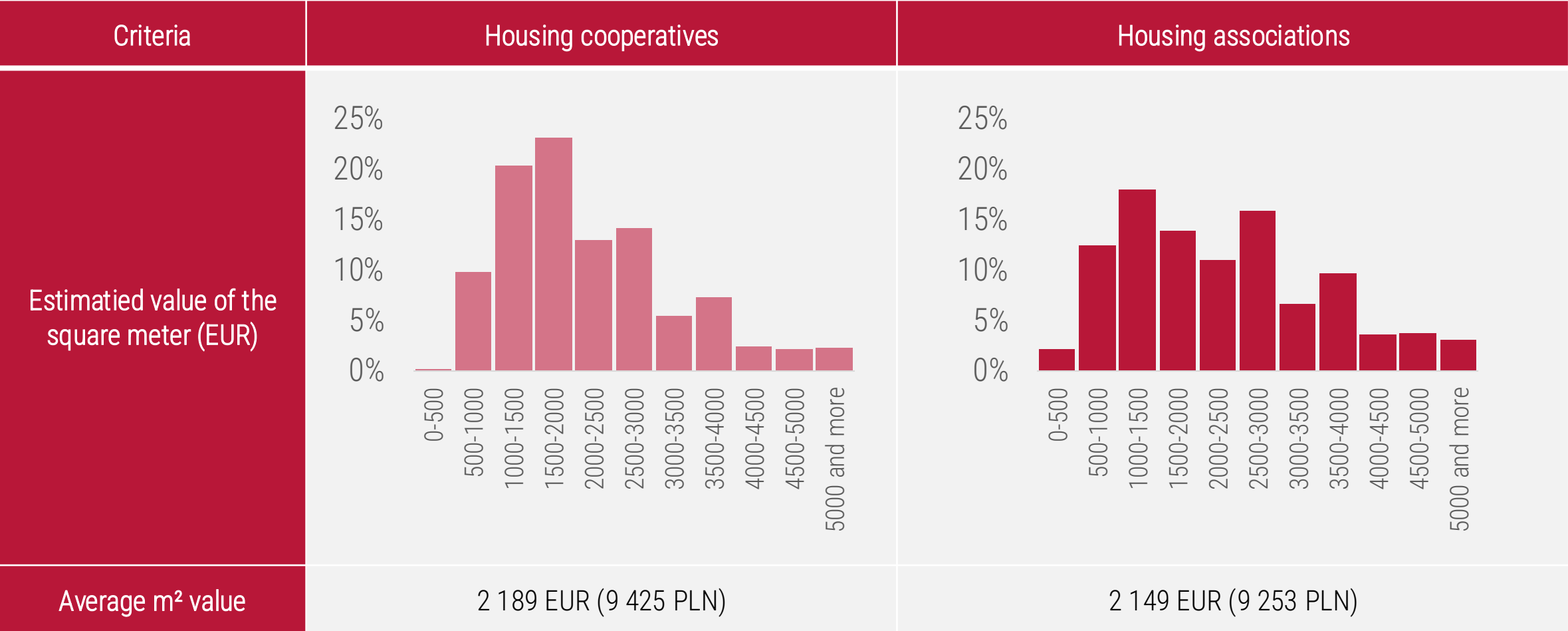
# Housing cooperatives have less diversified housing conditions than associations . | :

Criteria	Housing cooperatives	Housing associations
Gated community	9%	23%
Median apartment size	52 m²	54 m²
Rate of mortgage holders	36%	41%
Number of people in household		

Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



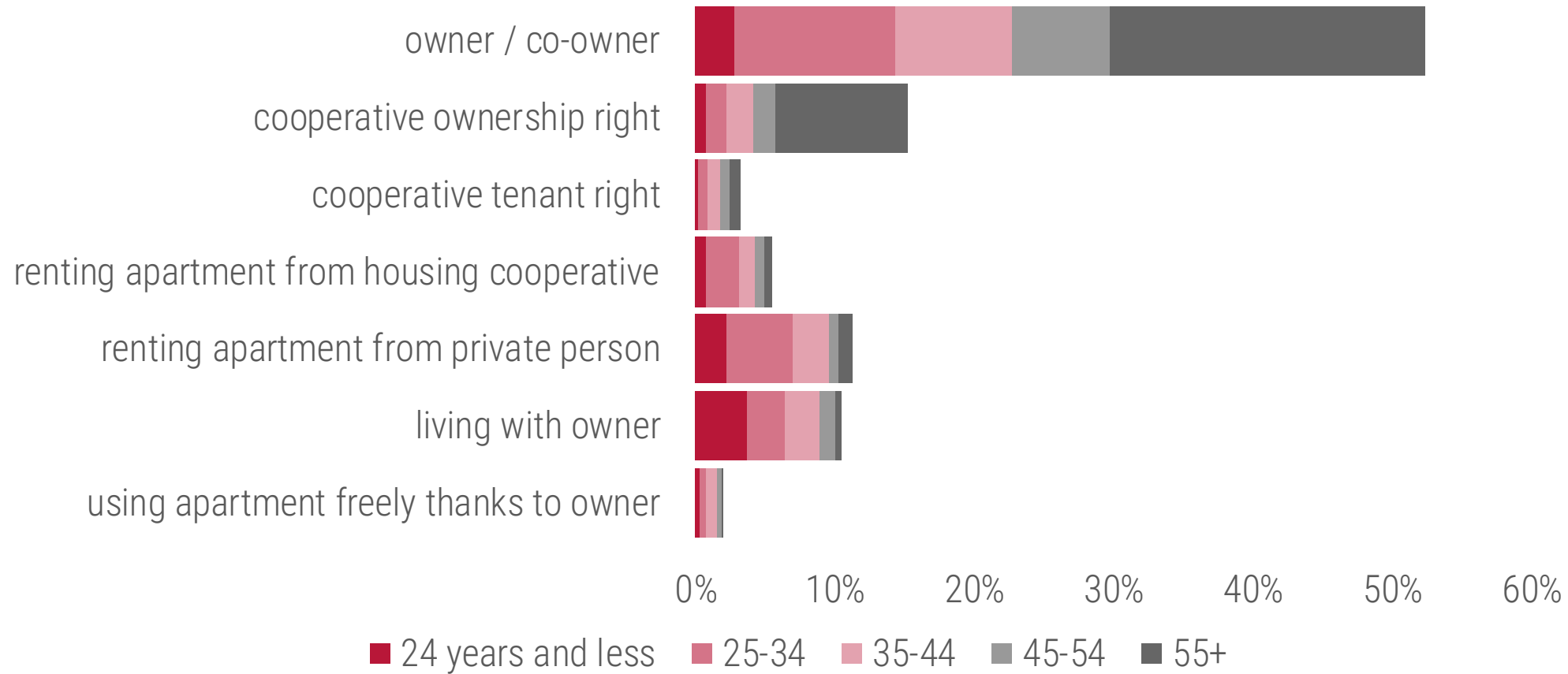
# People in housing cooperatives tend to estimate the price per square meter of their apartments more similarly than those in associations



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



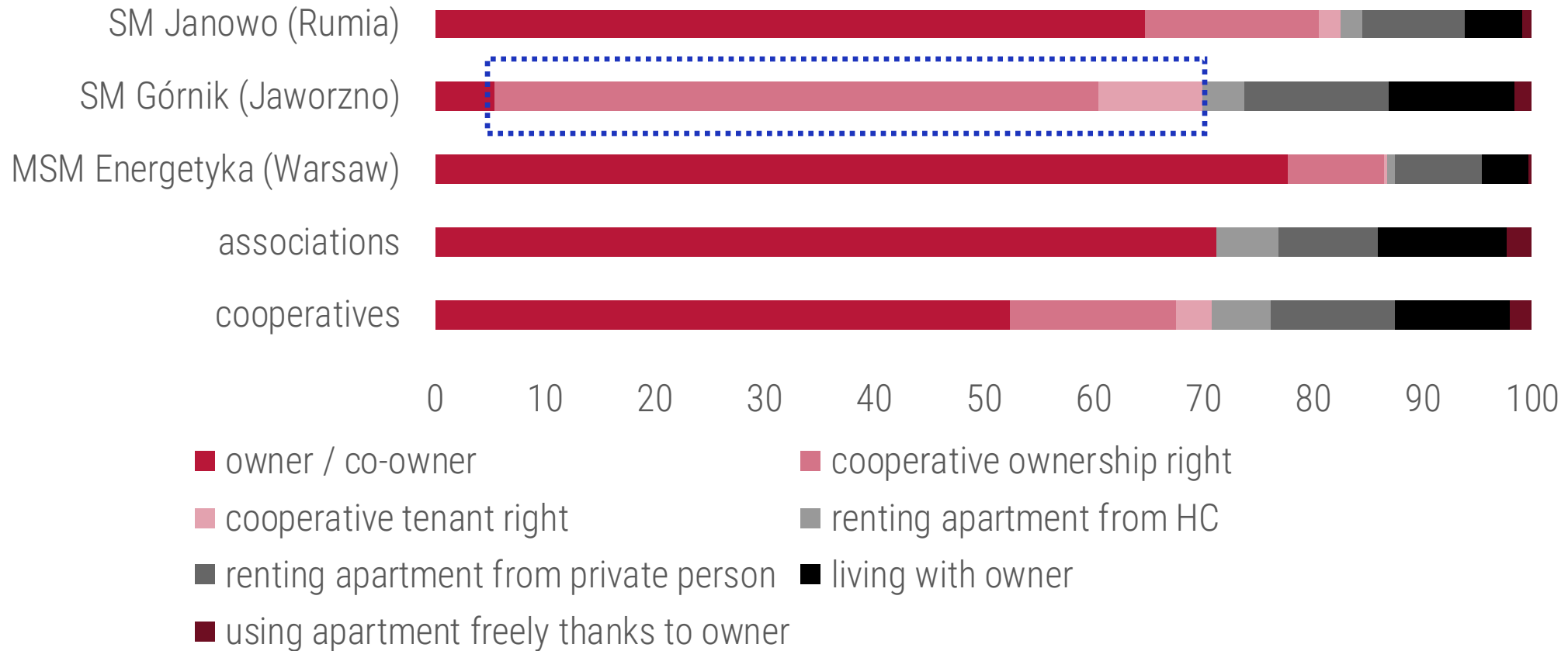
## More than half of the apartments in Polish housing cooperatives are privately owned. Cooperative ownerships dominates in 55+ age group.



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



# Ownership transformation doesn't happen everywhere at once – post-mining housing cooperative in Jaworzno is one such example

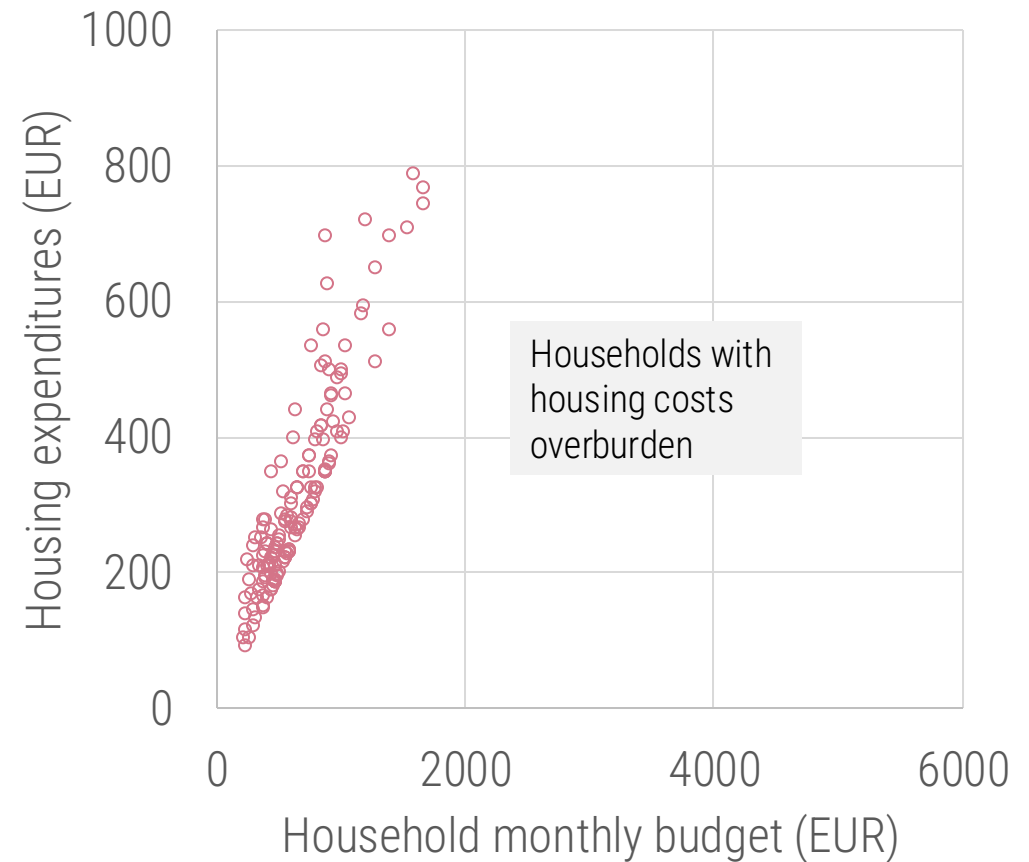
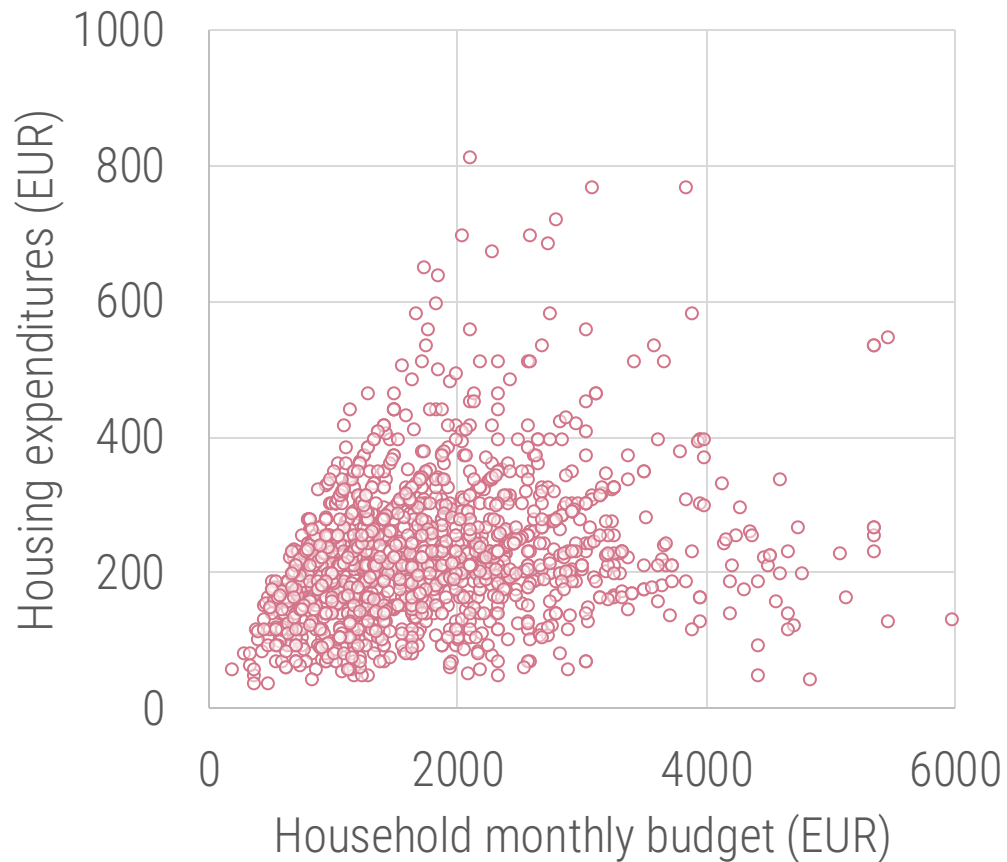


Source: own elaboration based on a survey with residents of housing cooperatives and associations.





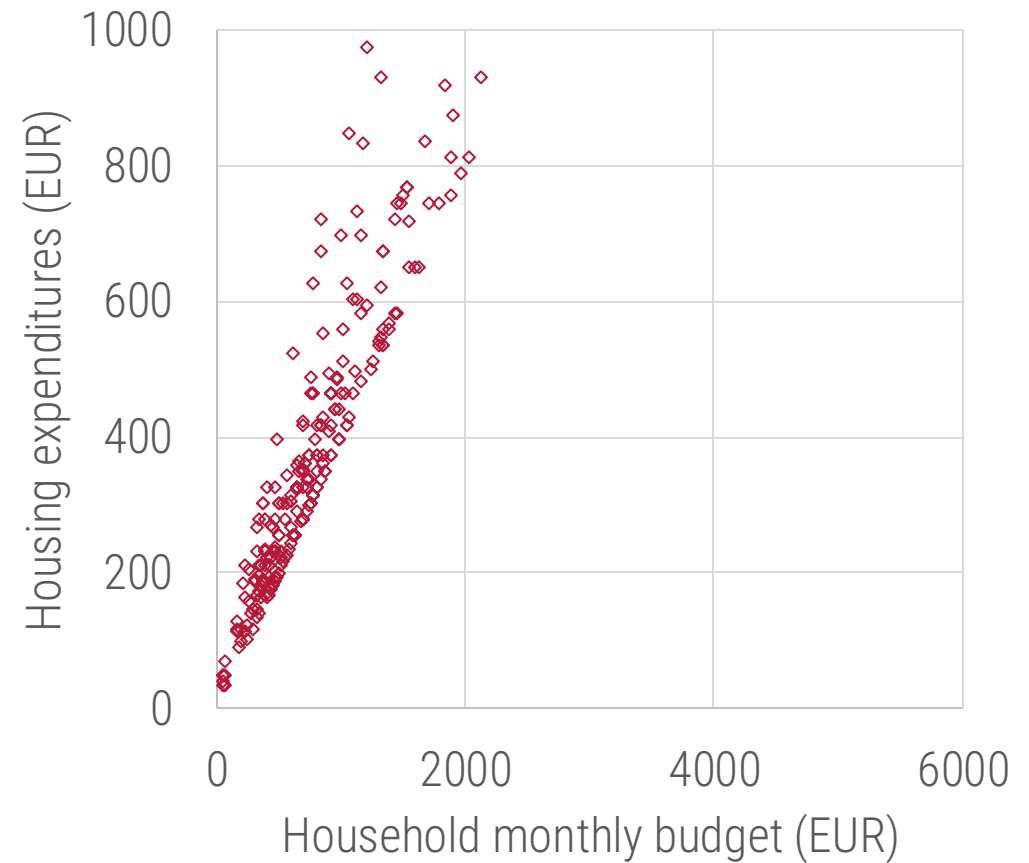
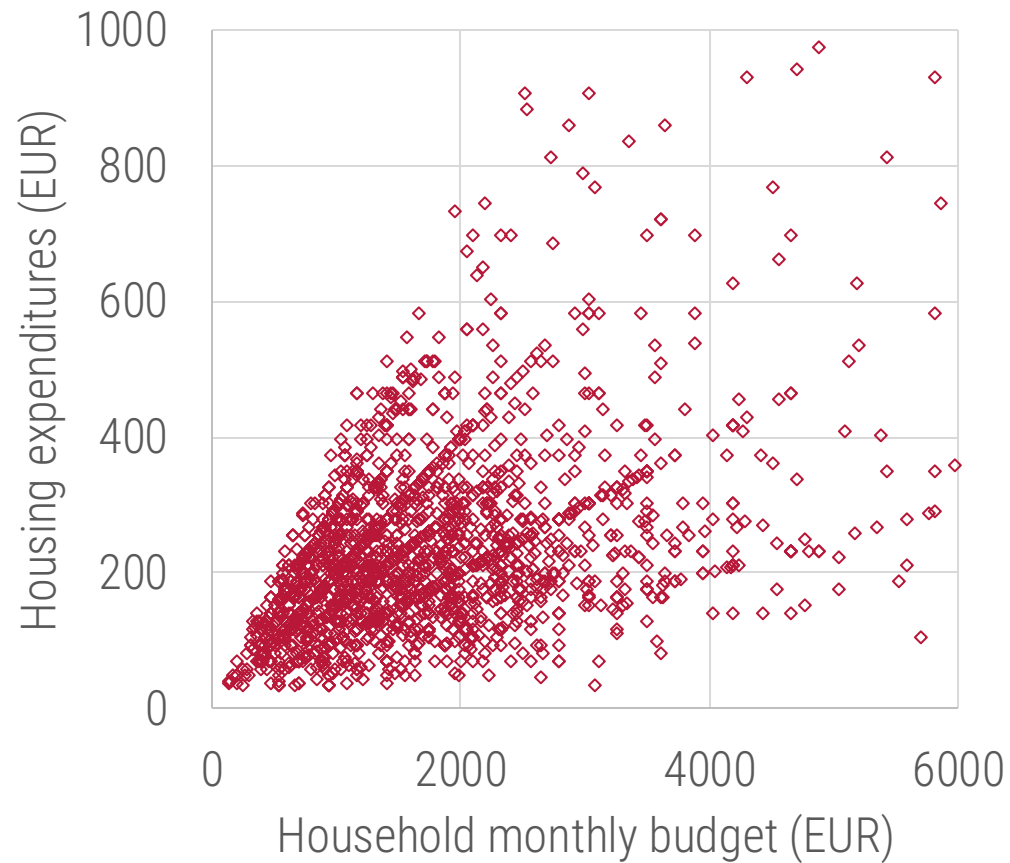
## Housing cost overburden concerns 10% households in housing cooperatives



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



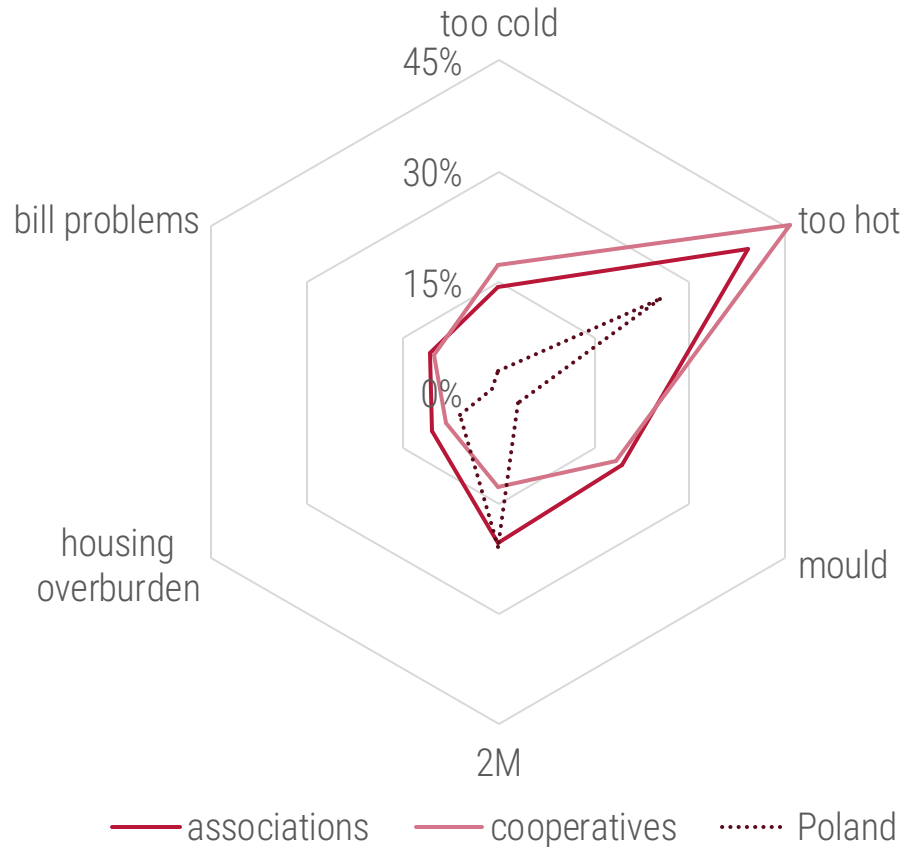
## Housing cost overburden concerns 8% households in housing associations



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



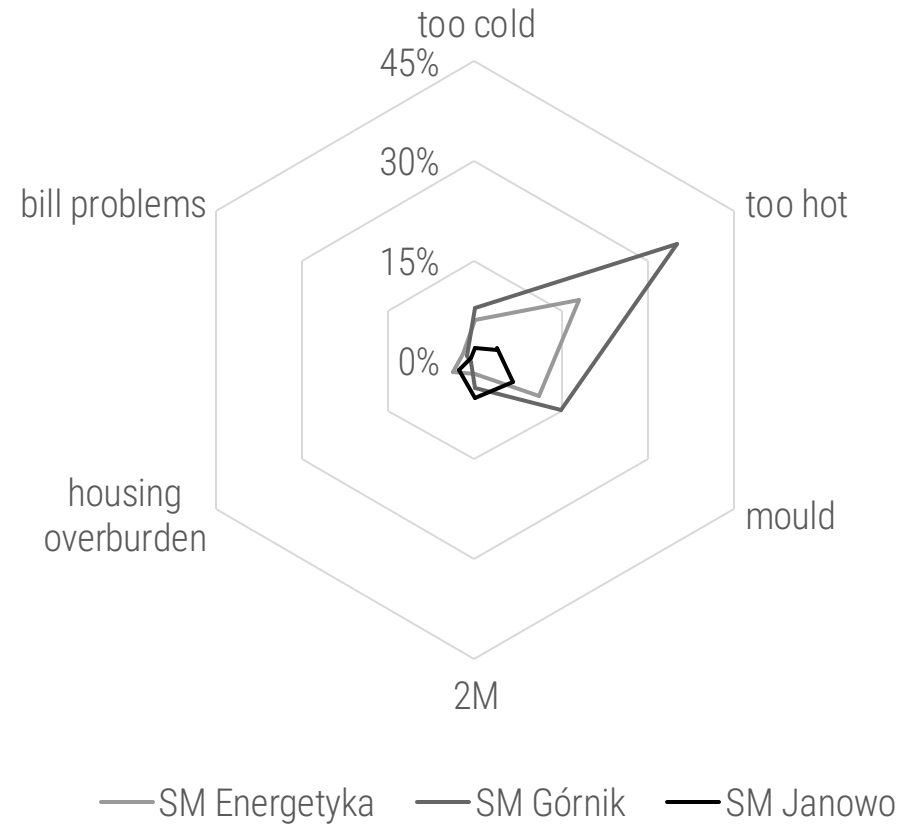
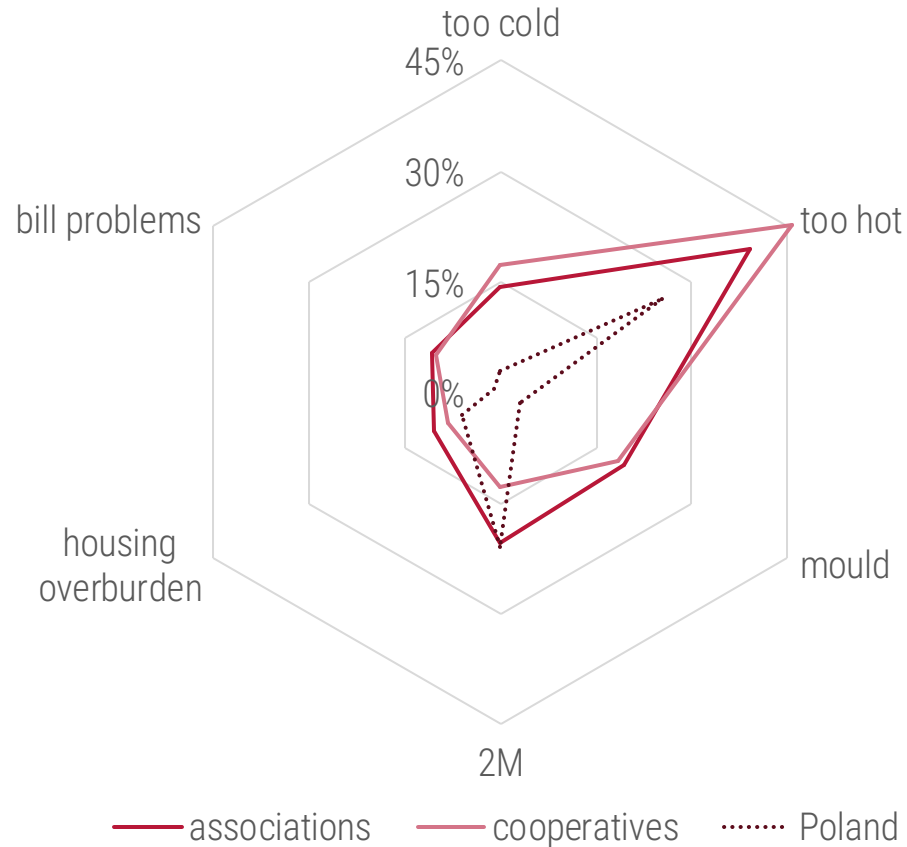
# Energy poverty levels in housing cooperatives and associations are similar



- Summer cooling is an urgent problem in all types of multi-family buildings: 61% declares using additional cooling devices.
- Bill problems among residents of multi-family buildings concerns every tenth household.
- Housing cost overburden is higher in housing associations (10,3%) and cooperatives (8,1%) than reported in official countrywide statistics (5,9%)
- 2M indicator based on energy expenditures in housing associations (20,5%) is similar in comparison to official countrywide statistics (21%), while in housing cooperatives it is lower (12,7%)
- In housing cooperatives, in comparison to countrywide data, less people declare heating comfort.



## The indicator of adequate summer cooling varies most across different housing cooperatives – likely due to differences in average summer temperatures



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.





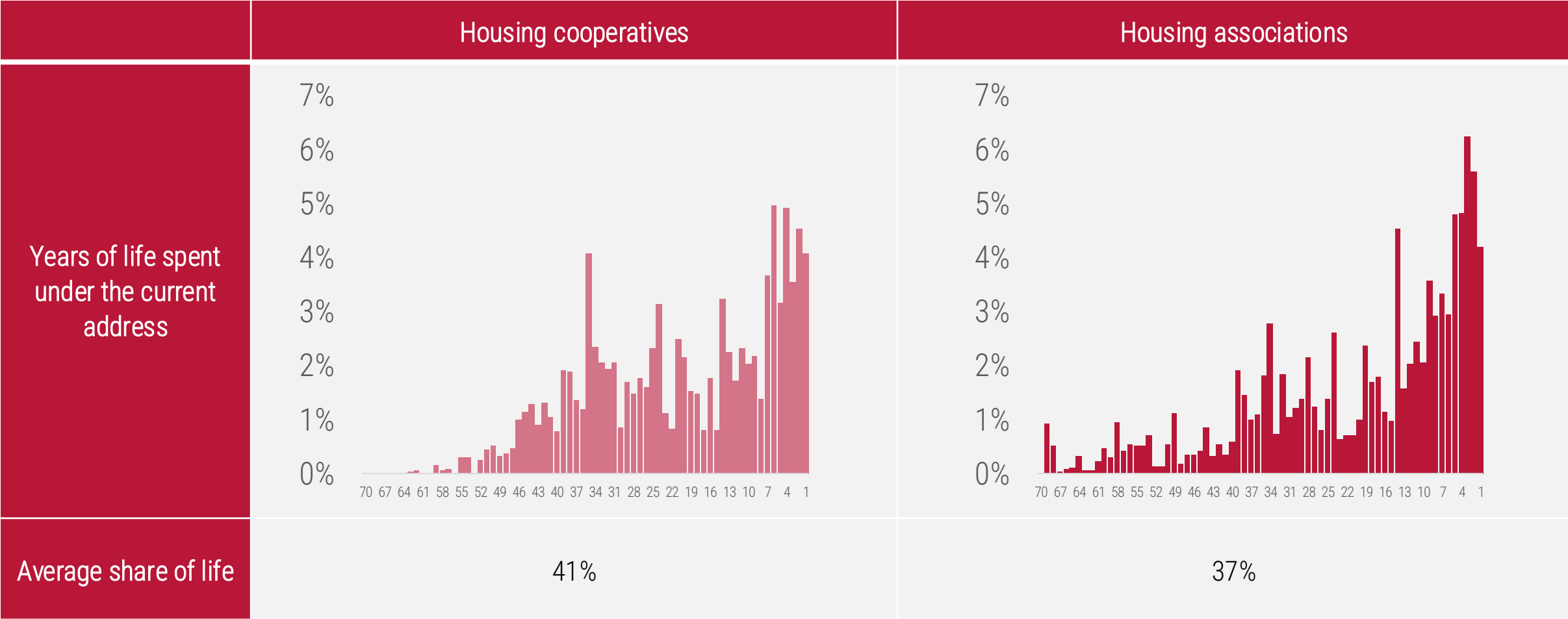
# Energy transition attitudes

## Citizen perspective





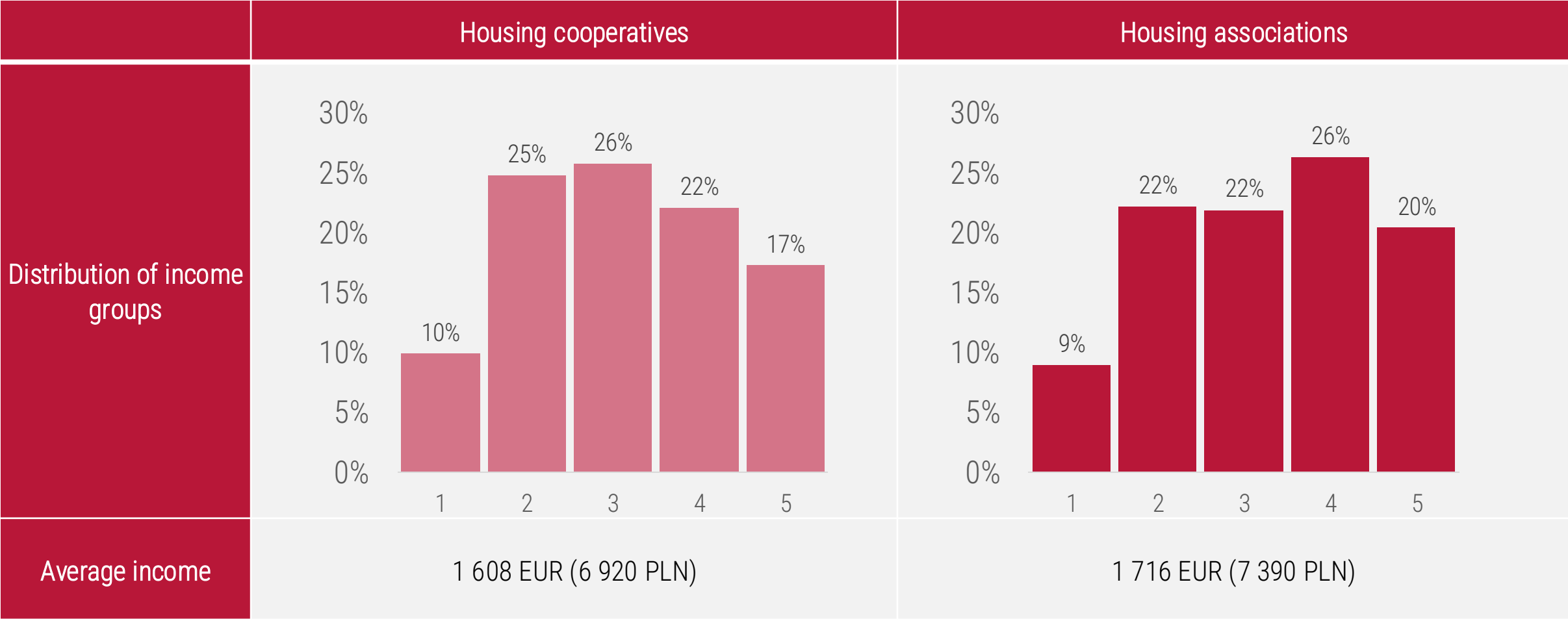
# Residents of housing cooperatives represent a more settled population



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



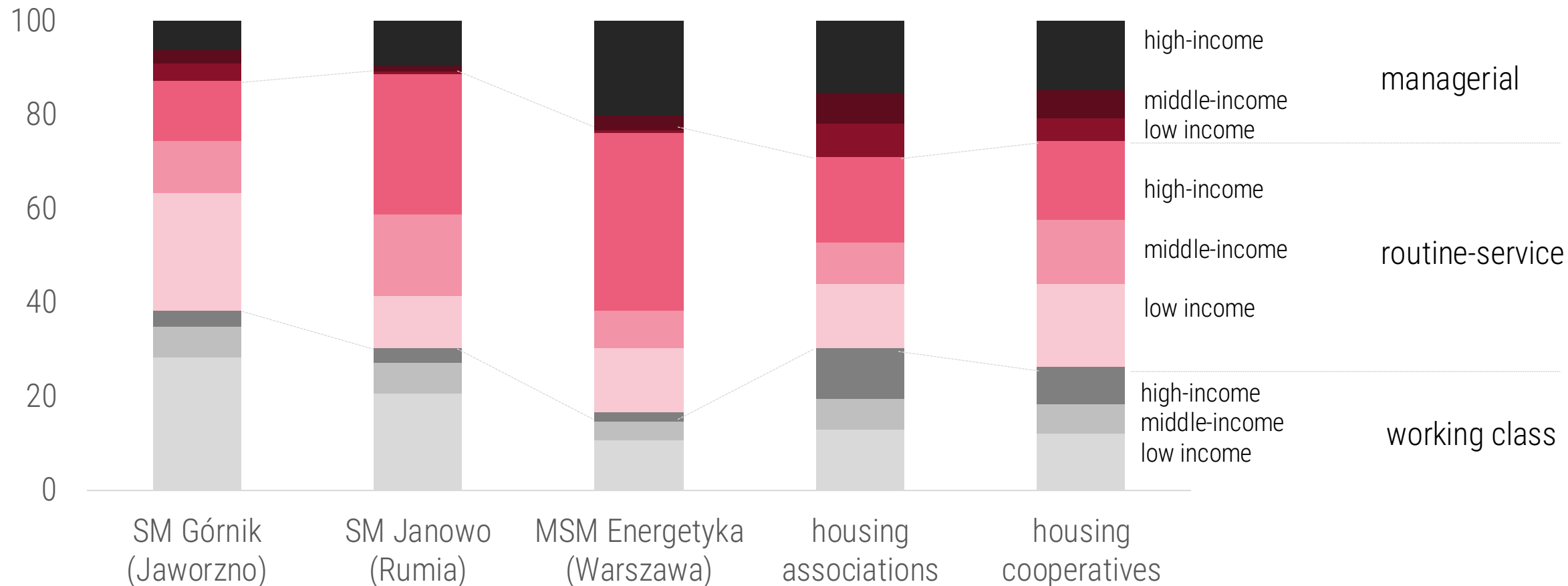
No very big differences in terms of household types and incomes in HCs and HAs . | :



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



## Class differences appear more between cities and individual cooperatives than between residents of cooperatives and housing associations

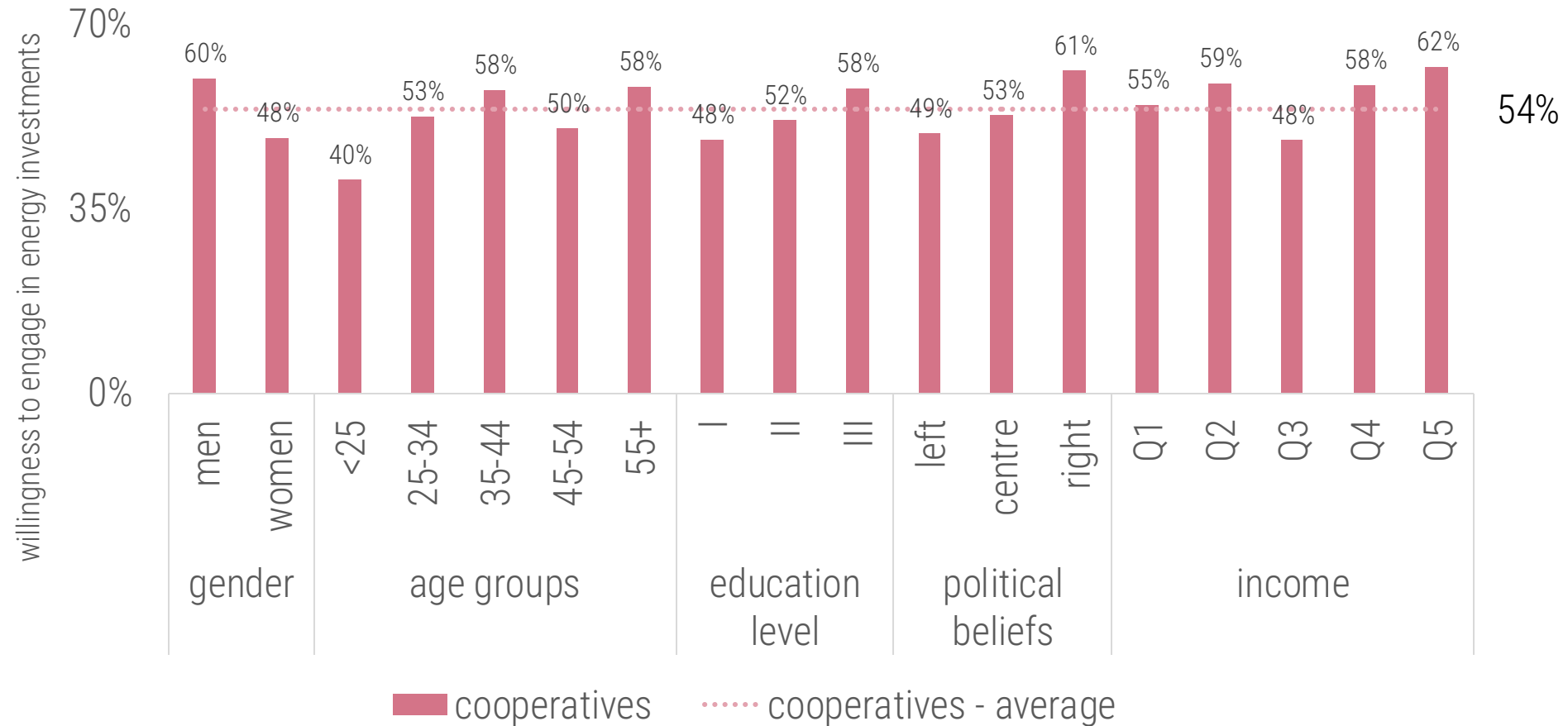


Note: classes based on simplified ISCO classification (managerial: 1-2; routine-service: 3-5; working class: 6-10).

Source: own elaboration based on a survey with residents of housing cooperatives and associations.



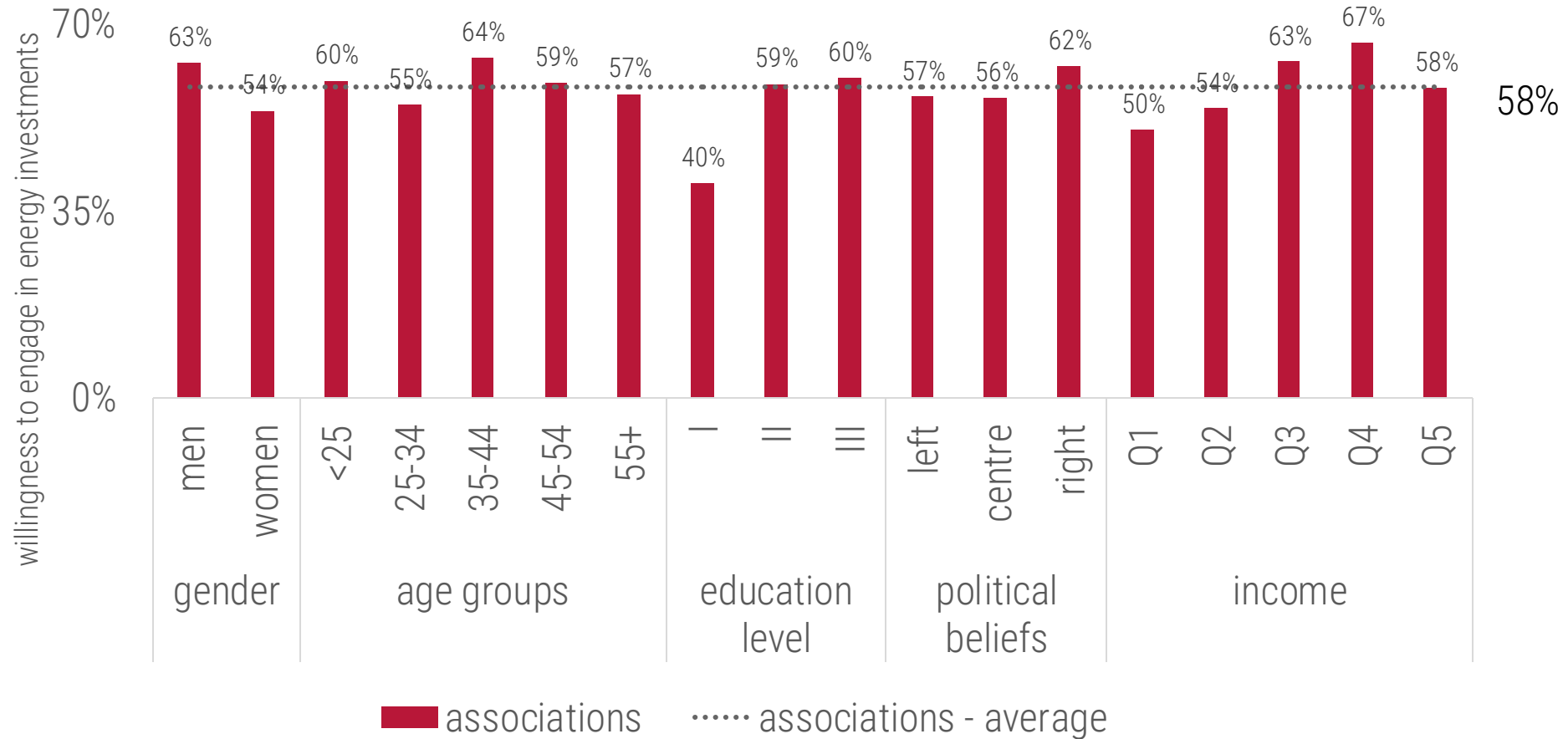
## In cooperatives, self-declared willingness to engage in decision-making related to energy investments is similar across all groups except younger people



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.



In housing associations, self-declared willingness to engage in energy investments is similar across all groups except people with the primary education degree.

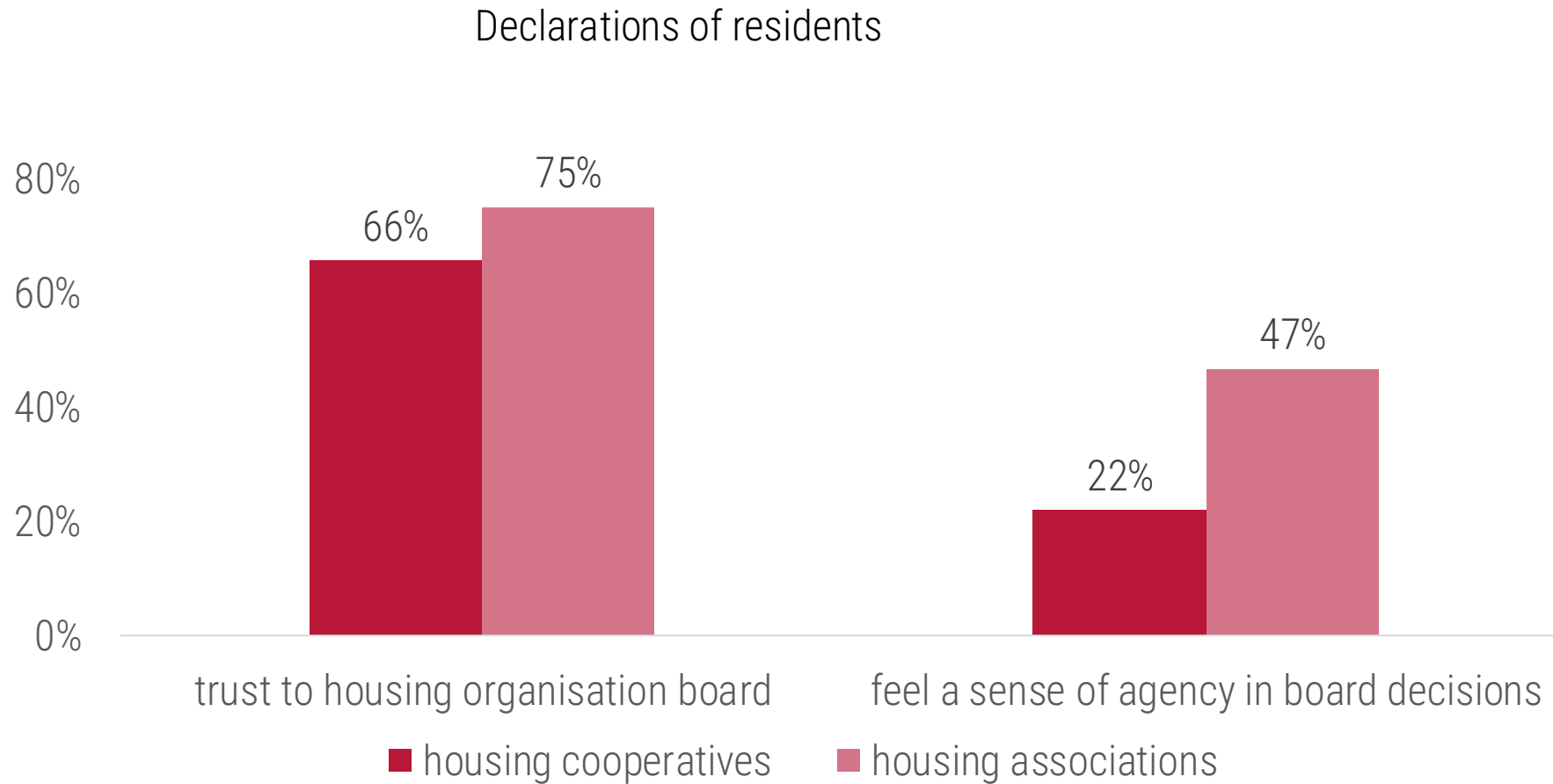


Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.





## In housing cooperatives, the trust to the management board is three times higher than the sense of individual agency in cooperative decisions



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted.







# Results:

## Citizen profiles in multi-family buildings



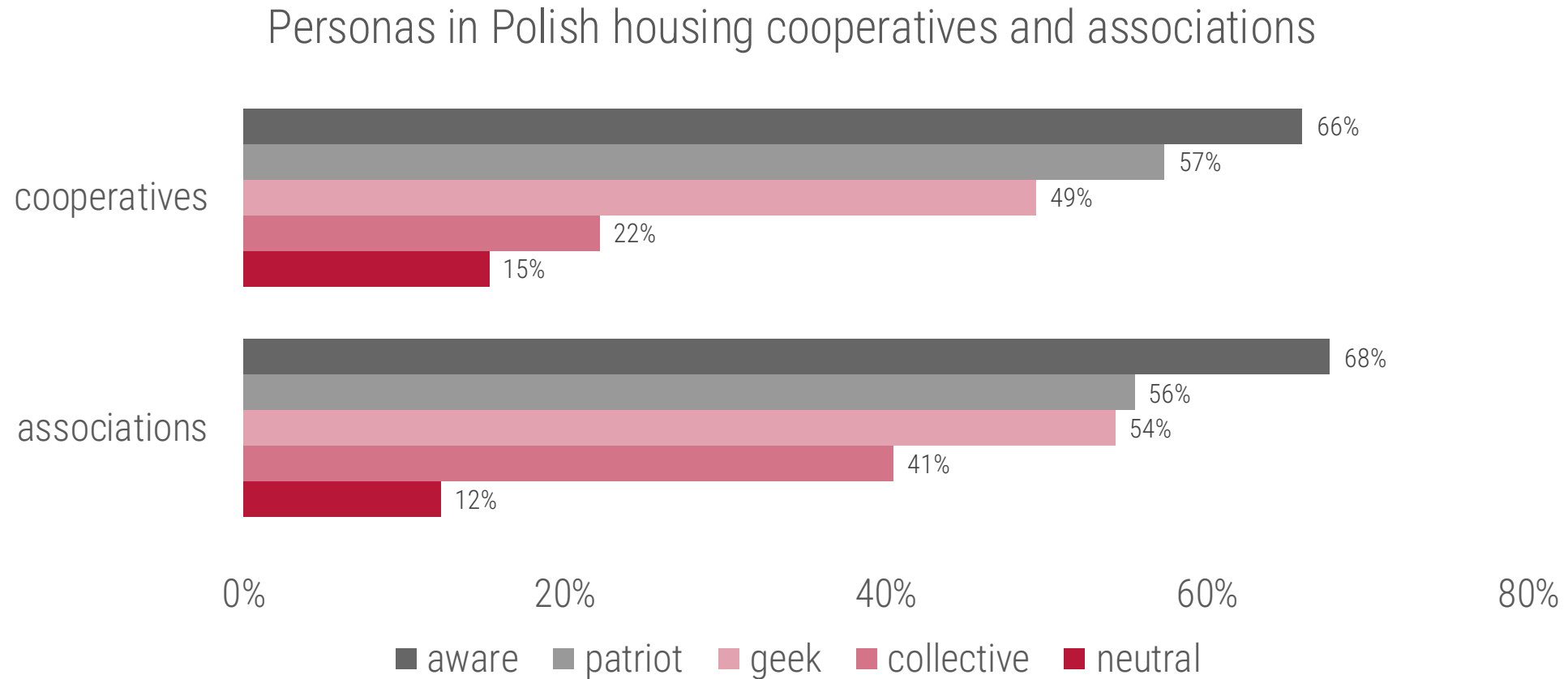
# We pick out five types illustrating attitudes of housing cooperative members



Persona	Characteristics
collectivist 	Collectivist is a <b>highly engaged</b> and <b>community-oriented</b> individual who actively participates in cooperative meetings, engages in discussions about housing matters, and takes responsibility for shared resources like heating. They maintain strong social ties with their neighbors, exchanging mutual favors and celebrating special occasions together, yet they prefer individual solutions.
geek 	Geek is an <b>early adopter</b> of new technologies, <b>quickly learning and embracing innovations</b> while staying ahead in the tech landscape. They apply their analytical mindset to compare annual cooperative costs, ensuring efficiency and informed decision-making in their housing community.
aware 	Aware consumer prioritises <b>ecological criteria</b> when purchasing and <b>takes personal responsibility for reducing climate change through conscious choices</b> . They are highly interested in energy consumption and spending, actively seeking sustainable and efficient solutions for everyday living.
patriot 	Local patriots deeply attach to their <b>local area</b> and value the <b>sense of community</b> within their building. They are eager to be more involved in <b>decision-making processes</b> and advocate for local engagement and communal well-being.
neutral 	A person who does not strongly identify with collective causes, specialised interests, social awareness, or local identity.








# Collective attitudes are almost two times less frequent in housing cooperatives than in associations



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=2000) and associations (CAWI, n=2488); results weighted. Percentages do not sum to 100%.



# Personas as types of attitudes towards cooperative activities and the energy transition

	 collectivist	 geek	 aware	 patriot	 neutral
Demographic characteristics	<ul style="list-style-type: none"> <li>middle-aged</li> <li>average income</li> </ul>	<ul style="list-style-type: none"> <li>mostly younger residents</li> <li>mostly men</li> <li>higher income</li> </ul>	<ul style="list-style-type: none"> <li>mostly residents aged 45-55+</li> <li>mostly women</li> <li>average income</li> </ul>	<ul style="list-style-type: none"> <li>mostly men aged 55+</li> <li>higher income</li> </ul>	<ul style="list-style-type: none"> <li>mostly younger residents</li> <li>mostly women</li> <li>lower income</li> </ul>
Main motivation for implementing the energy transition	<ul style="list-style-type: none"> <li>caring for common good</li> </ul>	<ul style="list-style-type: none"> <li>technological drive</li> </ul>	<ul style="list-style-type: none"> <li>savings</li> </ul>	<ul style="list-style-type: none"> <li>caring for local area</li> </ul>	<ul style="list-style-type: none"> <li>don't care</li> </ul>
Popularity of the attitude in HC and HA	<ul style="list-style-type: none"> <li>the least frequent more frequent in associations (41%) than cooperatives (22%)</li> </ul>	popular attitude regardless of category (40–50%)	the most popular attitude regardless of category (>60%)	popular attitude regardless of category (40–50%)	slightly higher in housing cooperatives than associations





# Main conclusions

---



- Housing cooperatives manage buildings but own fewer and fewer apartments themselves – individual owners dominate.
- Among younger age groups (under 35), the proportion of renters exceeds that of cooperative housing residents – making the cooperative model increasingly unfamiliar as a housing provider.
- Inhabitants perceive relatively low needs for insulation or renovations, as most of that work has already been completed.
- Housing cooperatives are not very flexible when it comes to adopting RES – due to historical constraints (old infrastructure and technology, DH connection), and limited capacity for self-production.
- The cooperative population is ageing, and households are getting smaller – with 1- and 2-person households now making up more than half.
- A more commonly reported problem is maintaining comfort during extreme temperatures – keeping cool in summer and warm in winter – as well as arrears in utility payments.
- Low sense of agency remains a barrier – only one in five cooperative residents feels they have any influence. As a result, residents often don't know what housing model would suit them best. That said, among those who have a clear opinion, the majority would prefer to live in associations. The larger the housing block, the less desire there is for change.



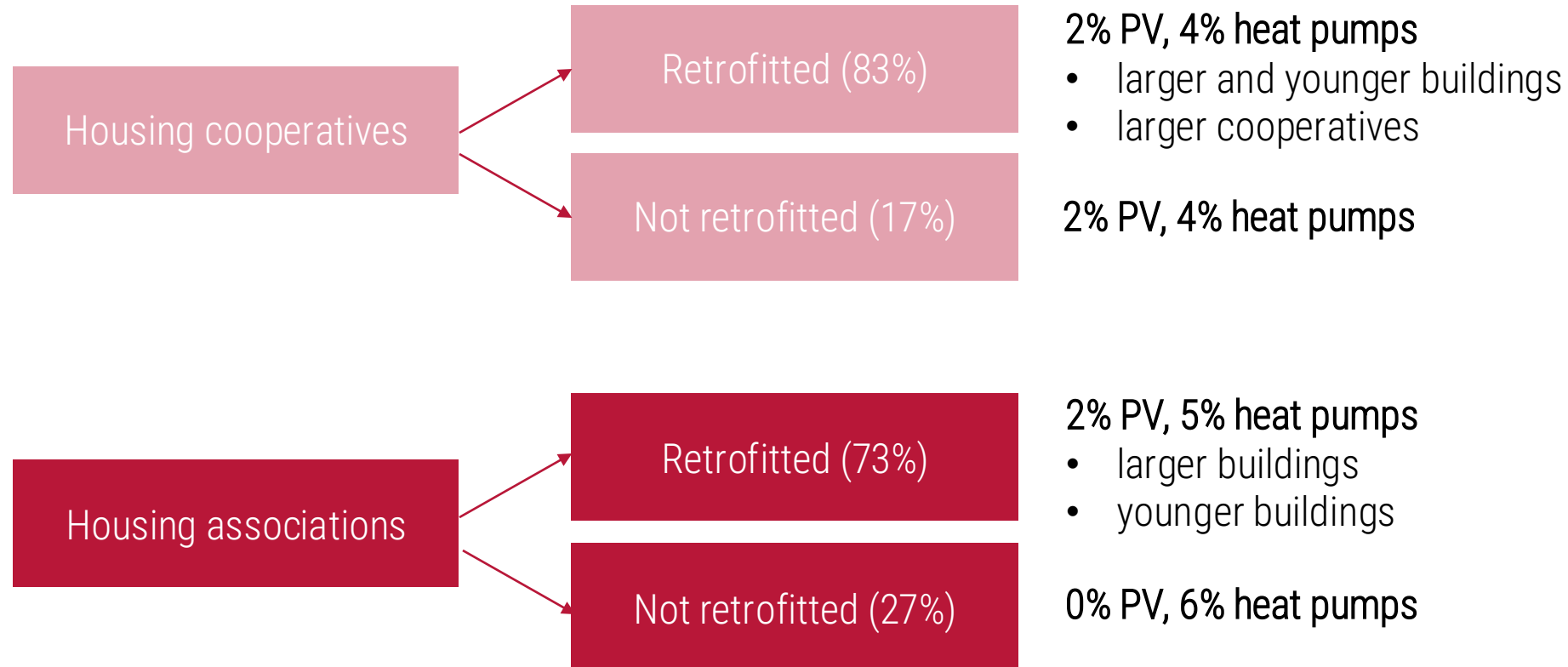
Housing cooperatives have larger buildings, while the age of buildings is similar. Cooperative buildings more often have flat roofs and are connected to district heating.

Criteria	Housing cooperatives	Housing associations																
Building age	69% of buildings before 1989	67% of buildings before 1989																
Number of apartments in a building	<table><tr><th>Category</th><th>Percentage</th></tr><tr><td>50 and more</td><td>~18%</td></tr><tr><td>10-49</td><td>~48%</td></tr><tr><td>less than 10</td><td>~12%</td></tr></table>	Category	Percentage	50 and more	~18%	10-49	~48%	less than 10	~12%	<table><tr><th>Category</th><th>Percentage</th></tr><tr><td>50 and more</td><td>~12%</td></tr><tr><td>10-49</td><td>~48%</td></tr><tr><td>less than 10</td><td>~25%</td></tr></table>	Category	Percentage	50 and more	~12%	10-49	~48%	less than 10	~25%
Category	Percentage																	
50 and more	~18%																	
10-49	~48%																	
less than 10	~12%																	
Category	Percentage																	
50 and more	~12%																	
10-49	~48%																	
less than 10	~25%																	
Roofs	81% are flat	67% are flat																
Heating	64% are connected to district heating in case of local heating: gas (66%) is the most popular	51% are connected to district heating in case of local heating: gas (68%) is the most popular																

Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



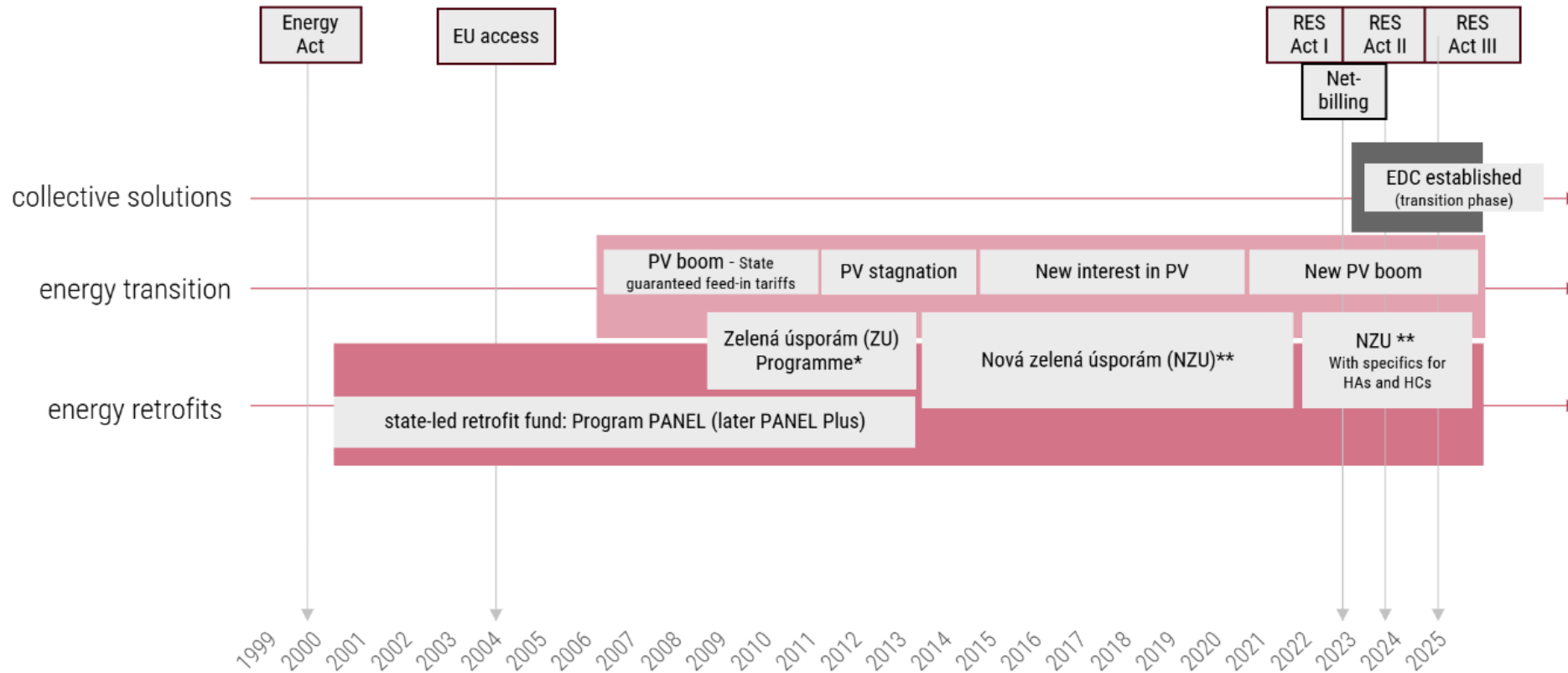
The adoption rate of PV is similar in cooperatives associations (2%).  
An exception is non-retrofitted association buildings, where PV is not used.



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



# Czech energy transition trajectory emerged from a stable stream of retrofit subsidies combined with periodically changing legal rules for RES deployment

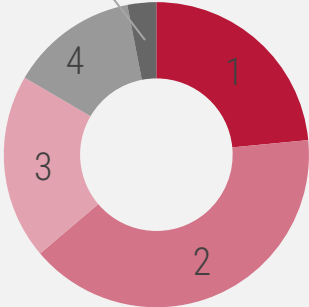
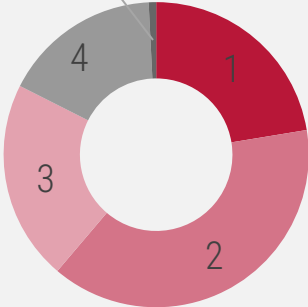


\* subsidy programme supporting energy savings in buildings

\*\* new version of subsidy programme supporting energy savings in buildings



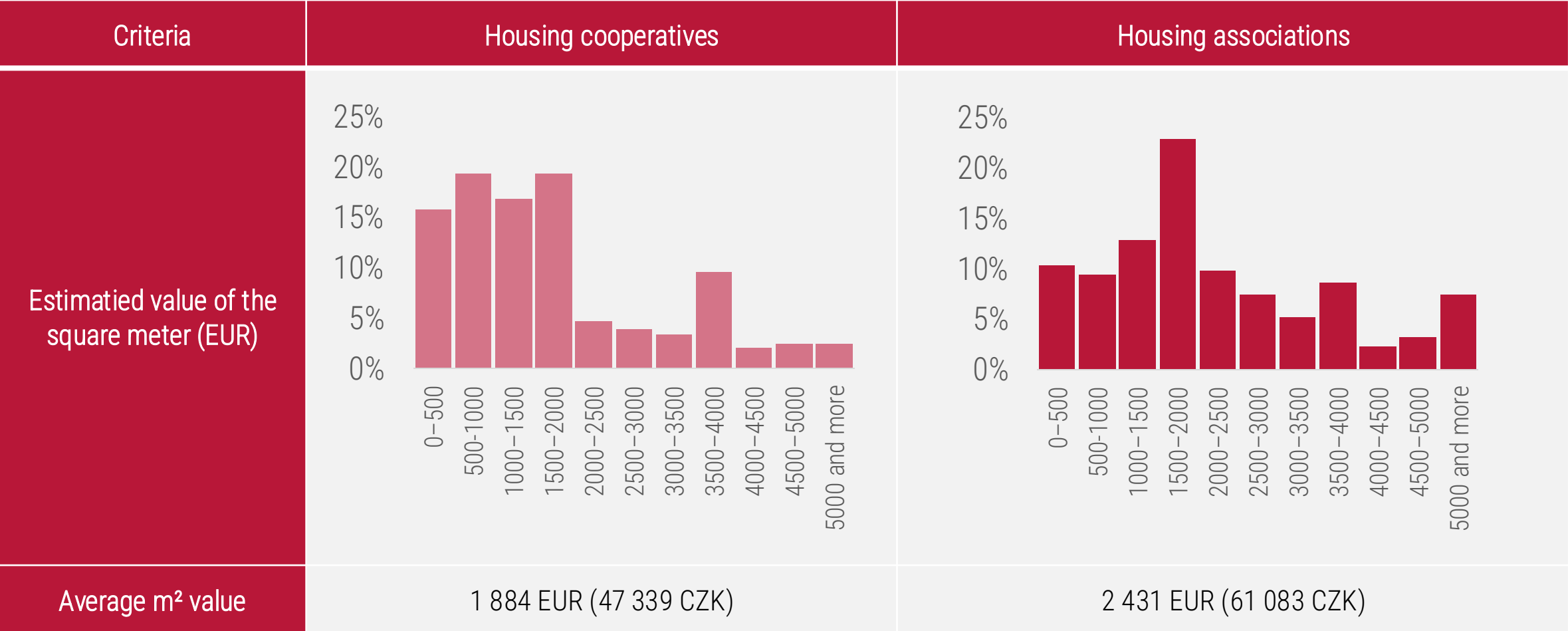
Cooperatives and associations have a similar average apartment size and a similar household composition in terms of the number of people.

Criteria	Housing cooperatives	Housing associations
Gated community	5%	10%
Median apartment size	67 m²	66 m²
Rate of mortgage holders	40%	38%
Number of people in household		

Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



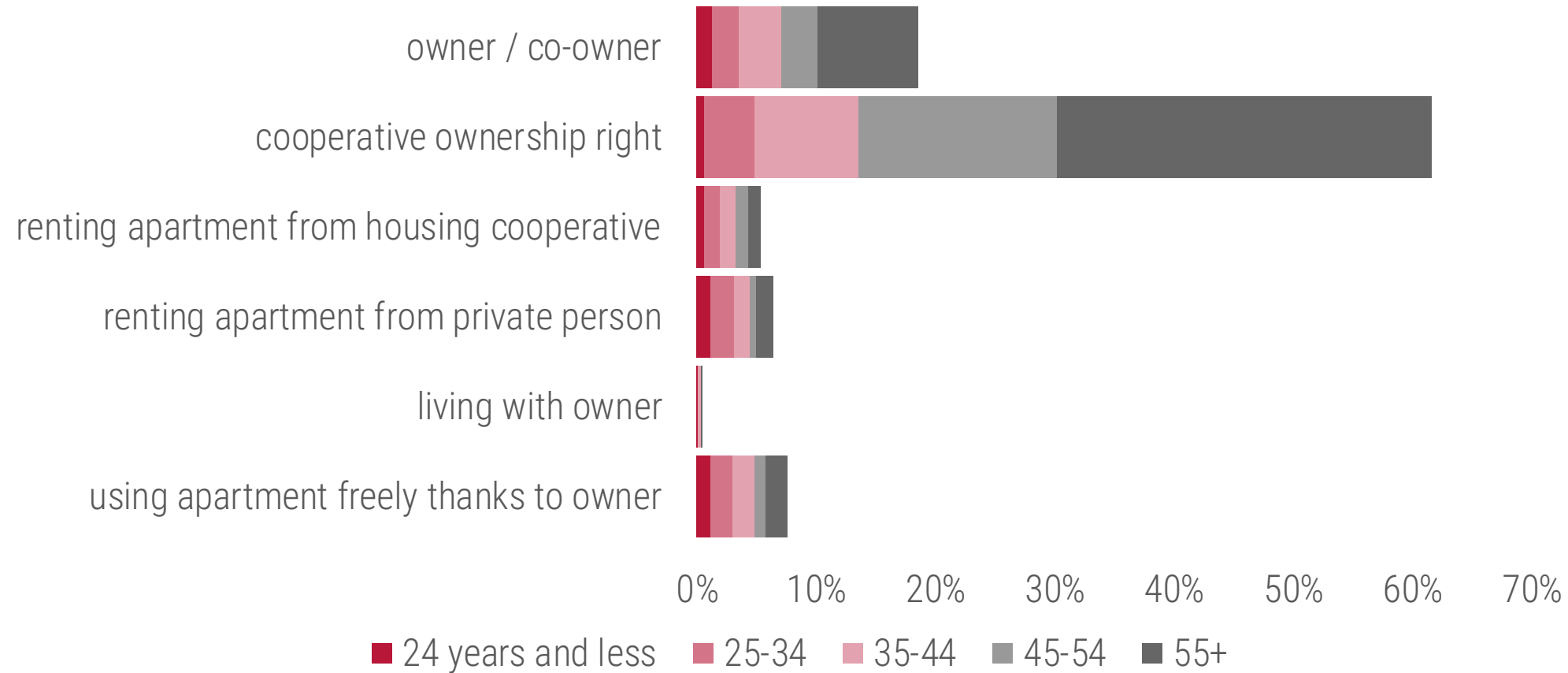
People in housing cooperatives more often report a lower price per square meter of the apartment. The average price is higher in associations (by one third).



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



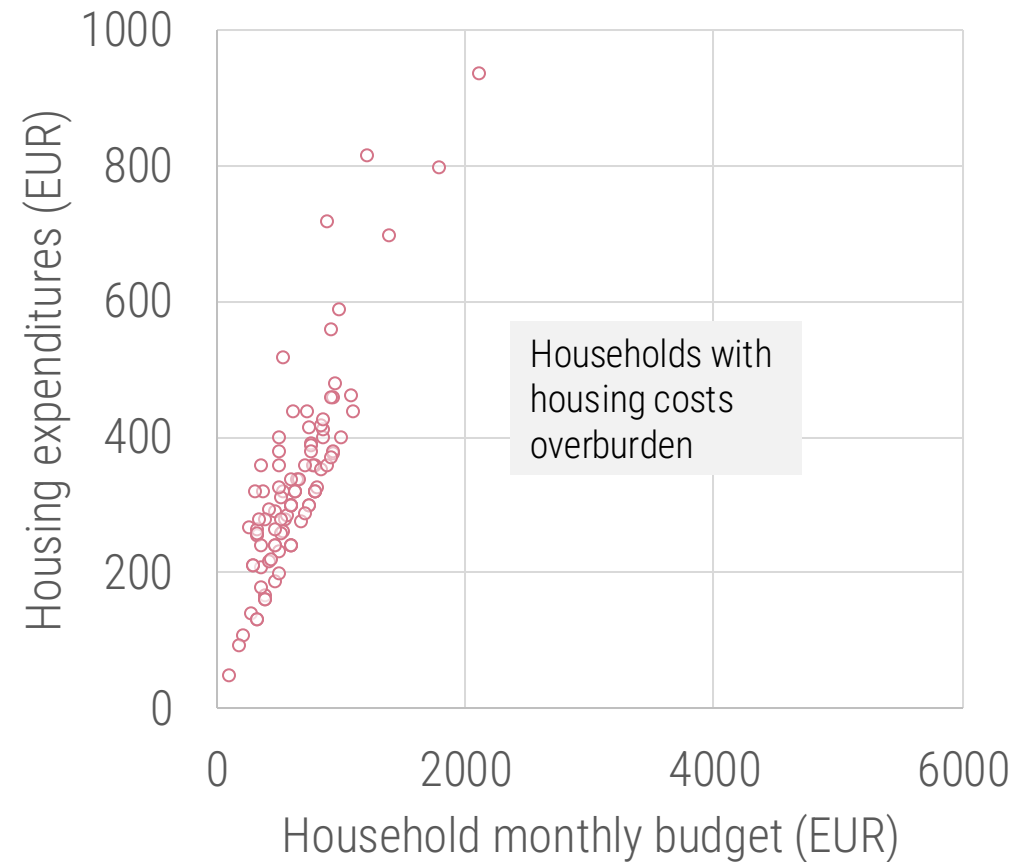
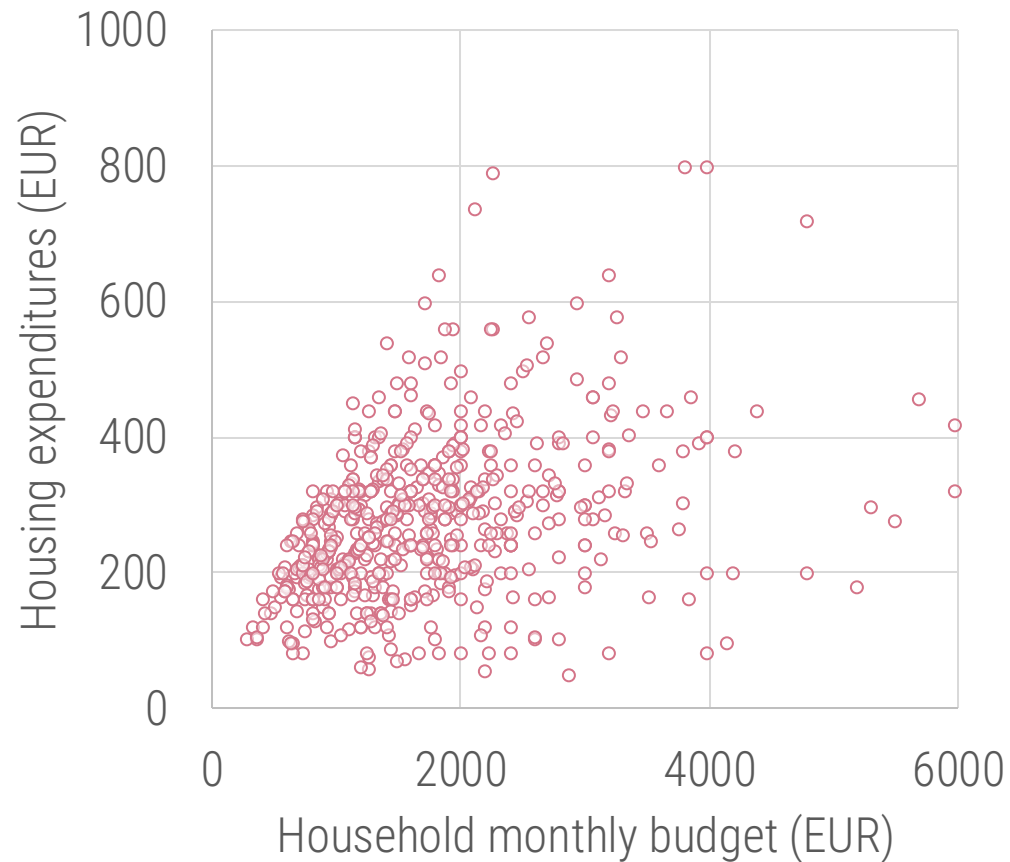
The most frequently reported relationship to the apartment was cooperative ownership right. From the age perspective, the 55+ category dominates.



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



## Housing cost overburden concerns 15% households in housing cooperatives

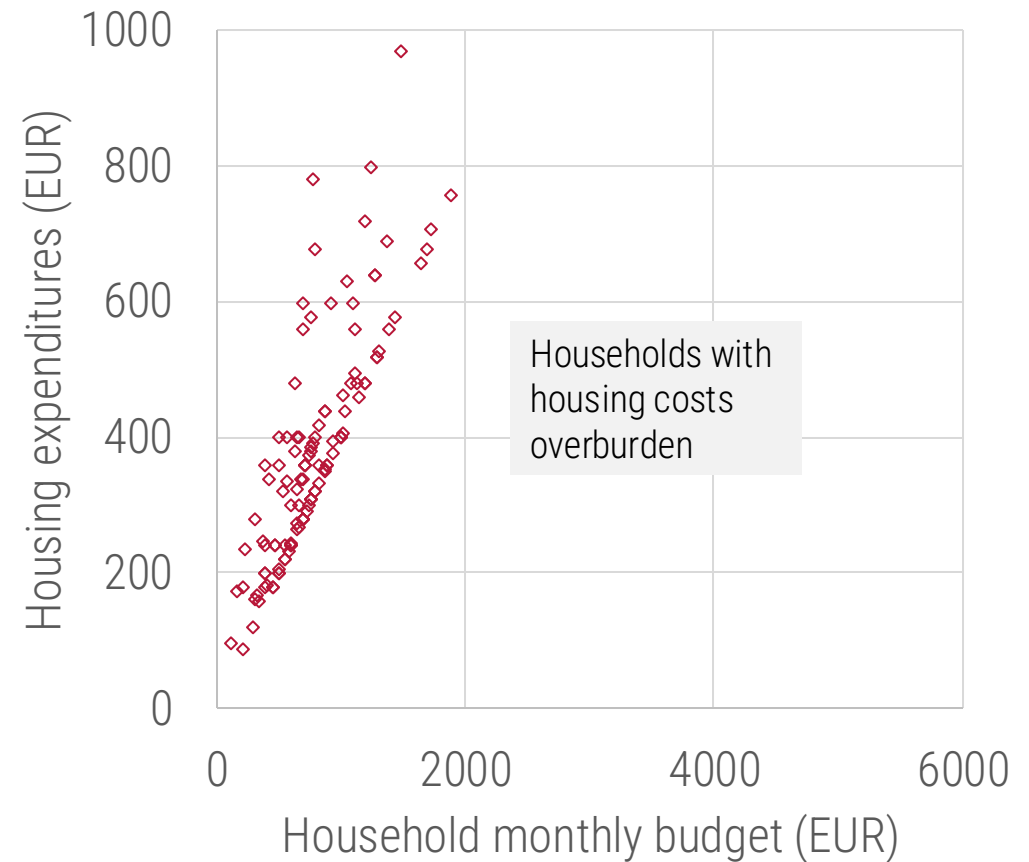
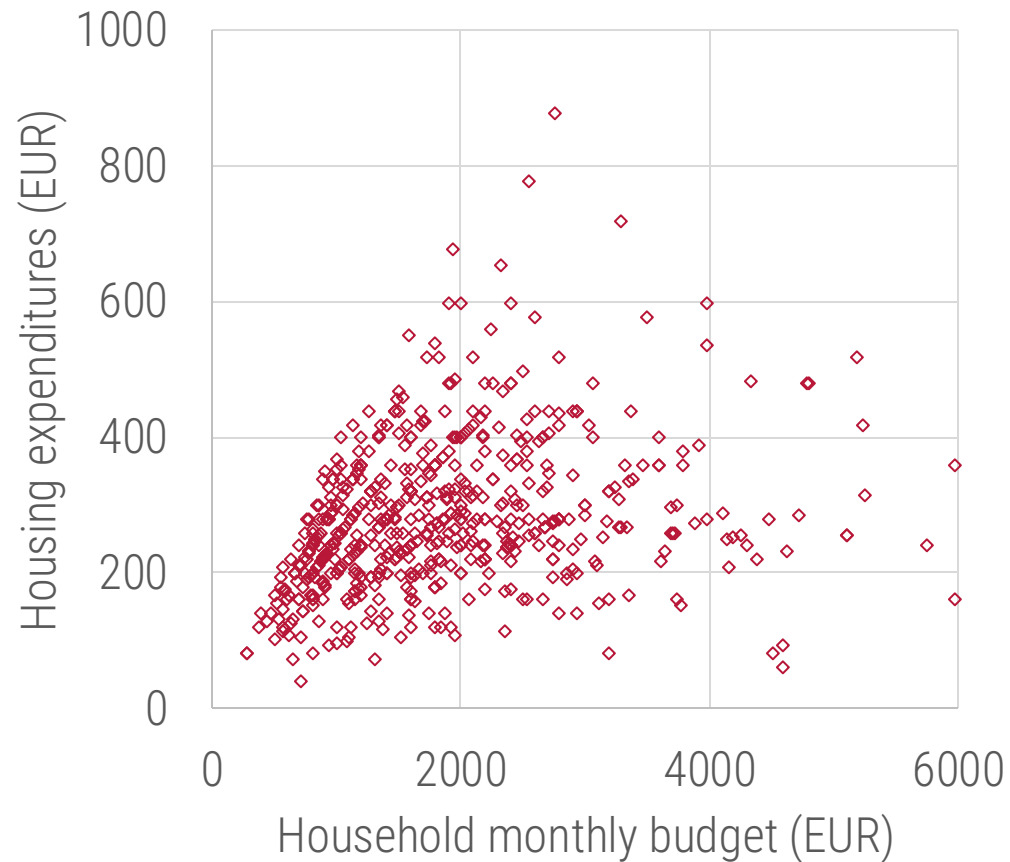


Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).





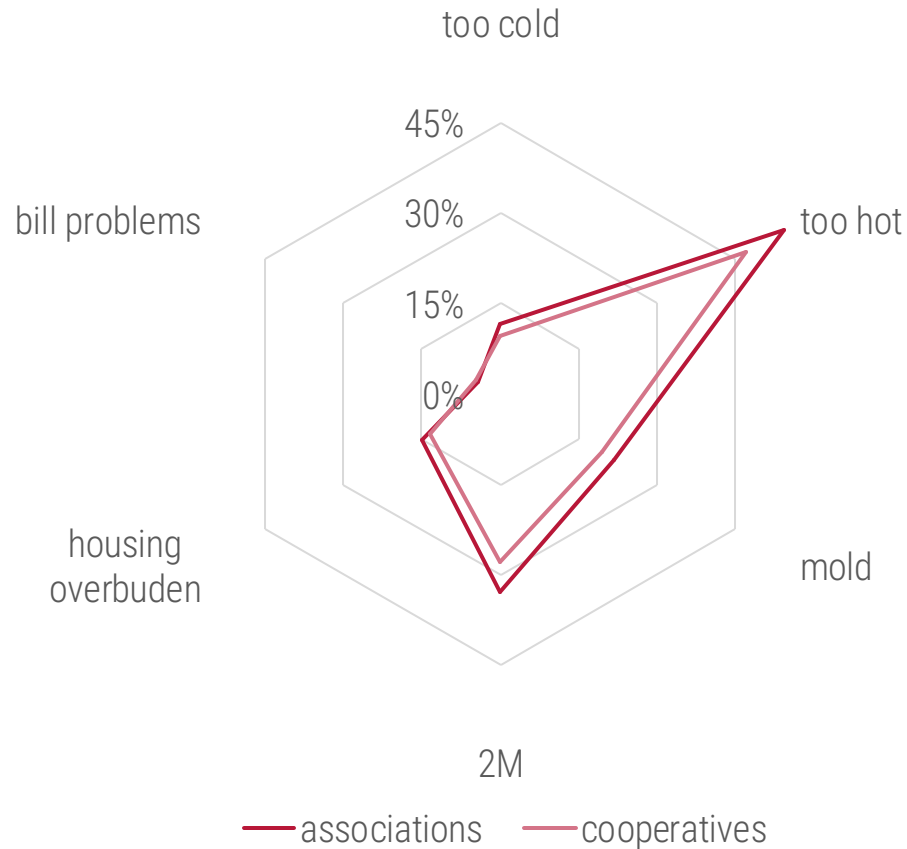
## Housing cost overburden concerns 13% households in housing associations



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



# Energy poverty levels in housing cooperatives and associations are similar



- Summer cooling is an urgent problem in all types of multi-family buildings: 41% declares using additional cooling devices.
- Bill problems among residents of multi-family buildings concerns every twentieth household.
- The overburden is similar in associations (15%) and cooperatives (13%).
- 2M indicator based on energy expenditures is slightly higher in associations (33%) than in cooperatives (28%).
- Reported level of thermal comfort is similar in associations and cooperatives.

Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



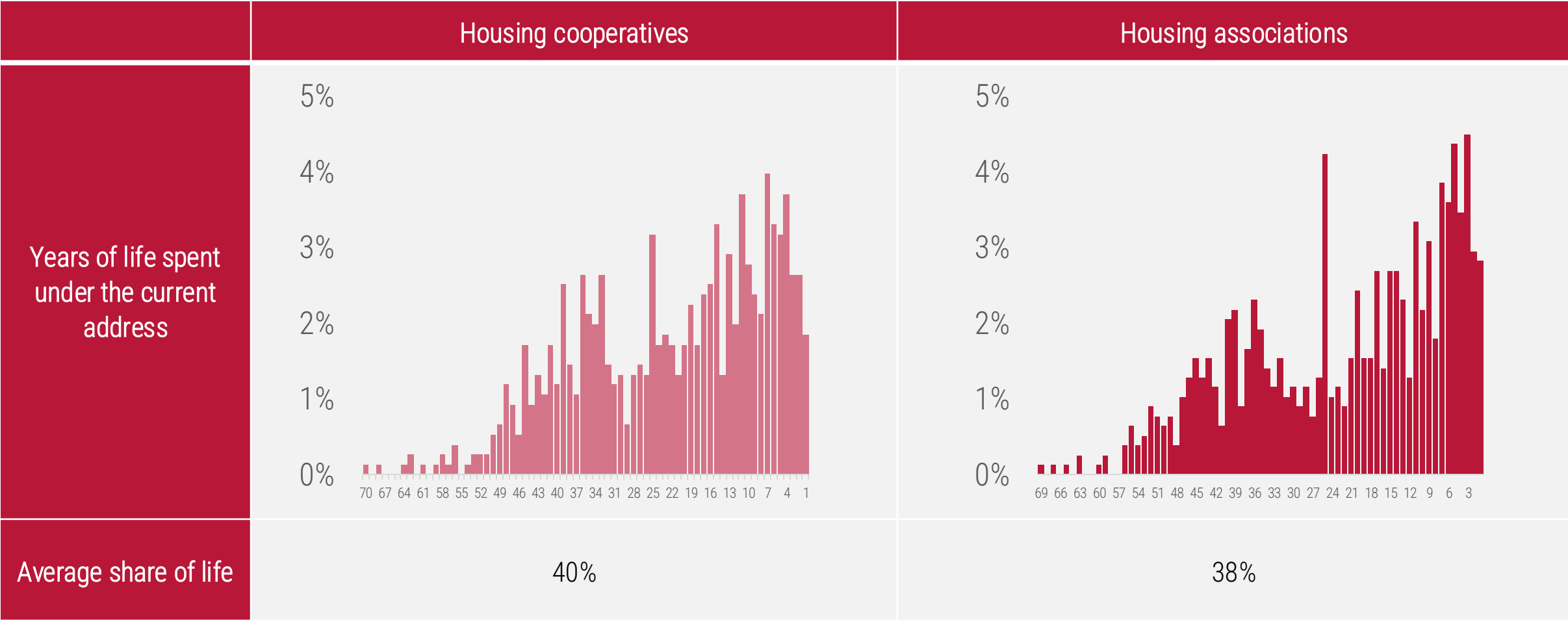


# Energy transition attitudes

## Citizen perspective



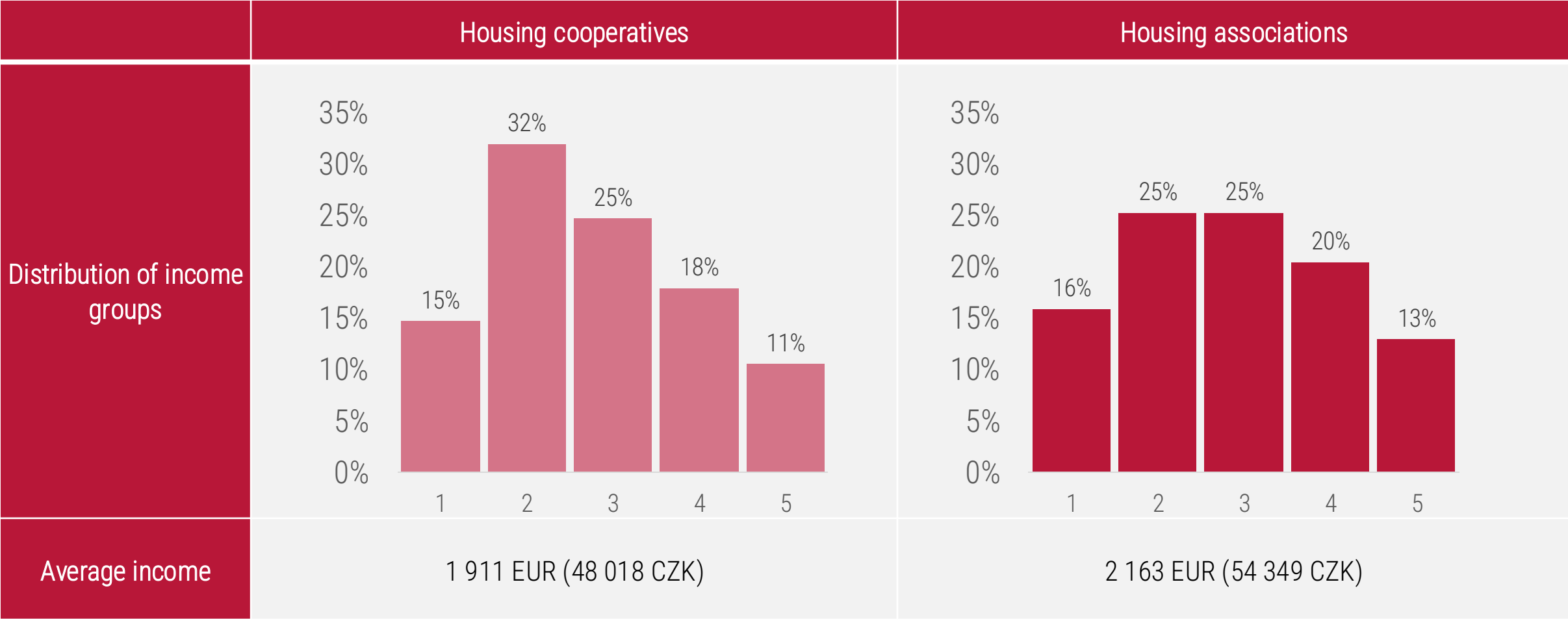
The time spent at the current address is similar in cooperatives and associations. . | :



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



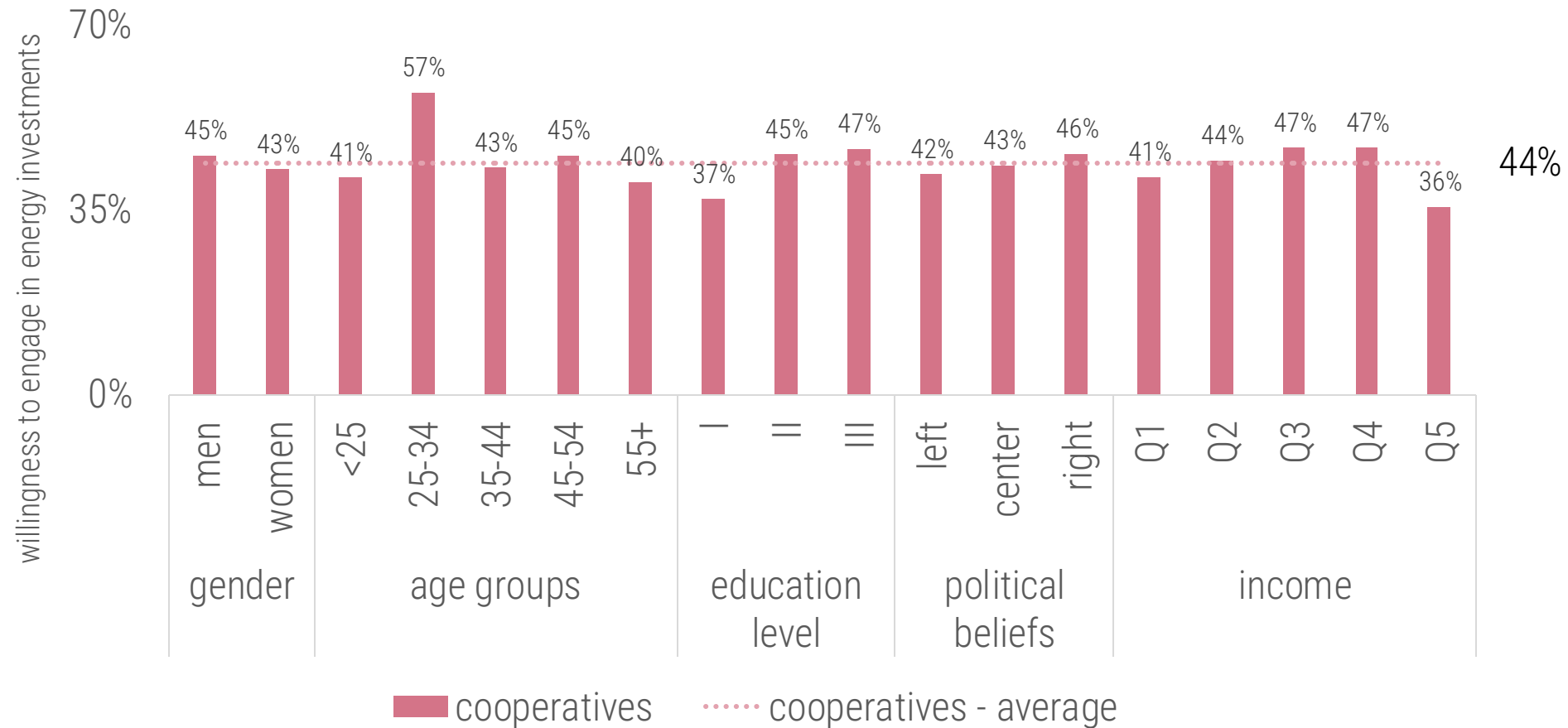
The average household income is slightly higher in associations.



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



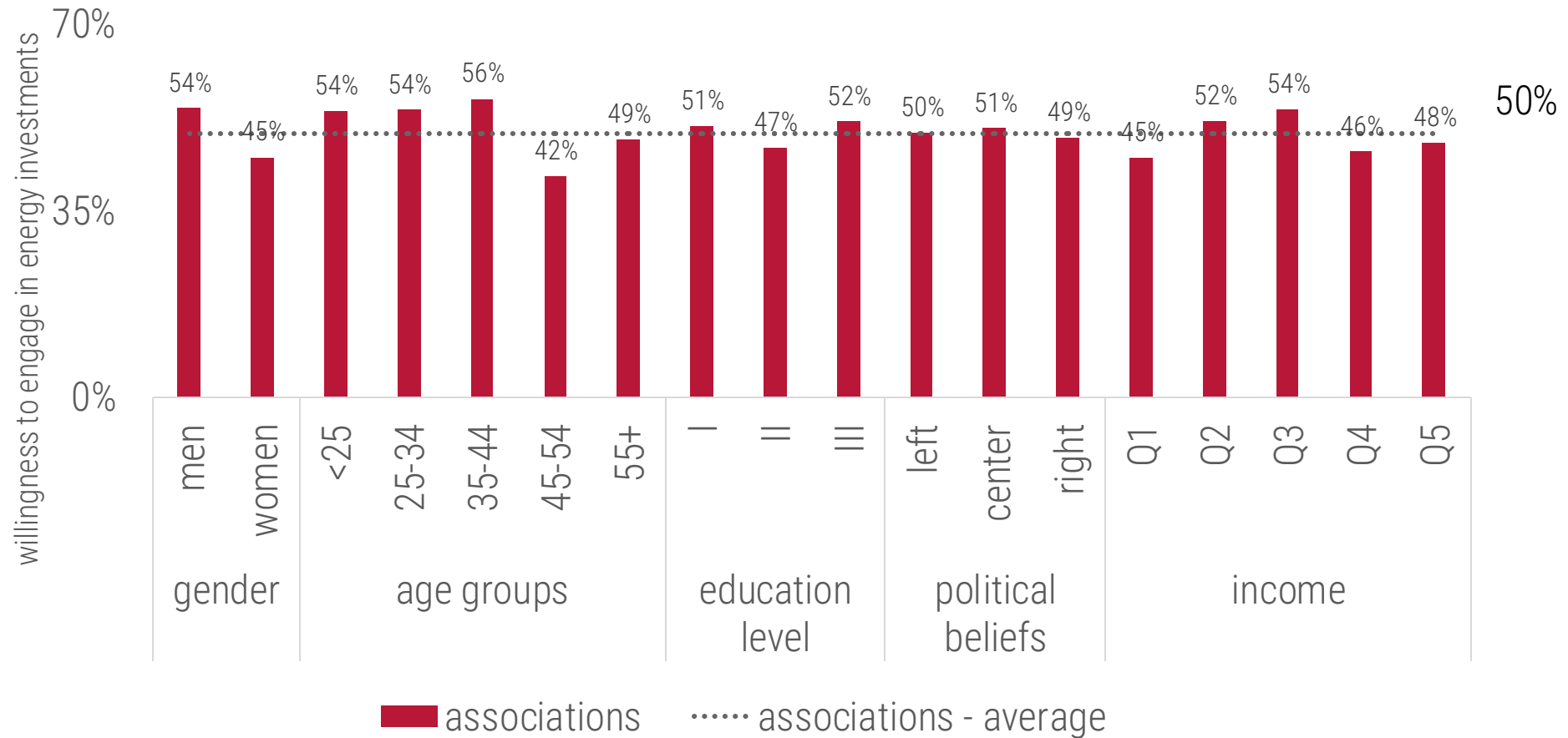
In cooperatives, self-declared willingness to engage in energy investments is similar across all groups except for people aged 25–34.



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



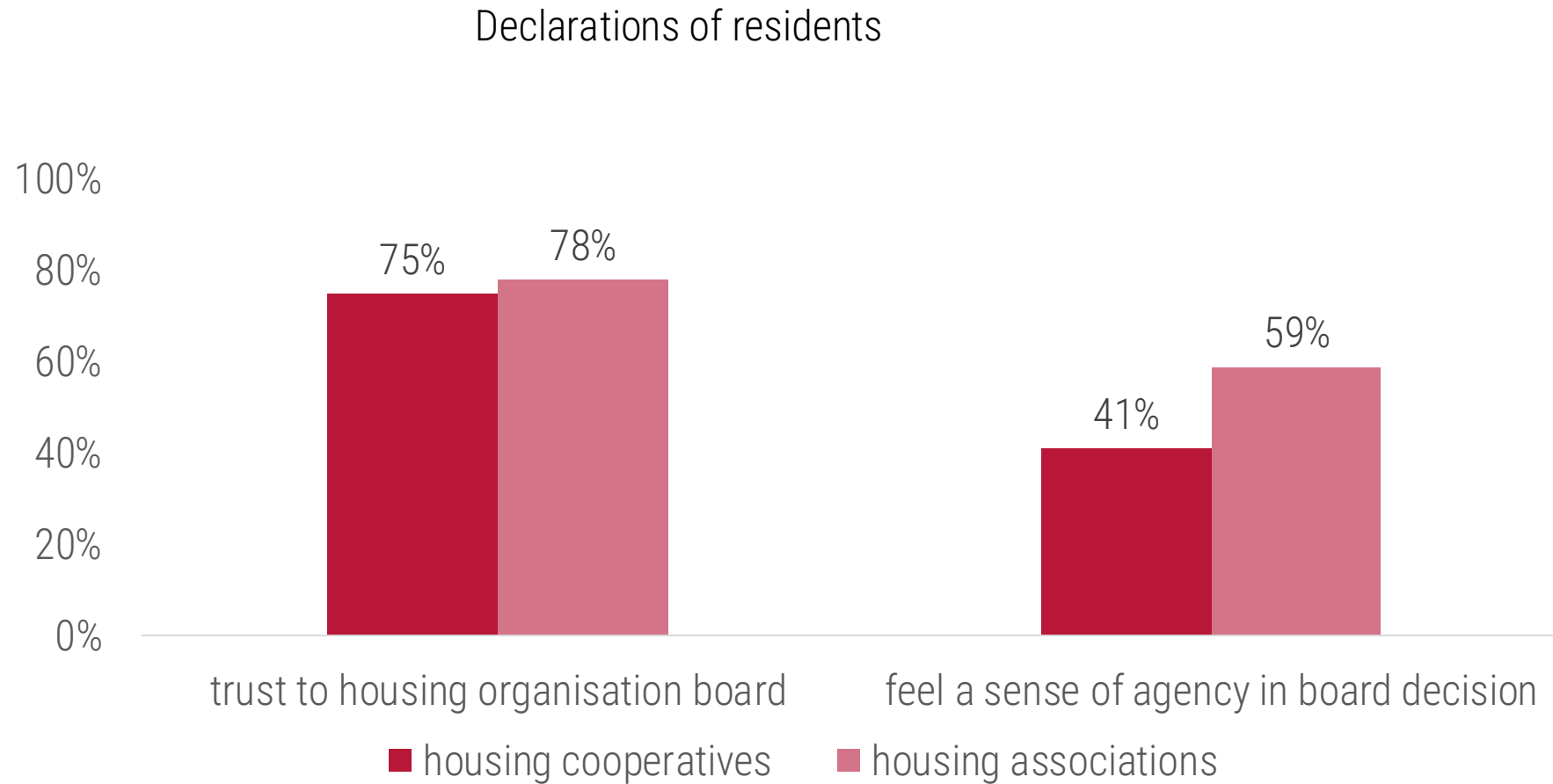
In housing associations, self-declared willingness to engage in energy investments is similar across all groups.



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).



Trust in management is similar in both cooperatives and associations. The sense of agency in board decision is higher in associations.



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777).







# Results:

## Citizen profiles in multi-family buildings



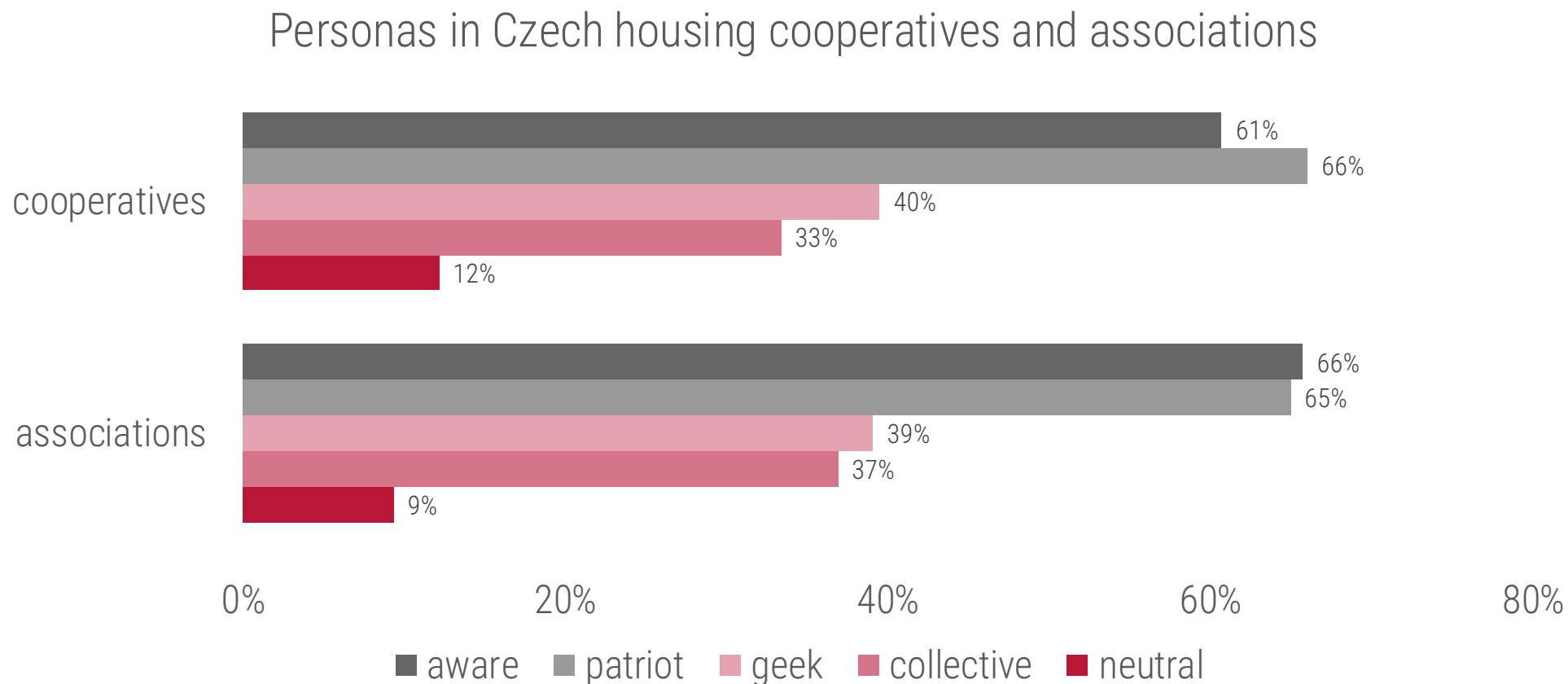
## We pick out five types illustrating attitudes of housing cooperative members



Persona	Characteristics
collectivist 	Collectivist is a <b>highly engaged</b> and <b>community-oriented</b> individual who actively participates in cooperative meetings, engages in discussions about housing matters, and takes responsibility for shared resources like heating. They maintain strong social ties with their neighbors, exchanging mutual favors and celebrating special occasions together, yet they prefer individual solutions.
geek 	Geek is an <b>early adopter</b> of new technologies, <b>quickly learning and embracing innovations</b> while staying ahead in the tech landscape. They apply their analytical mindset to compare annual cooperative costs, ensuring efficiency and informed decision-making in their housing community.
aware 	Aware consumer prioritises <b>ecological criteria</b> when purchasing and <b>takes personal responsibility for reducing climate change through conscious choices</b> . They are highly interested in energy consumption and spending, actively seeking sustainable and efficient solutions for everyday living.
patriot 	Local patriots deeply attach to their <b>local area</b> and value the <b>sense of community</b> within their building. They are eager to be more involved in <b>decision-making processes</b> and advocate for local engagement and communal well-being.
neutral 	A person who does not strongly identify with collective causes, specialised interests, social awareness, or local identity.








## The distribution of the observed personas is similar in cooperatives and associations.



Source: own elaboration based on a survey with residents of housing cooperatives (CAWI, n=754) and associations (CAWI, n=777). Percentages do not sum to 100%.



# Personas as types of attitudes towards cooperative activities and the energy transition

	 collectivist	 geek	 aware	 patriot	 neutral
Demographic characteristics	<ul style="list-style-type: none"> <li>highest average age</li> </ul>	<ul style="list-style-type: none"> <li>higher education</li> </ul>	<ul style="list-style-type: none"> <li>more often women</li> <li>lower income</li> </ul>	<ul style="list-style-type: none"> <li>higher average age</li> </ul>	<ul style="list-style-type: none"> <li>lower avg. age</li> <li>more often men</li> <li>lower education</li> </ul>
Main motivation for implementing the energy transition	<ul style="list-style-type: none"> <li>caring for common good</li> </ul>	<ul style="list-style-type: none"> <li>technological drive</li> </ul>	<ul style="list-style-type: none"> <li>savings</li> </ul>	<ul style="list-style-type: none"> <li>caring for local area</li> </ul>	<ul style="list-style-type: none"> <li>don't care</li> </ul>
Popularity of the attitude in HC and HA	moderately popular attitude regardless of category (33–37%)	moderately popular attitude regardless of category (39–40%)	the most popular category in associations (66%), the second most popular category in cooperatives (61%)	the most popular category in cooperatives (66%), the second most popular category in associations (65%)	The least popular attitude regardless of category (9-12%)

Source: own elaboration.



# Main conclusions



- Through privatisation processes and the disappearance of the 'cooperative culture', **cooperatives and housing associations have become very similar**. HCs' managerial bodies have become **highly professionalised entities**. Their role is often reduced to the administration of the buildings. To some extent, delegating responsibilities associated with housing needs to the management is perceived as an advantage of living in a housing cooperative. The majority of respondents expressed that **they trust the management** in the survey. In general, people who wish to change the housing type have lived at their current address for a shorter period, are younger, and have less trust in the management.
- According to the survey, most buildings have already undergone some degree of thermal modernisation. However, this reflects residents' perceptions and may not align with technical definitions or standards like those in EPBD IV. Excessive heat in summer is a more common problem than cold in winter, humidity, or mould in apartments.
- Only **2%** of respondents living in housing cooperatives reported that their building is **equipped with photovoltaics**, and **4%** indicated using **heat pumps**. The differences in the implementation of such solutions are most often related to the approach taken by the management of the cooperative. If the management comes up with such an initiative, it is usually due to: (1) the wish to invest surplus cash (2) the availability of attractive forms of subsidising investment, in such a way that this translates into a reduction in housing costs for residents as soon as possible (3) a strongly innovative attitude of the board.
- Close to **50% of cooperative residents expressed willingness to engage in energy investment-related decision-making** (with the highest values among people aged 25–34).
- There is **an opportunity for HC managerial bodies to take the lead in investing in renewable energy**, as respondents expressed a high level of trust in management and a willingness to participate in energy-related decision-making. Savings and reduced heat during the summer may serve as a potential motivation for residents.



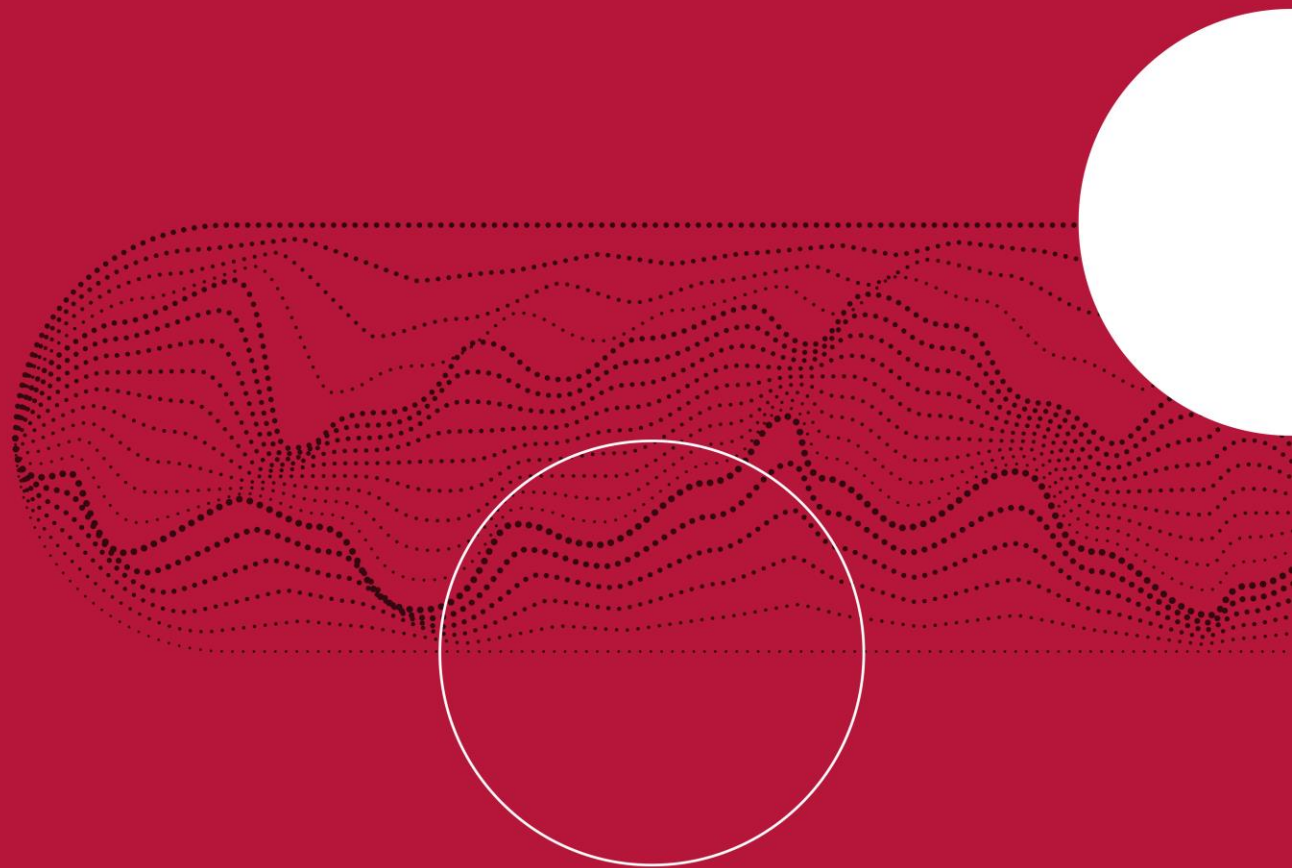


institút  
badaň  
strukturalnych



UNIVERZITNÍ  
CENTRUM  
ENERGETICKY  
EFEKTIVNÍCH BUDOV  
ČVUT V PRAZE



# Summary



# The transformation toward individual ownership advanced more deeply in Czechia . | :

Criteria		
Legal status	governed by cooperative law a dedicated national law (Housing Cooperatives Act).	governed by Civil Code
Role	significant: owning 15% of housing stock, managing much more buildings	limited – owning 3% of housing stock
Governance status	efficient but non-transparent, small democratic mandate, limited member influence	democratic, more closer to the homeowners association
Ownership	private ownership of apartments dominates	cooperative ownership rights constitutes majority
Regional specifics	rural housing cooperatives	support focused on industrial North, i.e. post-mining estates



Multi-family buildings in both countries are in relatively good shape, but the adoption of RES and collective energy solutions remains limited due to path-dependencies

Criteria		
Size	Both institutions and separate buildings are bigger than in Czechia	The average apartment size is bigger in Czechia
Building stock condition	relatively good, many retrofits already investigated	
Energy transition policies	energy efficiency – stable; PV – non-linear	
Deployment of RES	Higher uptake of PVs than in Czechia	More heat pumps than in Poland
Heating systems	More DH-based, less flexible	More gas-based, more flexible



# In both countries, there is a similar social structure in housing cooperatives, but different perceptions and attitudes towards cooperativeness



Criteria		
Overburden	Housing overburden rate is smaller than national average	
Domestic energy deprivation	Lower values than the average in the country. Residents are more often experience summer heat than winter cold	
Incomes	more middle- and low-income groups living	
Attitudes	want to change the current institutional settings	majority would like to stay with the current system
Resident engagement	Smaller agency, higher trust to baord	Higher agency, smaller trust to the board

# Housing cooperatives in both countries adapt to the energy transition at their own pace, accommodating neoliberal logics that hinder collective technology adoption.

Summer heat is a growing issue – 1 in 5 households use fans or AC; a clear case for investing in renewables.

- continuing massive investments in PV to lower cooling costs and increase comfort during summer.

Energy transition is slow – path-dependency and size of housing cooperatives limit flexibility, especially for heating.

- continuing gradual steps in this area using attractive financial schemes with clear regulations and practical use cases

Trust in management helps – but low meeting turnout weakens the social mandate for energy investments.

- visible and transparent communication, stable and relevant meeting hours

Residents want change but stay passive – many support reforms, yet few actively engage in cooperative affairs.

- decentralising decisions (i.e. single block level), engaging local leaders

Engagement is fading – older generations see the cooperative as a community, younger ones treat it like a service

- recognising the youth, at least - digitalisation of decision-making (e-voting on general assembly or even ad-hoc decisions)

Jan Frankowski  
Joanna Mazurkiewicz  
Aleksandra Prusak  
Jakub Sokołowski

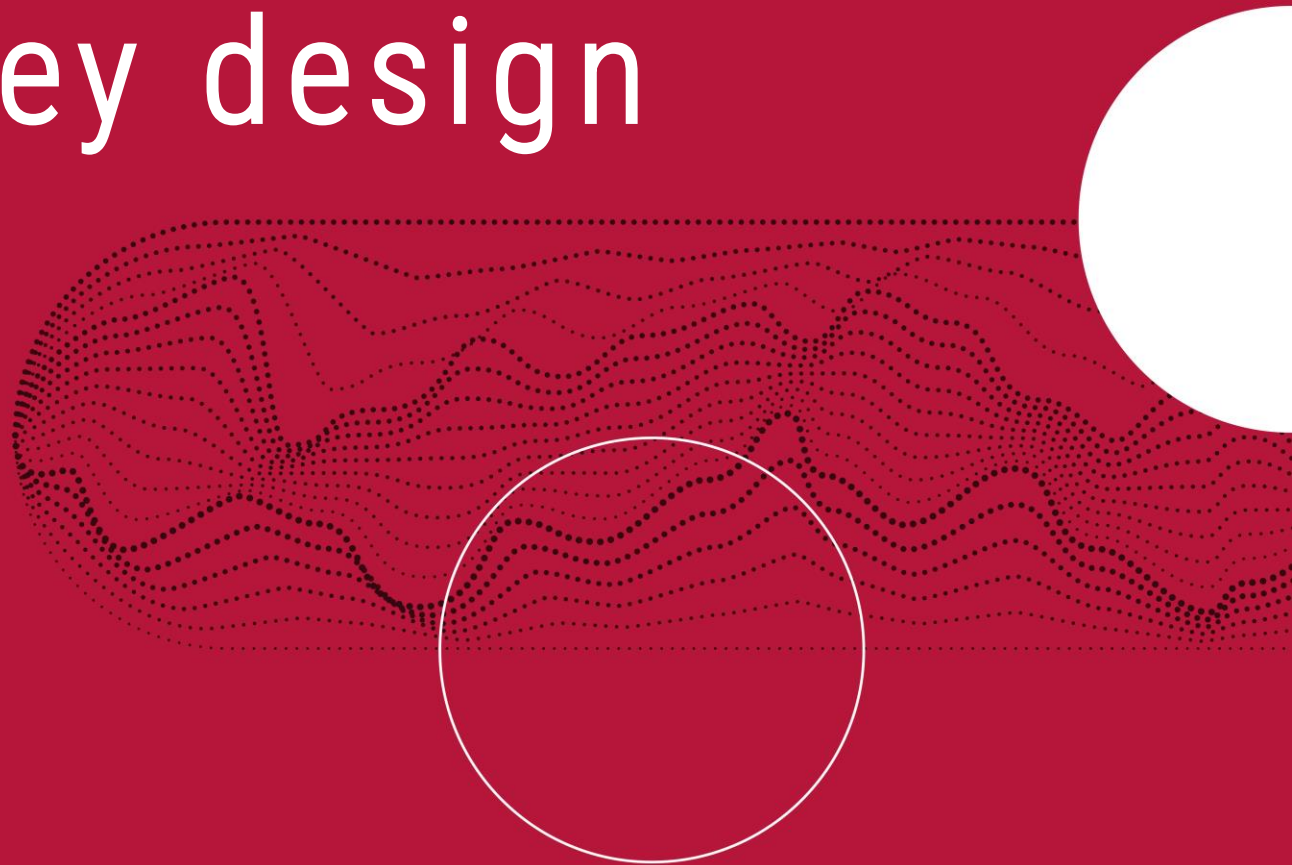
[jan.frankowski@ibs.org.pl](mailto:jan.frankowski@ibs.org.pl)

Wojciech Bełch  
Soňa Stará  
Tomas Vacha  
Michal Nesladek

[wojciech.belch@cvut.cz](mailto:wojciech.belch@cvut.cz)



# Appendix 1: Survey design



# Data collection covered 7,500 households across eight online and field surveys



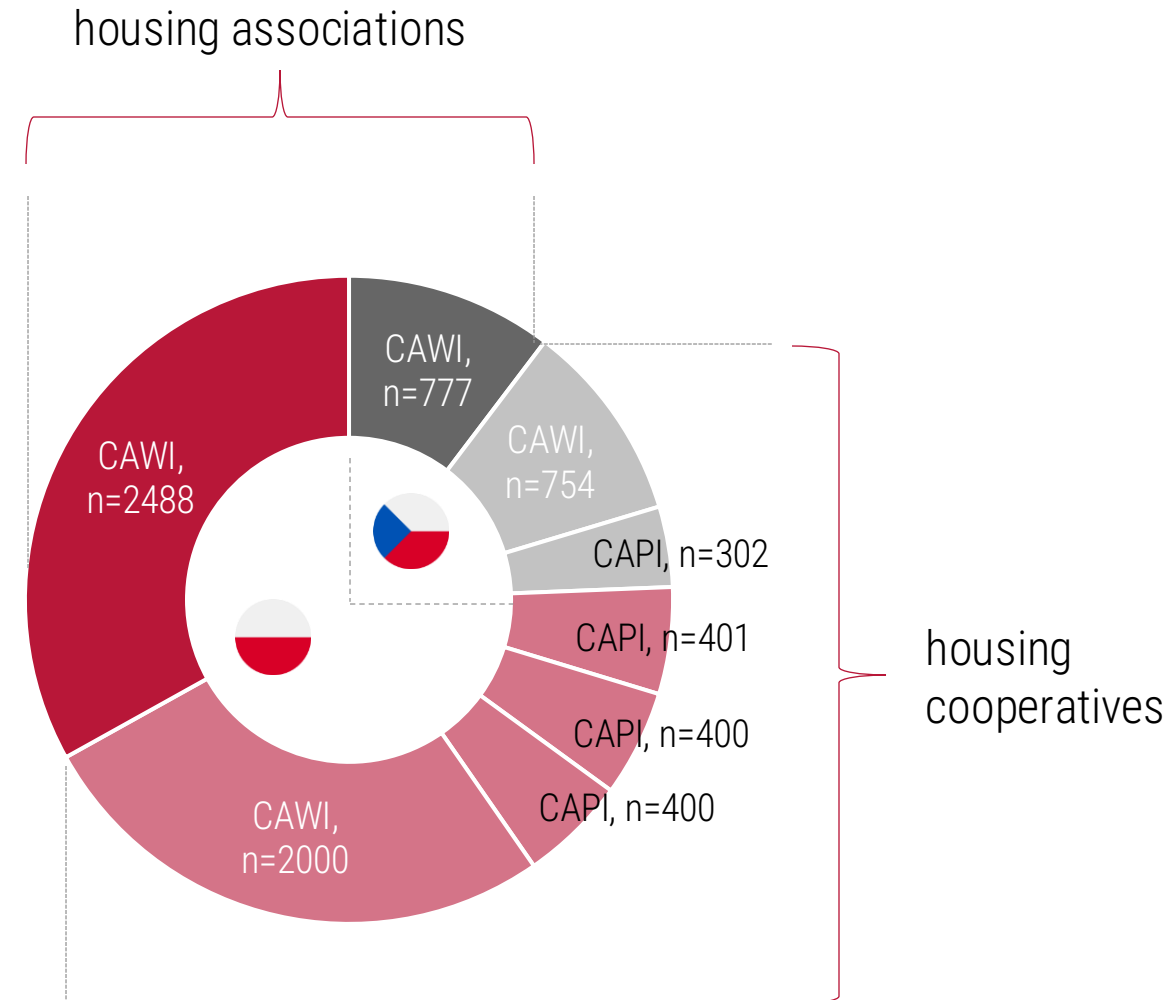
## Assumptions:

- two nationwide representative samples: housing cooperatives (target group) and associations (reference group)
- identical survey questionnaire used across both groups, including standardised questions and vignettes
- methodological approach relevant for individual/household level
- compliance with university ethical committee guidelines
- robust pilot procedures and quality control measures
- weighting of results to account for significant deviations in a sample composition

**Timeline:** Autumn 2024

## Companies:

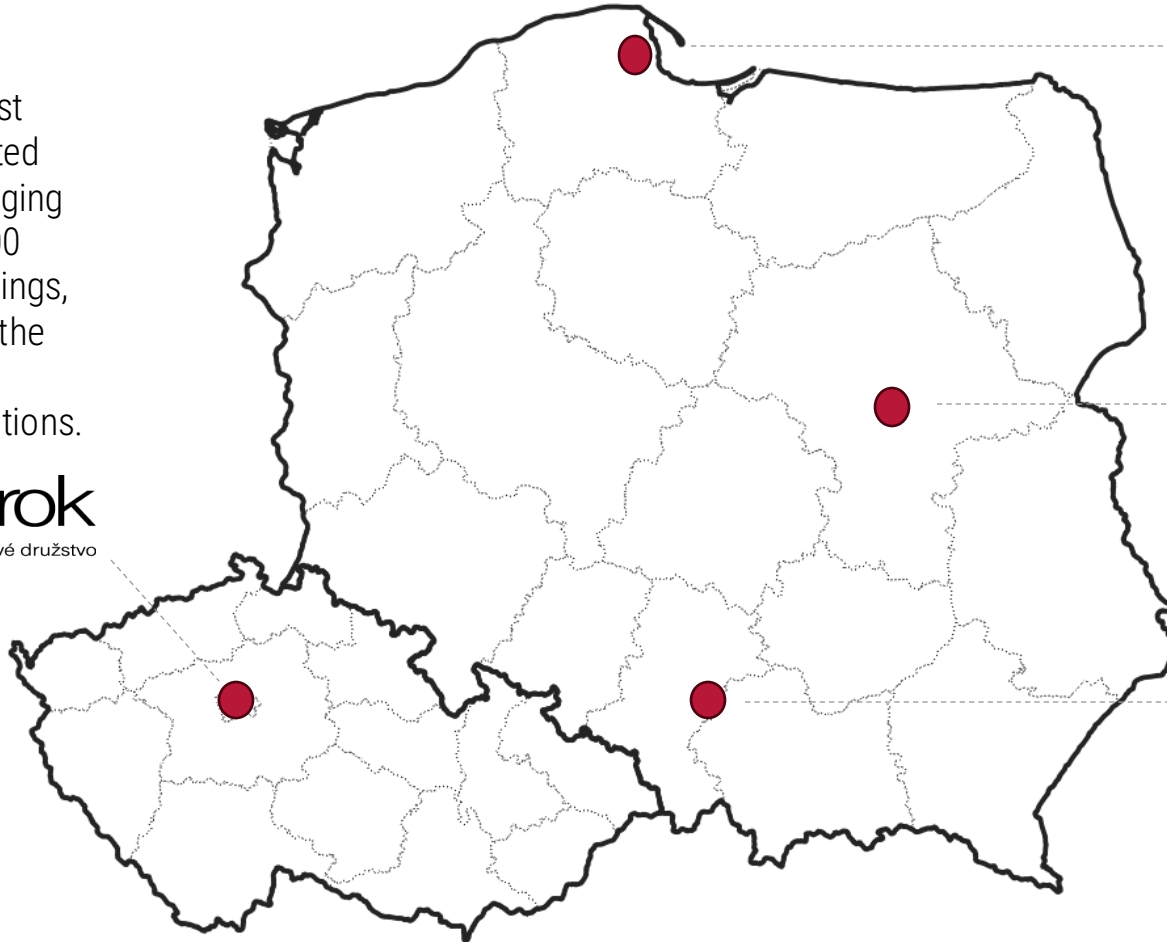
- Czechia: NMS (CAWI), Median (CAPI),
- Poland: PBS (CAWI), Danae (CAPI)



# The field surveys covered four purposefully selected housing cooperatives



One of the largest in Czechia, located in Prague, managing more than 20,000 HC-owned dwellings, involved also in the management of housing associations.



A medium-sized cooperative located in the city of Rumia (4,5k members, 31M PLN of annual revenues; 2022), also manages private housing associations.








One of the 10 largest HCs in PL (21k members, 172M PLN of annual revenues; 2022), located in Warsaw, with a developed multi-level governance structure.



Large housing cooperative (8,6k members, 63M PLN of annual revenues; 2022) in Jaworzno – a city with a strong mining and energy tradition.

If the respondent answered 'yes' to most survey questions in a given group with carefully selected and checked variables, a persona was assigned to them.



Persona	Characteristics
collectivist 	<ul style="list-style-type: none"><li>• Heating the apartment is a collective responsibility of all residents of the building.</li><li>• If I had a choice, I would prefer shared panels on the roof rather than my own PV panel on my balcony.</li><li>• I have neighbours I visit for name days and birthdays and spend leisure time with.</li><li>• I have neighbours with whom we provide mutual favours (shopping or watching children).</li><li>• I regularly attend the annual members' meeting in our housing [cooperative/association].</li><li>• I have done something beneficial for our housing [cooperative/association].</li></ul>
geek 	<ul style="list-style-type: none"><li>• I am among the first to be interested in new technologies.</li><li>• Learning to use new technology is easy for me.</li><li>• I compare the annual costs of our [cooperative/association].</li></ul>
aware 	<ul style="list-style-type: none"><li>• I pay attention to ecological criteria when purchasing products and services.</li><li>• I feel a personal responsibility to reduce climate change.</li><li>• I interest in energy consumption and spending.</li></ul>
patriot 	<ul style="list-style-type: none"><li>• My local area means a lot to me.</li><li>• The local community in a building is important to me.</li><li>• I would like to be more involved in the decision-making process concerning energy investments.</li></ul>
neutral 	<ul style="list-style-type: none"><li>• A person who does not strongly identify with collective causes, specialised interests, social awareness, or local identity (does not possess any of attitudes above)</li></ul>