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Types of Housing Precariousness: A Latent Class Analysis of Housing Problems in Europe

EqualHouse report for workpackage 3 *'Profiling and Explaining the Scale, Character and Interaction of Income, Wealth and Housing Inequalities in Europe'*



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Country codes used in this report

CODE	COUNTRY NAME
BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland
EL	Greece
ES	Spain
FR	France
HR	Croatia
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden
UK	United Kingdom

Housing regimes glossary

Housing regime	EU countries	Definition in this report
Social Democratic Unitary rental market countries	Denmark, Sweden, Finland, Netherlands	<ul style="list-style-type: none"> In the unitary rental market housing-welfare regime, is characterised by a large rental market where both social and private housing providers compete in the same market. The state plays a strong role in regulating rents and ensuring affordability.
Conservative-Corporatist Unitary rental market countries	Germany, Belgium, Austria, Luxembourg	<ul style="list-style-type: none"> Similar to the social democratic model but with greater involvement of non-profit, cooperative, and employer-led housing. The rental sector is well-developed, and homeownership is not a dominant aspiration.
North-Western European (NWE) ownership: dual rental market countries	Ireland, UK	<ul style="list-style-type: none"> The dual-rental market housing-welfare regime is characterised by high homeownership rates. This was/is historically promoted by the government through tax subsidies and mortgage support for (low-income) households.
Southern European family-based homeownership countries	Italy, Greece, Cyprus, Portugal, Spain	<ul style="list-style-type: none"> This regime relies on intergenerational wealth transfers to facilitate homeownership, with weak rental markets and minimal public intervention. Housing serves as a form of welfare due to limited state support. It is characterised by minimal state intervention, small/underdeveloped social housing sector and a poorly regulated private rental sector.
Baltic countries	Estonia, Latvia, Lithuania	<ul style="list-style-type: none"> Post-socialist systems with high homeownership rates due to mass privatisation, but weak rental markets and limited state support for affordability.
Central and Eastern European (CEE) countries 'Post soviet'	Poland, Czechia, Slovakia, Slovenia, Bulgaria	<ul style="list-style-type: none"> Similar to the Baltic model, but with higher levels of informal housing and a legacy of state withdrawal from housing provision. Homeownership remains the dominant tenure, but affordability varies. There have been dramatic changes since the collapse of communism in the early 1990s.

Introduction

The provision of “*a decent home for all at a price within their means*” (Hills 2007: 1) is a welfare state priority however many European welfare states struggle to meet this ‘right to housing’ (Bengtsson 2001; Clair, Fledderjohann & Knowles 2021), i.e. providing affordable, secure, and adequate housing. Heated housing market competition has set off a chain reaction in the provision of housing, especially amongst lower-income households in ‘late’ homeowner societies (Forrest & Hirayama 2018; see also Ronald & Kadi 2018). Inflated property values increasingly force young lower-income households to delay homeownership or block the opportunity to homeownership entirely (Dewilde & Haffner 2022; Arundel & Lennartz 2020). Meanwhile, these households must turn to the private rental market, where they face higher rents, which, paired with stagnant wages, creates a crisis of rental affordability (Hick, Pomati & Stephens 2024; Dewilde 2018). In turn, due to market competition, the poorest households are increasingly sorted into overcrowded, deprived, and insecure living conditions (e.g. Dewilde 2022; Baeten et al. 2017). The result is a growing group of the ‘precariously’ housed (e.g. Clair et al. 2019; see also DeLuca & Rosen 2022), who face multiple housing problems and are at risk of health problems and homelessness (McKee et al. 2017, Galster & Lee 2021). With an estimated 273 million Europeans (17.5%) experiencing some form of housing precariousness (Clair et al. 2019), the nineteenth century ‘social question’ of housing is back on the agenda.

In this report, we show that the literature on housing precariousness so far has tended to oversimplify the concept of multiple housing problems. In theory, at least, there is a distinction between the importance of some housing problems over others. Affordability issues are considered ‘key drivers’ of precariousness (Waldron 2023: 194) and the ‘leading contributor’ to housing insecurity (Routhier 2019: 244) because affordability is presumed to lead to other problems such as arrears in payments of rent/mortgages and utilities. In practice, however, since precariousness is measured as a simple sum of housing problems, the core assumptions are that all housing problems equally contribute to the “*risk of experiencing a shock*” (Clair et al. 2019: 4), and that different combinations of housing problems are directly comparable. Instead, we propose a more nuanced approach to quantifying precarious housing conditions. Through a latent class analysis of housing problems, we explore to what extent specific housing problems tend to co-vary,

and to what extent these 'types' of precariousness are experienced differently between countries and disadvantaged social groups. Based on these exploratory findings we propose an explanation as to why these types of precariousness are conceptually distinct.

This conceptual distinction also brings the literature on precariousness closer to the study on the structural and historical origins of housing problems (e.g. Dewilde & de Decker 2016; Dewilde 2022). Due to the prevalence of case studies (e.g. Listerborn 2023; Waldron 2023) and a focus on consequences over causes (e.g. Baker et al. 2016), studies on housing precariousness have shown little attention for explaining why precariousness differs between countries, tenures, and social groups. The housing outcomes literature, on the other hand, while providing extensive explanations for why regimes lead to housing problems, is focused on independent rather than multiple housing problems.

In this report, we seek to bridge these two strands of research by suggesting explanations of why regimes, tenures, and social groups end up in (different types of) precarious housing situations. Our research question asks: *Do distinct types of housing precariousness exist, and do they differ between housing systems and social groups?* To answer this question first, we provide a brief theoretical background on housing precariousness. After outlining our data and methodological approach, we show evidence of three types of housing precariousness with distinct structural origins. In the conclusion, we reflect on the broader implications of this typology, in terms of what this means for our understanding of housing precariousness, avenues for future research, and implications for policy practice.

1. Theoretical background

Two more or less separate literatures have developed around multiple housing problems, conceptualizing the concentration of housing problems as either 'precarious' or 'insecure'. Both lament the study of housing problems in isolation, as this approach disregards the accumulation of housing problems amongst the most disadvantaged (e.g. Baker & Lester 2017; Desmond & Western 2018). In response, these strands have adopted a multidimensional approach to housing problems, including aspects such as housing affordability, overcrowding, deprivation, and stability of housing. Their core distinction lies

in the breadth of the concept: while precarious housing is supposed to increase the risk of homelessness, housing insecurity includes homelessness as part of its typology.

Studies on housing precariousness have adopted the term from studies on precarious work (e.g. Kalleberg, 2018). Dorling (2014: 20) originally emphasized the insecurity and affordability aspects of housing precariousness, i.e. *"constantly having to move, not when you choose to but when you are forced to"*. Beer et al. (2016) explicitly connected housing precariousness to increased social risks, indicated by problems related to affordability, stability, and private renting. Clair et al. (2019: 3) similarly define housing precariousness as *"a state in which (perceived) exposure to an adverse event is increased"*, indicated by problems with housing affordability, security, quality, and access to essential services. In this definition homelessness is a consequence of precariousness rather than part of the concept.

Studies on housing insecurity have taken a very similar approach, although housing insecurity includes homelessness as part of its definition instead of an outcome of housing problems. DeLuca and Rosen (2022: 345) define housing insecurity as *"the state of having difficulty acquiring housing, having minimal control over one's housing, being at risk of losing housing, being uncertain about tenure, or living in housing that does not meet basic household needs"*. Recent publications emphasize the need for a consistent definition of the concept. Cox et al. (2019) include characteristics of housing (stability, affordability, quality, and safety) as well as neighborhood characteristics (safety and quality) and homelessness. Routhier (2019) argues for a narrower measurement of housing insecurity, which includes affordability, overcrowding, deprivation, and forced moves.

Tenure has an ambiguous place in the definition of precarious and insecure housing. It is broadly argued that housing problems are most severe in the private rental sector as private rental housing is less secure, of lower quality (Baker et al. 2016) and less affordable (Dewilde 2018; Hick, Pomati & Stephens 2024). Many studies thus focus exclusively on private renting when examining the concentration of housing problems (e.g. Waldron 2023; DeLuca & Rosen 2022; Routhier 2019). While Beer et al. (2017) include private renting as an indicator of contract insecurity, Clair et al. (2019) rightfully point out that the social risk associated with private renting differs between countries. In unitary

rental markets such as Germany or the Netherlands, where the distinction between public and private renting is less pronounced, private renting is more secure and of better quality (e.g. Hulse & Milligan 2014). Inversely, while (mortgaged) homeownership is associated with high-quality accommodation in the Northern countries, outright homeowners in the Central-and-Eastern European and Southern-European countries have more problems with overcrowding and housing quality (e.g. Dewilde 2017). The role of tenure in producing various housing problems thus depends highly on the historical context of a housing system.

1.1 Origins

Existing studies have mostly related housing precariousness to the recommodification and financialization of housing. Very briefly, these policies have led to a decrease in the nature and stock of social housing (e.g. OECD 2021) as well as a more liberal access to mortgage finance up until the financial crisis (2009) (see Aalbers 2016). The resulting boom in property values has forced young low- and middle-income households into (private) rental tenures (Dewilde & Haffner 2022), and produces precarious living conditions at the bottom of the housing ladder. Dorling (2014) argued that rising property values – driven by the search for status and profit – without real wage growth, have increased rents and incentivized temporary contracts, especially in the private rental sector. Similarly, Beer et al. (2017:1542) relate housing insecurity to “*the rise of neoliberalism*”. In theory, then, precariousness often starts with affordability problems. In the United States (US), Diaz McConnel (2017) finds that poor households are sometimes forced to move into overcrowded and low-quality housing to cut the cost of living. Waldron (2024) finds that, among several coping strategies, tenants share accommodation or cut back on consumption to deal with high rents. On the supply side, private landlords have incentives to turnover tenants after temporary contracts expire so they can raise the rent. Being forced to move or being evicted is a more extreme consequence of precarious living arrangements, which could lead to homelessness (Dubois & Nivakoski 2023). Some studies point to the increased risks of eviction due to renovations – namely, ‘renovictions’ – especially in Sweden (Baeten et al. 2017; Polanska and Richard 2019; Listerborn 2023). Market pressures thus create problems with

affordability and tenure security, which in turn leads to a concentration of problems for those cornered by the housing market (see also Routhier 2019; Waldron 2023).

Unsurprisingly, it follows that low-income households and those in private rental housing are most often exposed to precarious housing conditions. Moreover, due to the nature of housing careers – i.e. older generations faced different market conditions – younger generations are more often exposed to precarious housing conditions (e.g. Waldron 2023). Finally, due to discriminatory practices on the (rental) housing market, migrants are more often forced to accept precarious housing conditions (e.g. Dotsey & Chiodelli 2021; Listerborn 2023).

However, the emphasis on market forces as the main cause of precarious housing is biased towards the ‘late’ homeowner societies in Western-Europe. It does little justice to the complex history of housing systems especially in the East and South. Housing precariousness has been found to be much more prevalent in Eastern and Southern Europe (Clair et al. 2019; Waldron 2023). Especially in these areas, the legacy of familial modes of building and allocating houses, as well as the enduring impact of shortages during the state-socialist era, continue to affect housing stock and quality. It is much more common to co-reside with extended family until housing is passed over through inheritance. Low incomes, weak building norms and historically low-quality state construction also produced a low-quality housing stock. Finally, these problems occur despite (extremely) high levels of outright homeownership. For precariousness, this means that affordability may not be the primary housing problem in these regimes, and that the relation between precariousness and rental tenures is rather different.

2. Data and methods

The analysis is based on a ‘pooled’ EU-SILC dataset of seven waves (2010; 2012; 2014; 2016; 2018; 2020; 2023) and 31 countries, with a total of N = 4.130.665 individuals. Note that since EU-SILC employs a rotating panel, gradually renewed over the course of four years in most countries, a small proportion of cases will be the same respondents in different years. We include eight indicators of housing problems: housing cost burden, subjective cost burden, perceived energy poverty, utility arrears, rent/mortgage arrears, overcrowding and housing deprivation. For some measures, we depart slightly from the

Eurostat definitions. Housing cost burden is based not on a fixed 40 per cent threshold (in relation to disposable household income), but on a variable threshold ranging from 25 per cent for the lowest quintile to 50 per cent for the highest quintile (see also Table 1), as it better reflects the experience of affordability problems for different income groups (Heylen 2023). Overcrowding follows the EUROSTAT definition, save the exception that one-person households are not deemed overcrowded when living in a one-room apartment. A brief description of the indicators is included in Table 1. Covariates include country dummies (HB020), tenure status (HH020/1), income quintiles based on equivalized annual disposable household income per country, and migration status of the household reference person (see below for a discussion on the role of covariates). In EU-SILC, rental tenures are measured as ‘at market-rate’ versus ‘below market-rate’, which roughly (but not completely) corresponds to private renting and social housing. For example, reduced-rate rental housing can also be provided by employers. In Denmark, Sweden, and the Netherlands, EU-SILC makes no distinction between reduced and market rates: all renters are by default categorized as market renters.

Latent Class Analysis (LCA) is a statistical method used to group respondents based on observed response patterns over multiple indicators (Vermunt & Magdison 2004; Collins and Lanza, 2009). In our case, we model the stacking of housing problems to identify types of housing precariousness, i.e. regularly occurring combinations of housing problems, and how these types co-vary in different ways across countries and disadvantaged social groups. While new to housing research, the method has been used in health and education research, and recently in labour market studies (e.g. Seo, 2021; Yoon and Chung, 2016). LCA is both data-driven and person-oriented, meaning that it inductively identifies person ‘profiles’ across multiple variables. For instance, Seo (2021) finds that different types of job precariousness better represent the actual labour market experiences of workers than theoretical classifications. Similarly, LCA can help to identify types of precariousness – combinations of housing problems – that remain hidden in single-variable comparisons.

Table 1. Brief description of housing problems used as indicators in the LCA

Indicator	Description	Categories
Housing cost burden	Person living in household where total housing costs exceed a variable threshold of disposable income ('net' of housing allowances). Variable threshold: 25% for 1st quintile, 30% for 2nd quintile, 40% for 3rd quintile, 50% for 4th-5th quintile.	Overburdened, Not overburdened
Subjective cost burden	Person living in household experiencing a financial burden of the total housing cost (HS140), including mortgage/rent payments and insurance/service charges. Question: to what extent are these costs a financial burden to you?	A heavy burden, a slight burden, no burden at all
Perceived energy poverty	Person living in household experiencing the inability to keep the home adequately warm (HH050). Question: can your household afford to keep its home adequately warm?	Yes, No
Utility arrears	Person living in household with arrears on utility bills in the past 12 months (HS021). Question: in the past twelve months, has the household been in arrears, i.e. has been unable to pay the utility bills (heating, electricity, gas, water etc.) of the main dwelling on time due to financial difficulties?	Yes (once, twice or more), No
Rent arrears	Person living in household with arrears on mortgage or rental payments in the past 12 months (HS011). Question: in the past twelve months, has the household been in arrears, i.e. has been unable to pay on time due to financial difficulties for (a) rent (b) mortgage repayments for the main dwelling?	Yes (once, twice or more), No
Overcrowded	Person living in household with less rooms available than required given the composition of the household. Following EUROSTAT, except we do not consider one-person households living in studio apartments as overcrowded.	Overcrowded, not overcrowded
Housing deprivation	Person living in household with one or more of the following dwelling problems: Leaking roof / damp walls / floors / foundation or rot in window frames (HH040); Accommodation too dark (HS160); No bath/shower (HH080/1); No indoor flushing toilet for sole use of the household (HH090/1).	Yes (one or more problems), No (no problems)

A common issue with LCA is the tendency to produce unstable cluster solutions. To find a latent categorization that holds over time, the analysis is based on a pooled dataset of multiple waves (2010; 2012; 2014; 2016; 2018; 2020; 2023). Such a 'constrained' model assumes that the measurement of the latent classes is the same over time, an assumption we tested by running the latent class model separately for each wave, as well as by tests of measurement equivalence (see Appendix A).¹ As is common in the monitoring of poverty and social exclusion at the European level, the analysis is performed on individual-level data (Atkinson et al., 2002). Cases with one or more missing

¹ Running LCAs for each year pointed to a similar 8-class solution for all waves except 2023, which pointed to a 9-class solution. As a robustness check, we tested the measurement invariance between 2020 and 2023 (see also Kankaras, Moors & Vermunt 2018), which confirmed that the measurement models indeed differ between 2020 and 2023. We continued the pooled analysis with this limitation in mind and postpone the temporal dynamics for future analysis.

values on the included indicators (6.5%) are excluded prior to the latent class analysis. The pooled dataset is composed of $N = 4.130.665$ individuals.

We used the dedicated software LatentGold version 6. The algorithm divides individuals into a predefined number of classes, the optimal partitioning being the one with the highest likelihood of predicting observed response patterns (Vermunt & Magidson 2004). To put this more simply, the 'latent' grouping variable is a good fit when it explains the occurrence of individual housing problems, as well as the covariance between them. This optimal fit is indicated by the Bayesian Information Criterion (BIC), which includes a penalty for more complicated models. Formally, for each respondent, the model estimates the probability of belonging to a class given their observed pattern of housing problems. Estimated classification errors increase when class membership probabilities of a single individual are often similar, i.e. when there is uncertainty surrounding the assignment of an individual to a particular class. Relatedly, Entropy is a function of the ability of the latent class model to reduce classification errors (for details see Vermunt & Magidson 2016). Bivariate residuals test the assumption of local independence, i.e. whether associations between variables disappear when controlling for the latent class model. In our application, we ran LCA models with 2 to 10 classes. We applied the personal cross-sectional weight (RB050) provided by EU-SILC.

Class membership probabilities of the latent variable 'housing precarity' are estimated with four so-called 'active' covariates. The likelihood of belonging to a particular class is thus not only dependent on the combination of housing problems one faces, but also conditional on country of residence, tenure, income quintile, and the year of data collection. In other words, in estimating class membership probabilities, the model accounts for the country of residence, the type of tenure, the income level, and temporal developments. This is key because the types of housing problems as well as some specific combinations are known to vary systematically along these dimensions (Dewilde 2017). Including them in the analysis greatly reduces the noise introduced by pooling countries, income groups, and tenures. Concretely, this makes it easier to identify a common concept of housing precariousness that is valid across the EU, instead of finding country-specific combinations of housing problems. The covariate effects are derived using simple cross-tabulations. First, respondents are assigned the latent class (category) for which

they have the highest predicted membership probability according to the selected LCA model. Second, these class assignments are tabulated against the covariate categories, for example to identify differences in class assignments by housing tenure. We use column percentages, i.e. taking frequencies as a percentage of the total number of cases in each covariate category. This allows us to see, for example, to what extent types of precariousness are more common amongst mortgaged homeowners versus tenants in the private rental market. Once again, the household cross-sectional weight is applied to correct for sampling bias.

4. Results

In this section, we show how we identified three types of housing precariousness ranging from less to more severe due to the specific stacking of additional housing problems. Quality-precariousness is most secure, least stratified by income and is most found in Central/Eastern Europe and amongst rent-free tenants. Cost-precariousness additionally includes a financial burden and is more common amongst low-income groups in reduced-rent tenures. On top of the other problems, security-precariousness also includes rent/mortgage arrears (associated with the risk of eviction) and is most common amongst the lowest incomes and non-EU migrant households. In this section, we discuss our choice for the number of clusters and the corresponding interpretation of these clusters. Next, we elaborate on the differences in cluster membership between countries, tenures, and social groups.

4.1 Types of precariousness

The model fit statistics of the latent class analysis are presented in Table 2. We see a gradual but increasingly marginal decline in BIC, indicating that higher cluster solutions tend to better fit the observed response patterns. After eight clusters, however, including another cluster reduces the BIC with less than one half per cent. The eight-cluster solution ($k=8$) has one of the lowest rates of classification errors (11%) and the highest entropy R^2 (84%), indicating that this solution is best in dividing respondents into latent classes. Furthermore, the bivariate residuals in Appendix B also pleads for the 8-cluster solution, as it resolves the residual association between arrears in rent/mortgage and utilities.

Table 2. LCA model fit statistics

	BIC	BIC reduction (%)	Class.Err.	Entropy R ²
1	19400130837	100%	0%	100%
2	17364672293	90%	8%	72%
3	16529231296	85%	11%	75%
4	16118107456	83%	13%	75%
5	15848464335	82%	15%	75%
6	15671378986	81%	15%	76%
7	15523375152	80%	15%	77%
8	15401835948	79%	11%	84%
9	15347756156	79%	16%	78%
10	15272142201	79%	14%	81%

We opt for a model with eight clusters also for substantive reasons, derived from the profile information of alternative cluster solutions (see appendix C). While the 6-cluster solution already distinguishes between two types of precariousness based on the presence and absence of housing cost burden, the 8-cluster solution separates a third type of ‘security’ precariousness centred around rent/mortgage arrears. While this cluster is proportionally small, it is theoretically valuable and still contains around 132 thousand people in absolute terms. Moreover, relatively small groups can be expected when seeking patterns in a ‘niche’ segment of the housing market (Baker & Lester 2016). After all, most households do not experience any housing problems at all, especially in North-Western Europe.

Based on the profile information in Table 3 we interpret the eight clusters as comfortable, slightly worried, very worried, overcrowded, overburdened, quality-precarious, cost-precarious, and security-precarious. This composition is represented visually in Figure 1. Together the size of the three precariousness clusters equals 18.0 per cent, similar in size to the precarious group identified by Clair et al. (2019) based on the 2012 wave of EU-SILC. A substantive discussion of these labels follows below.

A large proportion of the sample has little to no housing problems. The first three groups are either objectively and subjectively comfortable (30.4%), slightly worried (15.5%), and very worried (18.9%) about their housing costs, but not objectively overburdened. In these groups, housing problems are mostly absent, except for a minority experiencing housing deprivation. If anything, this clustering highlights the distinction between objective and subjective measures of affordability. Those without high objective cost

burdens may still perceive housing costs as a burden, perhaps because they have other high costs of living or because

housing costs are diverging from a culturally accepted standard (Sunega & Lux 2016). Two single-problem groups also emerge: a cluster (9.4%) where many live in overcrowded housing (72.8%) and another cluster (7.8%) characterized by a high cost-burden (88.5%), all mostly without facing any additional problems.

Table 3. Latent Class Profiles

	Comfortable	Slightly worried	Very worried	Overcrowded	Overburdened	Quality-precious	Cost-precious	Security-precious
Cluster Size	30.4%	15.5%	18.9%	9.4%	7.8%	7.3%	7.5%	3.2%
Overburdened	0.1%	0.1%	0.2%	0.0%	88.5%	0.0%	100.0%	48.8%
No subj. burden	0.0%	0.0%	96.4%	5.2%	26.3%	3.7%	0.4%	4.0%
Slight subj. burden	99.6%	0.0%	0.0%	52.9%	49.1%	30.7%	25.9%	19.2%
Heavy subj. burden	0.4%	100.0%	3.6%	42.0%	24.6%	65.6%	73.7%	76.9%
Energy poverty	2.3%	8.5%	1.0%	1.4%	4.4%	45.0%	29.1%	34.1%
Utility arrears	1.2%	4.3%	0.6%	7.0%	2.3%	32.1%	26.3%	68.3%
Rent arrears	0.5%	1.3%	0.4%	0.2%	1.7%	0.0%	0.0%	100.0%
Overcrowded	1.6%	1.8%	2.9%	72.8%	5.3%	43.1%	34.0%	33.8%
Deprivation	13.8%	18.7%	12.0%	13.7%	17.9%	52.8%	34.5%	42.0%

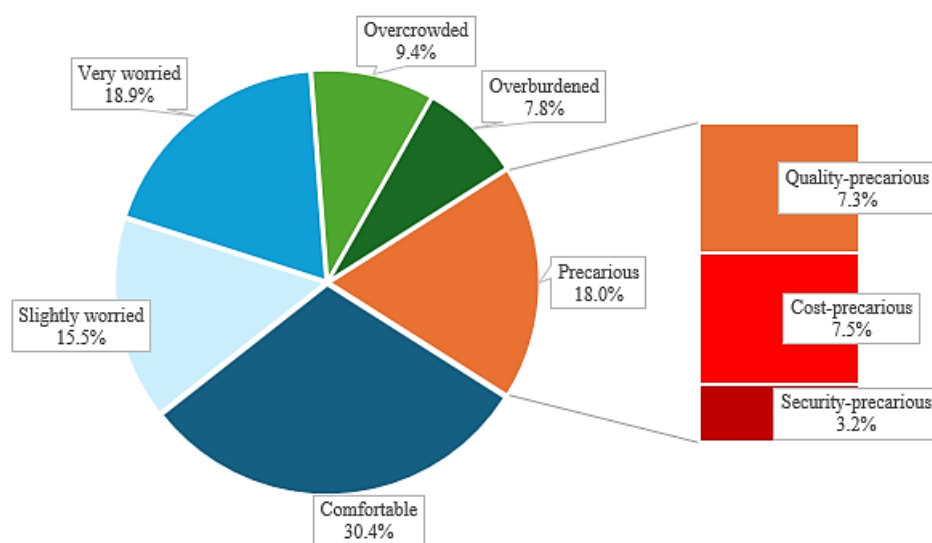
Note: cluster size is based on modal class assignment instead of aggregate probabilities. Cross-sectional design weight (db090) is applied. The cluster size thus reflects the weighted fraction of respondents assigned to each class.

Most interestingly, we find three types of precarious housing conditions, distinguished by the presence of multiple housing problems. Arguably these three clusters range from least to most precarious. The ‘quality-precious’ cluster (7.3%) has no problems with objective cost burden, but scores relatively high on energy poverty, utility arrears, and especially housing deprivation. Notably, while this cluster is not objectively overburdened, many still indicate their housing costs are a heavy burden, and utility arrears are relatively frequent. This implies that this group faces high costs of living outside of the housing domain relative to their income and may compromise on housing quality to manage costs (e.g. Galster & Lee 2021:20). Especially in Central-and-Eastern Europe, where this type

is most prevalent, low-income outright homeowners might face this trade-off between maintenance and cost-of-living.

Those in the ‘cost-precarious’ cluster (8%) are all overburdened in terms of housing costs, in addition to a majority experiencing a heavy subjective burden, and a substantive proportion having difficulties heating their house, being in arrears on rent/mortgage and utility, and living in overcrowded and deprived living conditions. Finally, a small cluster of ‘security-precarious’ (2%) faces the greatest housing problems. All of them are in arrears, experience a heavy cost burden, and around half of them has high housing costs. This is paired with relatively high rates of utility arrears, deprivation and overcrowding. Affordability problems in this group seem to have transitioned into arrears, leaving them at a higher risk of being evicted.

Figure 1: Class membership proportions across Europe



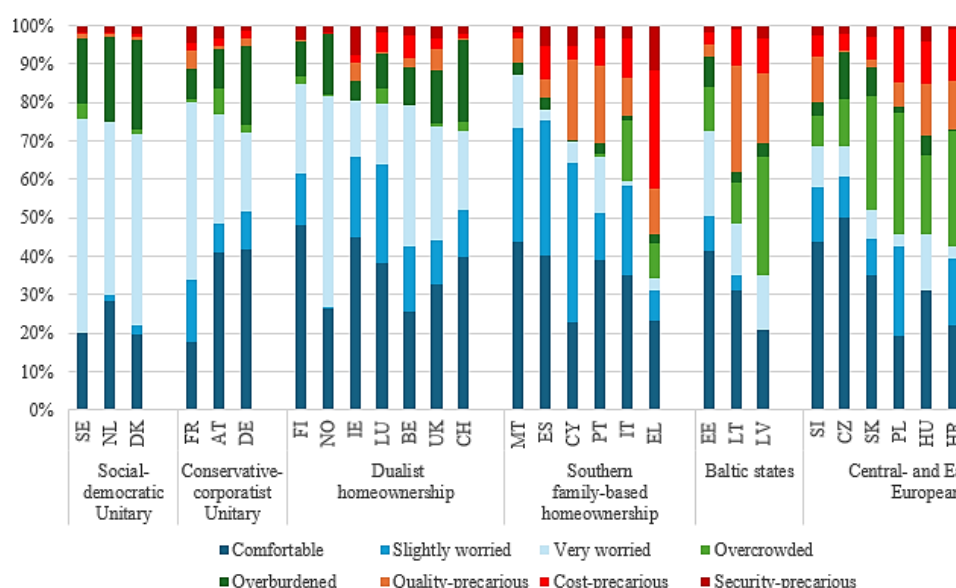
4.2 Regimes

The distribution of latent classes over countries produces familiar regime-patterns for the clusters with no problems, and expectedly shows that the precarious clusters are generally more prevalent in post-socialist states and Southern Europe (Clair et al. 2019; see also Norris & Domański 2009). More importantly, grouping the countries by regime type reveals that quality-precariousness is especially common in former state-socialist

countries, while security-precariousness is more common in Southern-Europe. Moreover, when precariousness does occur in the unitary and dual rental market regimes in North-Western Europe, it is more often of the more severe security-precarious type.

Figure 2 shows the distribution of class membership per country and per regime type. Unsurprisingly, the comfortable and slightly worried groups are more prevalent in the unitary and dualist regime types of North-Western Europe. In dual rental market countries, the very worried group is consistently more prevalent. A high cost-burden as a singular issue is most common in social-democratic unitary rental market countries. This aligns with the emerging narrative on the excessive house price inflation and the associated increase in rent and mortgage payments in these countries (Lennartz & Ronald 2017; Tranoy, Stamso & Hjertaker 2021), while high building standards and market incentives for upper-segment construction prevented deterioration of housing quality (Dewilde & De Decker 2016). Second, as expected, overcrowding as an isolated issue is highly common in Central-and-Eastern European countries. Again, such findings must be understood also in the light of cultural differences with respect to multi-generational co-residence, and the imposition of a ‘objective’ standard on overcrowding that does not always meet subjective experiences (Sunega & Lux 2016). Overcrowding is prevalent but also much more accepted in these countries, albeit a norm of necessity (Soaita 2014).

Figure 2: Distribution of cluster membership per country-regime



Turning to the prevalence of the three precariousness clusters, precarious housing conditions in general tend to be more prevalent in the East and South of Europe. Housing precariousness is especially high in Bulgaria and Greece, where approximately half of the population is confronted with some combination of housing problems. Notably, there is substantial variation in the degree of precariousness across Central-and-Eastern-European and Southern-European countries. Especially in the Czech Republic, Slovakia, Estonia, and Malta levels of precariousness are nowadays similar to those in the North-Western European countries. In the Czech Republic and Slovakia, relatively low rates of housing precariousness can be partly attributed to the less radical transition to the market-based provision of housing after the transition from state-socialism to a free-market economy. In the Czech Republic, for example, part of the public housing stock was retained by municipalities, its' inhabitants protected by rent-control and by some degree of municipal responsibility for maintenance (Lux & Sunega 2010).

In addition, there are some interesting variations in the type of precariousness that suggest more about their structural origins. First, in the Nordic countries, when multiple housing problems do occur, they are often more severe. For example, of all those in precarious housing in the Netherlands (3.0%), almost two-thirds is classified as security-precarious (1.9%). These patterns are even more pronounced for low incomes, as shown in the supplementary database. For example, of all low-income Danes living in precarious conditions (10.9%), more than half is security-precarious (5.8%). They are in arrears on rent in addition to risking a high cost-burden and often living in deprived and overcrowded accommodation. Conversely, less than one per cent (0.8%) of low-income Danes lives in overcrowded and deprived accommodation without cost burden and rent/mortgage arrears. Similar patterns are found in Sweden, Finland and Norway.

Second, in liberal dual-rental-market countries such as Ireland and Finland, as well as in France, we find relatively high rates of security-precariousness – what we consider a more severe form of housing precarity. At the same time, this type is relatively absent in Eastern-European housing-welfare regimes, at least much less common than the other types of precarious living conditions, likely due to the high rates of outright homeownership and rent-free tenants in these countries. In contrast, cost-precariousness is relatively common in Belgium (5.9%) and Luxembourg (5.3%). This also translates into

high rates of cost-precariousness amongst low incomes: around one in every four low incomes are classified as cost-precarious, which is relatively high compared to other North-West European countries (see supplementary database). Both Belgium and Luxembourg have high housing cost overburden rates as well as high housing deprivation, which translates into cost- but not security-precariousness in these countries.

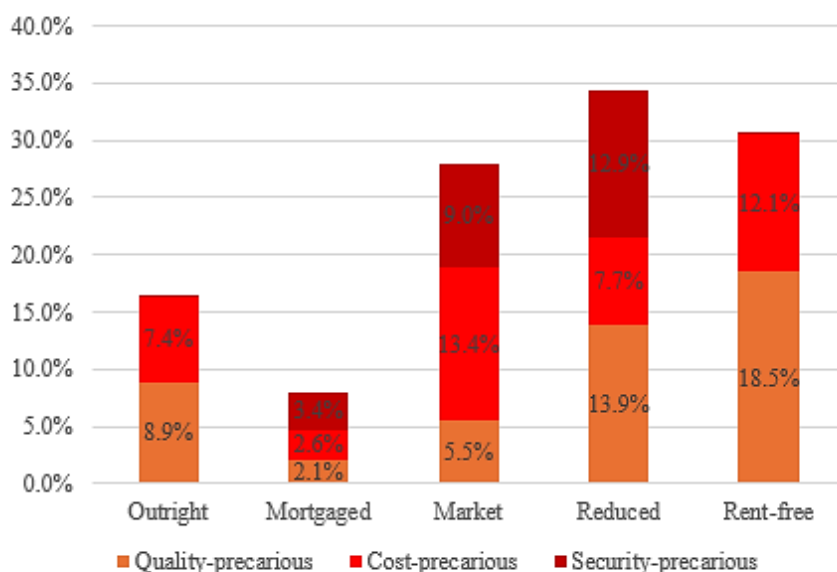
Finally, quality-precariousness is relatively common in Bulgaria and Lithuania, as well as in Portugal and Cyprus, where housing costs are low, but deprivation rates are high. In the Central-and-Eastern European countries, this is related to the heritage of low-quality construction during the state-socialist era in the former countries, and a continued lack of organized new construction since the turn of the century (Soaita & Dewilde 2019). In Greece and Serbia, on the other hand, precariousness often involves the additional housing cost burden characteristic of cost-precariousness. Especially in Greece, this is due to the increasing tax burden imposed on private households after the financial crisis, enforced by the seizure of bank accounts (Alexandri & Janoschka 2018). In these countries, then, we could argue that precariousness is not only more common, but also more severe.

4.3 Tenure

The distribution of housing precariousness by tenure is presented in Figure 3. Expectedly, housing precariousness is especially rare amongst mortgaged homeowners. Similar to Clair and colleagues (2019) we find that total precariousness is higher in rental tenures, both at market and reduced rate, already indicating that the explicit research and policy focus on private rental arrangements (e.g. Waldron 2023) is unjustified. Especially in the United Kingdom (UK), Ireland, France, and Belgium, the social housing sector is marked by high rates of quality- and security-precariousness, pointing to the concentration of vulnerable and low-income individuals in social housing arrangements (e.g. Angel 2023) as well as to problems with the quality of the social housing stock (cf. Blackwell & Bengtsson 2023). Moreover, in line with prior studies, we find that market renters in dual rental market countries often have affordability problems (e.g. Dewilde & De Decker 2016). The high incidence of quality-and cost-precariousness amongst outright owners and rent-free tenants is in large part due to their prevalence in Central-and-

Eastern Europe and Southern Europe (see below for a detailed discussion). While we present a curated set of country comparisons in this analysis, the complete country-decomposition of tenure differences in housing precariousness is available in the supplementary database.

Figure 3: Distribution of precariousness types per tenure



In fact, the estimates in Figure 3 indicate that precariousness (regardless of the type) is considerably more common in the reduced-rate rental sector. This links to prior studies on the so-called 'residualization' of social housing, referring to a shrinking social housing stock as well as access increasingly targeted to low-income or otherwise vulnerable groups (Malpass & Murie, 1999). While this trend was originally discussed in dual rental market countries such as the UK, several studies report evidence on the residualization of social housing across Europe, both in terms of policy developments (e.g. Hoekstra 2017, Ogrodowczyk & Marcińczak 2021) as well as the increased concentration of low-income tenants in the sector (Angel 2023; Borg 2019). The increased concentration of vulnerable tenants in the reduced-rent sector fits with the observed incidence of security-precarious housing. Around half of all precarious situations in the European reduced-rate rental sector are security-precarious (12.9%), a type that includes rent arrears and cost overburden. Since rents are below market rate and the access is often targeted towards

those in need of financial support, the cost burden is most likely due to the low household income (see also Figure 4.5). As we will see however, the rates of security-precariousness in the reduced-rate rent sector vary considerably between countries, to the extent that the concentration of the most disadvantaged in the reduced-rate rent sector may be more relevant in France, Belgium, Finland, Ireland, and the UK.

Surprisingly, however, our results also point to high rates of quality-precariousness, conceptually akin to (severe) housing deprivation. 13.9 per cent of reduced-rate renters in Europe are classified as quality-precarious, a group with high rates of deprived housing and overcrowded accommodation, as well as high rates of utility arrears and the inability to keep the house adequately warm. This is surprising because social housing stocks have long been considered of better quality compared to the private rental sector. Based on an analysis of tenants' satisfaction with social rental housing, Blackwell and Bengtsson (2023: 284) have argued that *"in terms of standards and quality the social rental housing stock has proven generally resilient"*, also when compared to the private rental sector. In her individual-level analysis, however, Borg (2015: 86) also finds that housing deprivation is highest amongst those in the social housing sector, higher than any other tenure: *"tenants renting at reduced rents seem to be the most vulnerable"*. Our results corroborate these latter findings and pose a reason to question whether social housing quality is indeed as 'resilient' as previously claimed. On the other hand, the discrepancy might lie in subjective experiences versus objective criteria for deprived housing conditions, since subjective and objective measures of housing problems often differ substantially (e.g. Sunega & Lux 2016).

Crucially, however, as shown in Table 4, the high rates of quality-precariousness in the reduced-rent sector are in fact driven by high rates in specific countries. We identify high rates of quality-precariousness in the reduced-rent sector of the UK (20.4%), Ireland (16.2%), France (12.2%) and Belgium (10.5%). These countries in fact have relatively high total rates of precariousness in the reduced-rent sector, i.e. regardless of the type of precariousness. At the same time, quality-precariousness is much lower in the market-rental sectors of these countries (see Table 5). On the other hand, quality-precariousness in the reduced-rent sector is much less prevalent in Austria (1.9%), Luxembourg (1.2%), Finland (0.5%), and Norway (1.1%). Shown in Table 4.5, quality-precariousness is similarly

small in the unitary rental markets of Denmark (1.3%), the Netherlands (1.3%), and Sweden (2.5%). This is in line with prior studies that pointed to lower rates of housing deprivation in the rental sectors of countries with large and more integrated social housing sectors (Borg 2015; Dewilde 2022). In addition, this is likely to reflect differences in the effort to modernize the social housing stock, combined with the sale of low-quality units, associated with lower rates of energy poverty, in e.g. the Netherlands (compared with France or the UK (Croon, Hoekstra & Dubois 2024)). It seems that while many countries have 'resilient' social housing sectors, social housing has become in fact quite precarious in the UK, Ireland, France and Belgium.

Table 4. Types of precariousness in the reduced rental sector in North-West Europe

	Quality- precarious	Cost-precarious	Security- precarious	N
EU27+UK	13.9%	7.7%	12.9%	159773
AT	1.9%	2.3%	4.4%	8071
DE	8.8%	2.2%	2.8%	4492
FR	12.2%	3.8%	13.5%	26531
BE	10.5%	12.4%	9.5%	7043
LU	1.2%	8.2%	4.3%	2965
FI	0.5%	0.8%	11.4%	15554
CH	0.5%	1.3%	4.7%	4422
IE	16.2%	3.9%	18.9%	7805
NO	1.1%	0.0%	6.6%	1157
UK	20.4%	6.5%	11.3%	11722

Figure 3. also shows, expectedly, that precariousness in the market-rental sector is more commonly associated with cost- and security-precariousness. Especially cost-precariousness is twice as common in the market rental sector (13.4%) than in the reduced-rate rent sector (7.7%). Only 5.5 per cent of market renters has low-quality accommodation without a high housing cost burden. A substantial proportion of market renters (9%) is also behind on rent payments. This points to the exploitative character of part of the market rental sector, providing low-quality accommodation at high costs (Waldron 2023; Listerborn 2023; see also Desmond & Wilmers 2019). While private rental

tenures may not be a threat to housing quality on the aggregate level (see Dewilde & De Decker 2016) – perhaps not least due to the apparent quality concerns in the social housing stock – precarious housing conditions are common in certain segments of the private rental sector, and generally of a more severe kind compared to the reduced-rate rental sector.

Country differences in precariousness in the market rate rental sector follow similar patterns as in the reduced-rate rental sector. Precariousness, regardless of the type, is less common in the market rental sectors of Denmark (7.7%), the Netherlands (7.4%), Sweden (7.9%), Germany (9.1%), Finland (9.7%), and Norway (7.6%). High rates of precariousness are found in the market rental sectors of France (25.5%), Belgium (33.2%), Ireland (30.7%) and the UK (21.9%), much like in the reduced-rental sectors of these countries. The interesting exception here is Luxembourg, which has high rates precariousness in their market rental sector (25.3%) compared to their reduced-rate rent sector (13.7%).

Table 5. Types of precariousness in the market-rental sector in North-West Europe

	Quality-precarious	Cost-precarious	Security-precarious	N
EU27+UK	5.5%	13.4%	9.0%	494416
DK	1.3%	2.6%	3.8%	23382
NL	1.3%	1.1%	5.0%	34061
SE	2.5%	1.1%	4.3%	22675
AT	1.8%	5.8%	8.1%	23600
DE	3.3%	3.2%	2.6%	49560
FR	8.8%	6.4%	10.4%	29246
BE	3.7%	22.5%	7.0%	19488
LU	0.5%	20.6%	4.3%	14383
FI	0.3%	1.5%	7.8%	13896
CH	0.5%	2.4%	3.1%	42790
IE	7.3%	7.9%	15.6%	7317
UK	6.5%	9.6%	5.9%	14570
NO	0.4%	0.5%	6.7%	7634

The market-rental sector distinguishes itself by the type of precarity that it produces. In countries with larger and dualized rental sectors, particularly Belgium,

Luxembourg, and the UK, precariousness housing conditions typically involve a high cost burden. In Belgium, for example, 22.5 per cent of market renters are classified as cost-precarious, often in combination with deprived and overcrowded accommodation, and another 7 per cent is also behind on rent payments. These differences are much less pronounced, on the other hand, in unitary rental market countries such as Denmark, the Netherlands, Sweden, Austria, and Germany. However, while less common, when precarious housing conditions do occur in these countries, they are more often of the more severe security-precarious type. In Austria, for example, of the 15.7 per cent of private tenants in any type of precarious housing situation, 8.1 per cent is classified as security-precarious, which combines quality problems with cost burden and rent arrears. This points to the existence of a smaller exploitative segment of the private rental market in these countries, compared to the widely unaffordable stock in some dualized-rental-market countries.

Linking this back to the literature, in some countries, the residualization of social housing thus not only relates to a shrinking stock and a concentration of vulnerable groups, but also to often low-quality accommodations. This is especially damaging considering that the primary goal of social housing was to prevent ‘squalor’ (e.g. Lund, Greener & Powell 2022). Possible explanations are the lack of regular maintenance (Croon, Hoekstra & Dubois 2024) or the sale of higher-quality stock by housing corporations. In some countries, the concentration of disadvantaged households in social housing tenures, along with the retention of lower-quality stock amongst housing corporations, seemingly has resulted in high levels of precariousness in the very sector meant to shield its residents from such problems.

In the CEE-countries and Southern Europe, outright homeownership and rent-free tenures are much more common. Figure 1. already shows that quality- and cost-precariousness are more common amongst those in outright ownership and rent-free tenures, which is mostly due to historical legacies in the East and South of Europe. In these countries, adult children often co-reside with their parents and (extended) family, and building norms are historically weak, resulting in low-quality housing and overcrowded living conditions (e.g. Zavisca, Gerber & Suh 2021; Kovacs, Polese & Morris 2017; Soaita & Dewilde 2019; Soaita 2014). The cost burden in outright and rent-free

tenures can be attributed to high utility and maintenance costs – an externality of low-quality construction – in combination with low household incomes. Moreover, security-precariousness is absent in outright and rent-free tenures, which makes sense since these tenures have no rents or mortgages to pay.

Table 5. shows that precariousness, regardless of the type, is particularly common amongst outright owners in some CEE-countries and Southern-European countries, but not others. At the top of this list are Bulgaria (59.8%), Serbia (48.7%), Greece (46.6%), Romania (40.3%) and Lithuania (37.5%), all countries where outright homeownership is the most common tenure form. Quality-precariousness, akin to severe housing deprivation, is the most common type of precariousness in most countries. In Bulgaria, for example, sometimes referred to as a super-homeownership society, outright homeownership is the norm, but so are problems with overcrowding and deprivation amongst outright owners (40.5%). Similarly, albeit to a lesser extent, quality-precariousness is most common amongst outright owners in homeowner-societies such as Lithuania (28.2%), Romania (22.7%), and Hungary (14.6%). Quality-precariousness is similarly common in some Southern-European countries, most notably Portugal (21.6%) and Cyprus (19.7%).

Table 6. Types of precariousness amongst outright owners in CEE and Southern Europe

	Quality- precarious	Cost- precarious	Security- precarious	N
BG	40.5%	19.2%	0.0%	97232
CZ	0.5%	1.4%	0.3%	84707
HU	14.6%	8.8%	0.3%	103325
PL	5.7%	12.4%	0.0%	192399
RO	22.7%	17.5%	0.0%	117468
SI	10.6%	3.3%	0.0%	132589
SK	2.2%	4.2%	1.3%	84144
HR	12.6%	13.2%	0.0%	103232
RS	15.9%	32.8%	0.0%	59043
EE	3.4%	2.4%	0.0%	67200
LV	18.1%	8.9%	0.1%	68780
LT	28.2%	9.1%	0.2%	71828
EL	13.0%	33.3%	0.3%	141755
ES	3.9%	2.7%	0.1%	138197
IT	8.8%	3.8%	0.0%	202889
CY	19.7%	0.8%	0.0%	46220
MT	4.1%	0.3%	0.0%	48758
PT	21.6%	2.9%	0.0%	76384

In Greece, Croatia, and Poland, cost-precariousness is the more relevant type of precariousness amongst outright owners. In Greece, for example, 13 per cent of outright homeowners live in quality-precarious conditions, whereas 33.3 per cent experiences a high cost-burden in addition to high incidences of overcrowding and deprivation. In Greece, this high cost-burden may be in part due to the 'odious taxation' following the GFC (Alexandri & Janoschka 2018). In Poland, the relative prevalence of cost-precariousness amongst outright owners suggests that the (stratified) growth of homeownership in Poland, could coincide with precarious housing conditions: new generations of low income-households could be sorted into ownership of lower-quality and high-maintenance housing in rural areas. On the other hand, it is likely that older generations are occupying these houses, whereas younger generations are moving into mortgaged homeownership. A more detailed analysis is needed to establish such a connection.

Expectedly, as shown in Table 7, high rates of quality-precariousness in outright ownership also align with such precariousness in rent-free tenures, often even exceeding

these numbers, stressing the point that the older housing stock is inhabited by (extended) family. For example, 43.9 per cent of Bulgarians in rent-free tenures live in quality-precarious (severely deprived) housing conditions. In Hungary and Croatia in particular, rent-free tenants are twice as likely to live in quality-precariousness compared to outright homeowners. Quality-precariousness is also especially high in rent-free arrangements in all Southern-European countries under observation, with rates twice or even three times that of outright homeownership in these countries. In Greece, for example, 13.0 per cent of outright owners is quality-precarious, compared with 32.4 per cent of rent-free tenants.

Table 7. Types of precariousness amongst rent-free tenants in CEE and Southern Europe

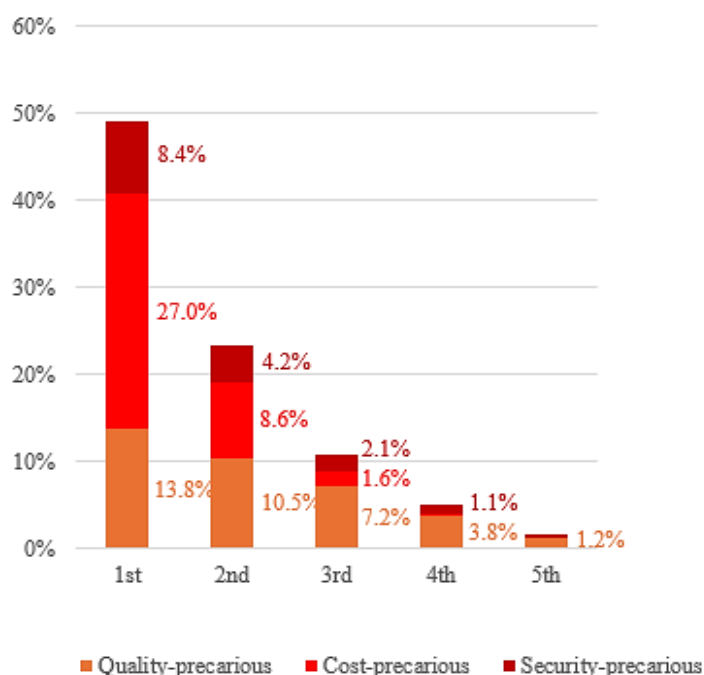
	Quality- precarious	Cost- precarious	Security- precarious	
BG	43.9%	26.9%	0.0%	10301
CZ	1.6%	3.3%	0.3%	5798
HU	27.6%	14.8%	1.7%	5282
PL	15.6%	21.6%	0.3%	28894
RO	28.2%	27.6%	0.0%	1717
SI	19.3%	5.4%	0.0%	21183
SK	6.3%	13.2%	1.2%	1080
HR	22.6%	14.0%	0.0%	7042
RS	22.0%	39.7%	0.0%	7301
EE	7.8%	5.3%	0.0%	9316
LV	31.1%	13.9%	0.0%	5685
LT	39.3%	15.0%	0.6%	4193
EL	32.4%	29.2%	0.6%	12944
ES	15.9%	6.6%	0.0%	15266
IT	22.4%	9.5%	0.0%	22812
CY	43.4%	1.1%	0.0%	12261
MT	12.8%	1.1%	0.0%	2779
PT	34.1%	5.0%	0.2%	13408

4.4 Income groups

The incidence of precariousness increases exponentially for lower income quintiles, regardless of the type (see Figure 4). More interestingly, this exponential growth is mostly due to the increase of what we consider more severe types of housing precariousness.

Particularly the incidence of cost-precariousness increases much less sharply for lower-income groups than quality-precariousness. For example, quality-precariousness increases from 10.5 per cent to 13.8 per cent between the second and first quintile (+3.8%), whereas cost-precariousness triples from 8.6 per cent to 27 per cent (+18.4%). Note that the incidence of cost-precariousness amongst low incomes is exacerbated by our use of a variable threshold for of housing cost overburden. Nonetheless, low-income groups spending 25 per cent of their income on housing costs realistically have little left to spend on basic necessities and should indeed be considered overburdened (Heylen 2023). Compared to cost-precariousness, security-precariousness is less concentrated amongst low incomes. Security-precariousness doubles between the second quintile (4.2%) and the first quintile (8.4%), but unlike cost precariousness, is still observed in the 4th quintile (1.1%). Still, these patterns further establish the hierarchy in the types of precariousness and show that the more severe types are more stratified along the lines of income.

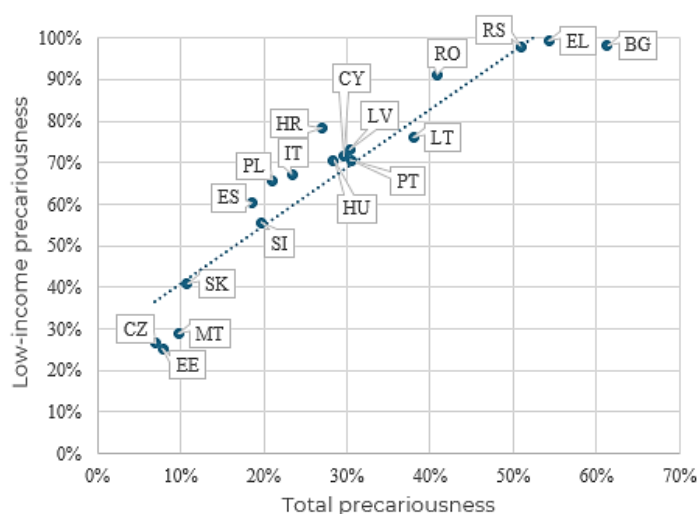
Figure 4. Distribution of precariousness per income quintile



To understand how the concentration of housing precariousness amongst low incomes varies across countries, Figures 5 and 6 show how total precariousness in a country (i.e. the sum of all three types) is related to low-income precariousness.

Precariousness is especially concentrated in France, where 37.3 per cent of low incomes as opposed to 5.4 per cent of the total population lives in precarious conditions. In other words, in France, the risk of precarious housing for low incomes is almost seven times larger (6.9) compared to the general population. In Luxembourg and Belgium too, precariousness is particularly concentrated amongst low incomes, with a risk of precariousness for low incomes respectively 4.2 and 3.7 times larger than the general population. In Germany, precariousness is much less concentrated amongst the lowest incomes, with 17.0 per cent of low incomes in precariousness housing conditions compared to 11.3 per cent in the total population, corresponding to a factor of 1.5.

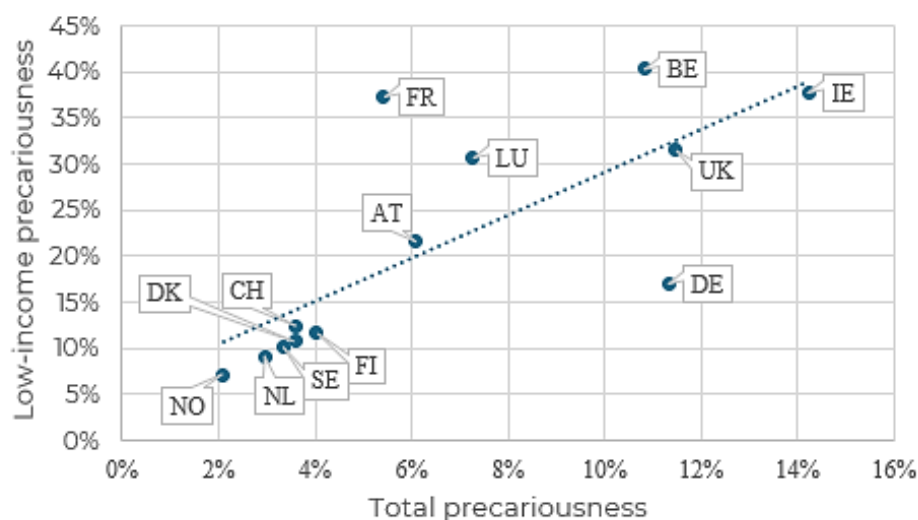
Figure 5. Concentration of precariousness (all types) amongst low incomes in North-West Europe.



In the Central-and-Eastern European and Southern-European countries, we find much higher rates of precariousness, but also less extreme concentrations of precariousness amongst low incomes. Housing precariousness is especially widespread across all income groups in Bulgaria, Greece and Serbia. For example, while almost every low-income Bulgarian is confronted with some form of housing precariousness (98.3%), precariousness amongst the general population is equally high (61.3%). In other words, due to the extreme levels of housing precariousness, and high levels of poverty more generally, the risk of exposure to housing precariousness is only 1.6 times larger for low incomes compared to the general population. Similarly, the relative risk of housing

precariousness for low incomes is 1.8 in Greece and 1.9 in Serbia. Inversely, in countries with relatively low levels of precarious housing, such as Estonia, Czech Republic, Slovakia and Malta, precariousness is much more concentrated amongst low incomes. In Estonia, for example, 25.2 per cent of low incomes are precariously housed, as opposed to 7.9 per cent of the general population, a factor of 3.2 percent. Arguably, this can be attributed to economic development, which, in the absence of redistributive mechanisms, disproportionately benefits the higher income groups in society.

Figure 6. Concentration of precariousness (all types) amongst low incomes in Central Eastern Europe and Southern Europe



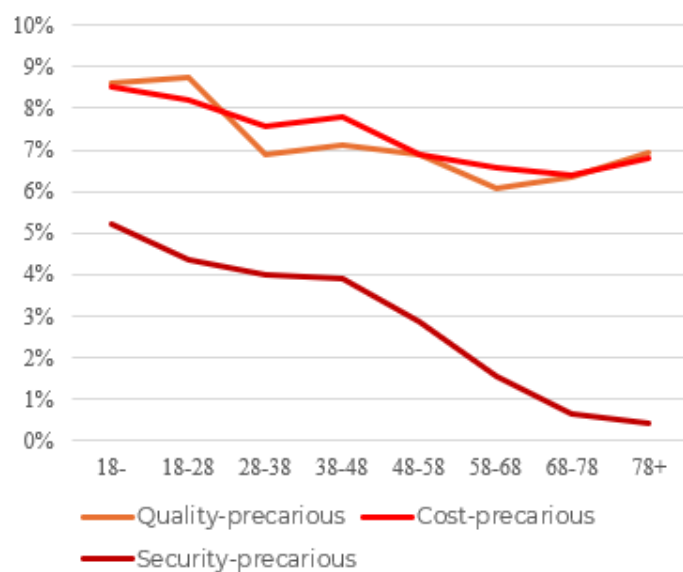
4.5 Age groups

The age-group comparison in Figure 7 largely confirms the conclusion that younger groups are typically more precariously housed (e.g. Clair et al 2019). We also show, however, that the decline of precariousness differs by type: while security-precariousness is much lower for older groups, quality- and cost precariousness are only slightly decreasing in older age groups. Age group comparisons are difficult to interpret because they capture both generational differences (e.g. Byrne 2020) as well as life-course effects in housing opportunities (e.g. Myers, Lee & Simmons 2020).

From a generational perspective, the stability of quality-precariousness makes sense considering that in post-state-socialist and Southern-European countries, families tend to live together, and new construction is often limited, so that next generations inherit overcrowded and low-quality housing. A life-course perspective suggests that quality concerns, overcrowding and rent burdens persist for a selective group. This feeds into ideas of precariousness as a permanent condition, i.e. the existence of a housing precariat (e.g. Listerborn 2023; see also Standing 2018). Moreover, especially as people move into retirement, they become outright owners but are also less likely to invest in home renovations, leading to more quality problems later in life.

Notably, however, security-precariousness is clearly lower for older age groups. Such a decrease can also be interpreted in one of two ways. On the one hand, this severe type of precariousness may become less common with age, e.g. declining mortgage repayments, increasing wages up to retirement, and children leaving the home. Such an interpretation is strengthened by the high incidence of security-precariousness amongst minors, most of whom still live with their parents. On the other hand, this form of precariousness may become increasingly prevalent amongst new generations, which indeed would be alarming. Without longitudinal or panel data, however, it is difficult to disentangle the two.

Figure 7. Distribution of precariousness per age group



A country-comparison based on the Supplementary Database shows that security-precariousness indeed decreases with age for all countries, despite substantial country-differences in the level of security-precariousness. In Greece, for example, security-precariousness decreases from 16.6 per cent amongst minors (18-) to 7.3 per cent (58-68), 3.8 per cent (68-78) and 2.7 per cent (78+). In Romania, on the other hand, security-precariousness is almost non-existent, and correspondingly the age gradient ranges from 1.1 per cent amongst minors to 0.2 per cent (58-68), 0.1 per cent (68-78) and 0.0 per cent (78+).

Rates of quality-precariousness are also similar between age groups, showing no or only a slight reduction in older age groups for most countries. Exceptions are Greece, Cyprus, Latvia, Lithuania, and Portugal, where quality-precariousness is increasing amongst older groups. In Latvia, for example, 18.2 per cent of minors (18-) are housed quality-precariously, compared to 23.5 per cent of those aged 78+. In Belgium, France, Ireland and the UK, on the other hand, quality-precariousness is notably lower amongst older groups. For example, in France, 8.3 per cent of minors (18-) are housed quality-precariously, compared to 1.6 per cent of those over 78 years of age. It seems likely that welfare arrangements for the elderly – e.g. public pensions, moving into retirement homes – play a role in reducing quality precariousness at a later age.

4.6 Migration status

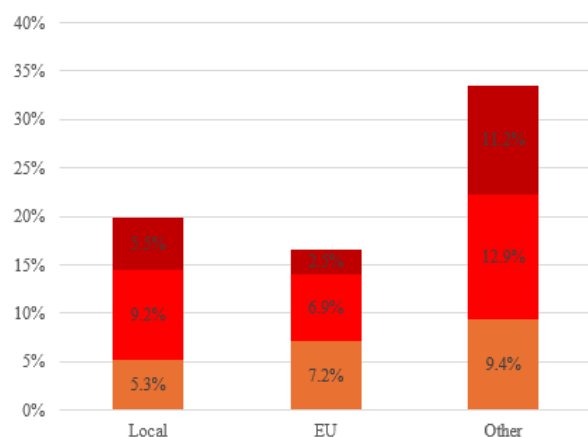
Finally, a non-EU migration status is an important determinant of precarious housing conditions. With a precariousness rate of 33.5 per cent regardless of the type, non-EU migrants are considerably more likely to be precariously housed than EU-born migrants (16.6%) and native-born individuals (20%). In addition, the more severe types of precariousness are also more likely for those born outside the EU. Especially the risk of security-precariousness is two to four times larger (11.2%) compared to EU-born (2.5%) or native-born respondents (5.5%). Undoubtedly this high risk is dependent on many factors such as housing discrimination, income differences, and job insecurity (e.g. Listerborn 2023; Dotsey & Chiodelli 2021.). The distinction between types of precariousness shows that non-EU migrants are not only more precariously housed in general, but also exposed to the more severe types of precarity. The difference in quality-precariousness, e.g.

between natives and non-EU migrants, is much smaller than the difference in security-precariousness.

Conclusion

The social right to decent and affordable housing in Europe requires continued attention from researchers and policymakers. Especially in rental tenures, households are confronted with precarious housing conditions, i.e. the concentration of multiple housing problems such as disproportional housing costs, arrears, and deprived living conditions. Through a Latent Class Analysis of eight indicators of such housing problems, we demonstrated a meaningful distinction between three types of housing precariousness ranging from less to more severe. Quality-precariousness is most secure, least stratified by income, and is most found in Central- and-Eastern Europe and amongst rent-free tenants. Cost-precariousness includes a financial burden and is more common amongst low-income groups in the market rental sector. Security-precariousness is characterized by the prevalence of rent/mortgage arrears (associated with the risk of eviction) and is most common amongst the lowest incomes, non-EU migrants and those in the reduced-rate rental (social housing) sector. Distinguishing between these types of precariousness refines the measurement of precariousness, accompanied by new insights into who is exposed to particular precarious housing conditions.

Figure 8. Distribution of precariousness per migrant group



Note: Migration status is a household level characteristic, i.e. children living at home are assigned the country of birth of head of household

■ Quality-precarious ■ Cost-precarious ■ Security-precarious

First, we demonstrated that housing-welfare regimes matter for both the incidence and type of housing precariousness. Since the narrative on precariousness is based mostly on the homeowner societies in the United States (US) and North-West-European countries, housing precariousness is primarily conceived of as caused by competition in the housing market (Dorling 2014; Beer et al. 2017). However, precarious housing has been found to be more prevalent in the Southern and Central-and-Eastern European countries, where familial and state modes of housing production and allocation have long been dominant (e.g. Clair et al. 2019; Waldron 2023). Distinguishing between different types of precariousness corroborates these findings but also provides some much-needed nuance. After all, in Eastern-Europe, precarious housing is more often of a less problematic type, that involves mostly overcrowding and housing deprivation but no high cost burden or rent arrears. Moreover, while precariousness housing is indeed much less common in countries such as Denmark, Sweden and the Netherlands, when precariousness does occur, it is more often of the more severe security-precarious type, including housing unaffordability and rent arrears.

Second, existing research has emphasized that precariousness is especially prevalent in the private rental sector – where landlords can evict tenants, and the market dictates the rent (Waldron 2023; Listerborn 2023; Routhier 2019). Our results corroborate concerns about precariousness in the market rent sector, not just due to the relatively common experience of precariousness in general, but also because precarious conditions tend to be of a more severe kind: cost-precariousness is at least twice as likely to occur in the market rental sector compared to other tenures – a combination of deprivation, overcrowding, and a high cost-burden.

Simultaneously, however, there is also good reason to direct our attention to the reduced-rate rent sector. Although of a different type, precariousness is even more prevalent in reduced-rate rental sectors. In the reduced-rate rent sector, quality- and security-precariousness are more common than in the market rate-rent sector. Particularly in France, Ireland and the UK, substantial parts of the reduced-rate rent sector are classified as quality-precarious. On the one hand, the relatively high incidence of low-quality housing and overcrowded living conditions in the reduced-rate rent sector points to a problematic degree of ‘squalor’ in the social housing sector that has been largely lost

in the comparison of national-level statistics thus far (e.g. Norris & Domanski 2009; OECD 2021; cf. Borg 2015). Further research should explore whether this concern would be attenuated when using a measurement of housing tenure that is able to isolate social housing tenants from other forms of reduced-rate rents. On the other hand, the high rate of cost- and security-precariousness in this sector – especially in Ireland but also in France and Belgium and Luxembourg – points to a changing composition of social housing tenants, as the provision of social housing is increasingly targeted towards low-income groups (e.g. Angel 2023). The indication that around one in ten of reduced-rate rent tenants are behind on rent payments and often reside in overcrowded and low-quality housing points to real problems in the reduced-rate rent sector. In some countries, the concentration of disadvantaged households in social housing tenures, along with the retention of lower-quality stock amongst housing corporations, seemingly led to high levels of precariousness in the very sector meant to shield its residents from it.

These results point to several avenues for future study. First, the existence of various meaningful types of precariousness invites a reconsideration of the measurement of housing precariousness. Based on these exploratory findings, one could imagine further conceptualizing of the different combinations of housing problems and develop a theoretically-grounded operationalization of three types of precariousness. Second, since the current results are based on a time-insensitive pooled sample, the stability and development of these clusters could be further examined by taking a longitudinal approach. This also allows examining so far untested theories on what drives the concentration of housing problems over time, such as welfare retrenchment and the financialization of housing (e.g. Dorling 2014; Beer et al. 2017; Waldron 2023). Third, while panel data stretching beyond the 4-year rotational design of EU-SILC are difficult to obtain, a panel analysis would be very valuable to study the duration of (types of) precarious housing conditions (see also Beer et al. 2016). Especially the hypothesis that security-precariousness is more difficult to escape than other forms requires further study. Finally, since precarious housing is tied to increased risks of homelessness and adverse health outcomes (McKee et al. 2017, Galster & Lee 2021), we suspect these effects are stronger for what we see as the more severe types of precariousness. An investigation

of such outcomes would further establish the 'ranking' in types of precarious housing, and if indeed true, would lead to much stronger effects for the more severe types.

Finally, the typology set out in this report is of use to policy practitioners seeking to improve housing conditions. First, while further research is needed to solidify this typology, households exposed to different types of precariousness differ in their needs. Targeted policy interventions should thus employ the appropriate instruments – be it subsidies for housing maintenance, refunding social housing corporations, rent control regulations, or debt counselling. Second, the high incidence of precariousness in the reduced-rate rent sector points to the importance of social support in a broader sense, outside the domain of housing. Those who rent at below market rates are highly exposed to cost- and security-precarious living conditions, suggesting that many such residents lack of resources and/or capabilities despite their (by definition) low-cost housing (e.g. Tausendfreund et al. 2016). Addressing the housing needs of this target group thus seems to go beyond simple subsidies or bureaucratic interventions, instead requiring a personal approach that spans social domains.

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Appendix A: Assessment of measurement invariance of the 8-cluster model between 2020 and 2023

		Npar	Log-likelihood	BIC	df
Heterogeneous		373	-1728750995	3457509583	241815
Metric invariance	Constrained item loadings	317	-1731396898	3462800249	241871
Structural homogeneity	Constrained item intercepts	309	-1730752459	3461511209	241879

Appendix B: Residual covariance controlled for latent classes (bivariate residuals)

	Overburdened	Subjective burden	Energy poverty	Utility arrears	Rent arrears	Overcrowded
4-cluster						
Subjective burden	0%					
Energy poverty	0%	6%				
Utility arrears	0%	1%	0%			
Rent arrears	1%	0%	2%	6%		
Overcrowded	34%	2%	7%	0%	31%	
Deprivation	4%	2%	10%	0%	2%	1%
Country	8%	19%	32%	13%	122%	44%
Tenure	1%	17%	16%	4%	53%	43%
Quintile	2%	6%	4%	1%	1%	5%
Year	0%	2%	2%	0%	0%	4%

Types of Housing Precariousness in Europe

5-cluster						
Subjective burden	0%					
Energy poverty	0%	6%				
Utility arrears	0%	1%	0%			
Rent arrears	0%	0%	5%	5%		
Overcrowded	3%	0%	3%	0%	5%	
Deprivation	5%	2%	10%	0%	3%	2%
Country	8%	17%	32%	13%	93%	5%
Tenure	1%	11%	25%	6%	45%	3%
Quintile	1%	8%	5%	1%	2%	5%
Year	0%	2%	2%	0%	0%	0%
6-cluster						
Subjective burden	0%					
Energy poverty	1%	1%				
Utility arrears	1%	0%	1%			
Rent arrears	1%	0%	2%	6%		
Overcrowded	22%	0%	3%	0%	7%	
Deprivation	7%	0%	12%	1%	1%	1%

Types of Housing Precariousness in Europe

Country	5%	6%	34%	13%	101%	4%
Tenure	1%	6%	24%	4%	47%	2%
Quintile	0%	0%	3%	1%	2%	3%
Year	0%	0%	0%	0%	0%	0%
7-cluster						
Subjective burden	0%					
Energy poverty	0%	1%				
Utility arrears	0%	1%	0%			
Rent arrears	0%	1%	2%	8%		
Overcrowded	1%	0%	1%	0%	7%	
Deprivation	0%	0%	6%	0%	1%	2%
Country	0%	4%	23%	12%	117%	4%
Tenure	0%	4%	25%	5%	52%	3%
Quintile	0%	0%	3%	0%	0%	4%
Year	0%	0%	0%	0%	0%	0%
8-cluster						
Subjective burden	0%					
Energy poverty	0%	2%				
Utility arrears	0%	2%	1%			

Types of Housing Precariousness in Europe

Rent arrears	0%	0%	0%	0%		
Overcrowded	1%	0%	1%	1%	0%	
Deprivation	0%	0%	3%	1%	0%	4%
Country	1%	4%	16%	18%	3%	4%
Tenure	0%	3%	7%	12%	3%	2%
Quintile	0%	1%	1%	0%	0%	4%
Year	0%	0%	1%	1%	0%	0%
9-cluster						
Subjective burden	0%					
Energy poverty	0%	2%				
Utility arrears	0%	0%	1%			
Rent arrears	0%	0%	0%	0%		
Overcrowded	0%	0%	2%	0%	0%	
Deprivation	0%	0%	3%	1%	0%	3%
Country	1%	4%	16%	15%	4%	3%
Tenure	0%	5%	7%	8%	4%	2%
Quintile	0%	1%	1%	0%	0%	3%
Year	0%	0%	1%	0%	0%	0%

10-cluster						
Subjective burden	0%					
Energy poverty	0%	3%				
Utility arrears	0%	1%	1%			
Rent arrears	0%	0%	0%	0%		
Overcrowded	10%	0%	1%	0%	0%	
Deprivation	1%	0%	1%	0%	0%	1%
Country	1%	3%	12%	13%	1%	3%
Tenure	0%	4%	3%	6%	0%	3%
Quintile	0%	1%	0%	0%	0%	2%
Year	0%	0%	1%	0%	0%	0%

Appendix C: Profile information of 4-7 cluster solutions

4-cluster								
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	R2			
Cluster Size	45%	33%	11%	11%				
Overburdened	0%	0%	39%	90%	0.697			
Heavy subjective burden	31%	6%	78%	33%	0.244			
None	3%	65%	3%	21%				
Slight	65%	29%	19%	47%				
Energy poverty	5%	2%	35%	7%	0.146			
Utility arrears	3%	1%	44%	2%	0.279			

Rent arrears	0%	1%	24%	2%	0.173			
Overcrowded	21%	3%	42%	12%	0.105			
Deprivation	15%	11%	47%	15%	0.078			
5-cluster								
	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	R2		
Cluster Size	39%	22%	18%	11%	10%			
Overburdened	0%	0%	0%	92%	42%	0.732		
Heavy subjective burden	26%	0%	39%	34%	78%	0.414		
None	0%	95%	5%	20%	3%			
Slight	74%	5%	56%	46%	18%			
Energy poverty	4%	2%	5%	7%	38%	0.158		
Utility arrears	2%	1%	7%	2%	46%	0.279		
Rent arrears	1%	0%	0%	1%	26%	0.194		
Overcrowded	1%	3%	58%	13%	37%	0.356		
Deprivation	15%	11%	15%	15%	49%	0.078		
6-cluster								
	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6	R2	
Cluster Size	37%	21%	15%	11%	9%	6%		
Overburdened	0%	0%	0%	0%	89%	97%	0.904	
Heavy subjective burden	21%	0%	38%	67%	25%	75%	0.458	
None	0%	100%	5%	6%	26%	2%		
Slight	79%	0%	57%	28%	49%	24%		
Energy poverty	3%	1%	2%	30%	7%	28%	0.160	
Utility arrears	1%	1%	5%	29%	2%	34%	0.201	
Rent arrears	0%	0%	0%	14%	1%	20%	0.124	
Overcrowded	2%	3%	56%	33%	8%	35%	0.304	
Deprivation	13%	11%	9%	47%	14%	37%	0.106	
7-cluster								
	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5	Cluster6	Cluster7	
Cluster Size	32%	21%	12%	11%	9%	9%	6%	
Overburdened	0%	0%	0%	0%	88%	0%	100%	0.915
Heavy subjective burden	0%	1%	38%	100%	24%	63%	74%	0.687

None	0%	99%	6%	0%	27%	6%	2%	
Slight	100%	0%	56%	0%	49%	30%	24%	
Energy poverty	2%	1%	2%	7%	7%	33%	28%	0.153
Utility arrears	1%	1%	5%	3%	2%	35%	33%	0.219
Rent arrears	0%	0%	0%	1%	1%	17%	20%	0.136
Overcrowded	2%	3%	72%	1%	8%	40%	34%	0.415
Deprivation	13%	11%	11%	18%	14%	50%	37%	0.096