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Housing Inequalities Profile

Chapter 7: Regional Patterns of Housing and Labour Precariousness

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1 Introduction: Housing and Labour Market Precariousness at the Regional Scale

Housing precariousness, and its dimensions identified in Chapter 1, unfold geographically unevenly across the member states of the European Union (EU). While housing inequalities are partly explained by national characteristics of housing-welfare regimes and urban-rural dichotomies of socio-economic contexts, the actual patterns are more variegated than that. The primary objective of this chapter is to **conceptualise housing precariousness at the subnational scale and analyse patterns of housing precariousness across the 27 member states of the European Union**.

The second objective is to establish a conceptual grounding for Work Package 9 of the EqualHouse project which analyses intersections of housing and labour market inequalities. This chapter of Deliverable 3.1 **conceptualises and measures labour precariousness at the regional scale.** By comparing regional measures of housing precariousness and labour precariousness, **a typology of regions is provided on the NUTS2 scale, outlining intersections of housing precariousness and labour precariousness.**

A more profound understanding of the interrelationships between housing precariousness and labour precariousness shifts the attention of housing scholars and policymakers towards social groups that are employed but face challenges regarding their housing. While other Work Packages of the EqualHouse project address the housing challenges of various vulnerable social groups, such as homeless people, refugees and asylum seekers, we contend that the working-age population and **households with employed members face increasing difficulties in accessing adequate housing under the unfolding housing crisis in the European Union.** This chapter provides a general overview of such patterns. Further analysis is undertaken in Work Package 9 of the EqualHouse project.

Chapter 1 presented a conceptual framework for better understanding the housing challenges of individuals and households. Analyses in other chapters of this Deliverable are based on individual-level microdata from large-scale surveys across the European Union (EU-SILC, HFCS, in particular). **The unit of analysis in this chapter is the region at the NUTS2 level of the European Union.** While most

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of the housing-related variables discussed later in this chapter stem from the same survey discussed in other chapters, notably EU-SILC, we will analyse aggregated data at the NUTS2 scale. Labour precariousness indicators will be predominantly derived from aggregated Labour Force Survey (LFS) data at the NUTS2 level. The sources of housing precariousness and labour precariousness indicators are the Eurostat database (https://ec.europa.eu/eurostat/web/main/data/database), with some missing data supplemented by data from other sources, primarily from national statistical offices.

This chapter is structured as follows.

- Section 2 offers an overview of the policy relevance of housing precariousness at the subnational scale, emphasising the interrelations with labour market challenges.
- Section 3 conceptualises housing precariousness and labour precariousness, and discusses the interrelation of housing inequalities and labour market inequalities.
- Section 4 develops a methodology for a conceptually harmonised analysis of housing precariousness and labour precariousness at the regional level.
- Section 5 discusses the results of the analysis. It does so by outlining housing precariousness and labour precariousness patterns at the NUTS2 level across the 27 member states, and by developing a typology of regions based on combinations of housing precariousness and labour precariousness.
- Section 6 concludes the chapter and provides some policy recommendations and pointers for Work Package 9 of the EqualHouse project.

2. Policy Relevance of the Regional Scale of Housing Precariousness and Labour Precariousness in the European Union

The present housing crisis in the member states of the European Union reached unprecedented levels in recent decades. As documented in other chapters of this deliverable, households across Europe are increasingly confronted with housing precariousness. **Policy-makers and researchers observe mounting tensions in regions experiencing economic growth, where the expansion of employment**

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opportunities does not correspond with the expansion of affordable housing. At the opposite end of the spectrum, depopulation and the absence of public services in so-called 'left behind places' characterise several regions (Rodríguez-Pose, 2018), with increasing numbers of empty housing units, and people stuck in substandard housing. Quick fixes, such as constructing housing units in booming regions, as well as employment policy initiatives aimed at increasing average earnings to alleviate overburden issues in growth areas, remain scarce. **Place-neutral policies at the national level are inadequate in addressing highly differentiated regional housing challenges.**

Policy-making aimed at reducing regional inequalities across the European Union has been historically delegated to cohesion policy. However, **cohesion policy does not adequately address the interrelationships between the challenges related to labour and housing.** Cohesion policy has recently centred on fostering job creation and reducing social inequalities, without directly or indirectly considering how it could mitigate housing challenges. Integrated programming has facilitated member states to invest in the housing of extremely marginalised and extremely vulnerable populations through complex social projects. However, housing challenges faced by the working poor and employees, more generally, being a result of the same housing and labour processes, have remained largely unaddressed. **In the context of the current housing crisis, the 'free' movement of labour within the European Union (through which market forces are assumed to balance the supply and demand of housing spatially), and the delegation of housing policy to member state competence will not reduce housing inequalities within and across member states.**

The regional scale of housing inequalities and housing policies have become more central in the political agenda of the current European Commission. President von der Leyen's political guidelines for the 2024–2029 term include the proposal of the first-ever European Affordable Housing Plan. A substantial portion of the financing for housing investments will be provided by the European Investment Bank. The political guidelines propose to channel cohesion policy funding towards affordable housing (von der Leyen, 2024). Such a policy change will necessitate adequate information at the subnational scale to

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inform policymaking and monitor the results of cohesion policy in facilitating affordable housing. It is worthwhile to mention that the interlinkages between housing affordability and labour market challenges are not mentioned in the political guidelines of the President of the European Commission.

The Ninth Report on Economic, Social and Territorial Cohesion, published in 2024, elaborates on the interlinkages between regional housing and labour market challenges (European Commission, 2024). The document indicates that economic growth has unfolded geographically unevenly across many member states of the European Union. The report highlights that **spatial polarization resulted in tensions in labour and housing markets in capital city regions and major agglomerations, as well as housing oversupply in shrinking regions.** The report also observes that the access of younger generations to the labour market and affordable housing have become key elements of a policy toolbox that addresses current demographic challenges across Europe (European Commission, 2024). Nevertheless, the report does not discuss systematically, how the functioning of housing markets and labour markets are interlinked, nor does it explore how housing precariousness and labour precariousness are produced by market forces and policy interventions by member states and the European Union. This chapter aims to fill some knowledge gaps in this regard by exploring the combinations of labour and housing precariousness at the regional scale in 27 member states of the European Union.

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3. Conceptual Framework: Measuring Housing Precariousness and Labour Precariousness at the Regional Scale

This section introduces the conceptual framework of the analysis. The foundational premise is that **housing precariousness and labour precariousness co-constitute each other.** While this may appear as common sense at the scale of individuals and households, as they constantly need to make decisions about where to live and where to work, researchers often examine these two aspects separately. The aim of this section is twofold. Firstly, it provides an **overview of how housing scholars conceptualised the labour market positions of households and individuals in relation to housing inequalities and housing precariousness.** Although most of this literature starts from individual-level or household-level datasets, the findings are also insightful for a regional-level analysis using aggregated data at the scale of subnational units. Secondly, this section extends the analysis of previous chapters by **conceptualising and operationalising housing precariousness and labour precariousness at the regional scale**.

3.1 Labour Precariousness and Labour Inequalities as a Structuring Power of Housing Precariousness

In their comprehensive overview of housing inequalities and social stratification, Dewilde and Waitkus (2024) define three schools of thought. (1) from the Marxist perspective, class relations are the primary structuring forces in society, and the housing positions of the individuals are a consequence of their class positions. (2) Weberian-inclined scholars combine labour market positions and housing positions in the analysis. (3) According to a third group of scholars, building particularly on Bourdieu, housing and class are additionally interconnected through social values and attitudes. For a recent overview of this topic, see also Ruonavaara (n.d.).

Following upon the scholarship on housing inequalities and social stratification, the question arises of how class relations structure housing inequalities. A recent subgroup of the Marxist perspective has combined two aspects of workers' exploitation. Whereas primary exploitation takes place in the labour process as workers, secondary exploitation arises in workers' social

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reproduction, including housing provision (Berry, 2023; Wigger, 2021; Yrigoy, 2021). According to this scholarship, capitalists (owners of assets) appropriate surplus value from the working class during the production process under the capitalist mode of production. In the post-World War II Western European class compromise, the income of workers was sufficient for most households to cover the costs of housing in partially decommodified housing markets. In these countries, the state also utilised redistribution channels to provide publicly owned housing for the less affluent working class. In state-socialist countries of Eastern Europe, the combination of nearly full employment and low wage inequalities also provided relatively secure housing conditions for most of the population, combined with high state involvement in housing production and allocation. In recent decades, however, **the flexibilization of employment and the increasing precarization of the population across Europe have severely reduced the chances for the working-age population to provide secure and stable housing from their income**.

Secondary exploitation takes place partially in housing provision, where surplus value is appropriated through mortgage interest payments and rental payments in commodified rental housing. The partial withdrawal of the state from housing provision, concomitant with the financialisation of housing (Aalbers, 2017) has contributed to an increasing appropriation of wages through this secondary channel. Households with higher income and more stable employment forms have the potential to enter homeownership with mortgages. Financialised private institutional providers in the rental housing sector offer rental opportunities for households with less stable income sources and temporary contracts. Individuals circulating between employment and unemployment frequently find themselves in exploitative housing conditions. Cross-cutting these structures are outright homeowners (asset-haves), as homeownership partially secures them from exploitation in the secondary circuit. The aforementioned patterns demonstrate variations across the European Union based on tenure structures and institutional settings of housing and labour.

The previous line of literature is strengthened by empirical evidence based on macroeconomic indicators at the national scale and large-scale surveys of

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individuals or households. In this chapter, the empirical analysis is undertaken at the regional level. We assume that levels of precarious employment and precarious housing in a region demonstrate subnational geographical variations. **The regional scale is imperative in households' agency for better livelihoods in terms of employment opportunities and housing conditions, the latter being one facet of social reproduction.** In comparison to relocation to another region, jobs and homes within a given region are relatively easier to access. People are also tied to regions in different other ways, such as family and wider social networks.

The starting point of the analysis is the conceptual framework of Chapter 1 (see Chapter 1). Chapter 1 posited that housing precariousness is structured by national-level aspects through household and individual-level intermediary mechanisms. Housing precariousness affects a heterogeneous social group, segmented along gender ethnicity/migration, age and geography. Concerning the intersections between housing and labour, two aspects emerge as particularly important from the conceptual framework of Chapter 1.

The first aspect is that housing precariousness is structured by national institutional contexts of how people work (national labour regimes). Conceptually, such national-level labour regimes are similar to housing-welfare regimes, in that countries are categorised according to predefined characteristics of labour market regulation and outcomes. In terms of labour, the prominent shift throughout Europe has been the rollback of the welfare state as a safeguard for workers, and the rollout of workfarist policies along with labour market flexibilization (Peck, 2002; Wacquant, 2012). The phenomenon of flexibilization has led to precarization in and beyond work, undermining stable, secure and well-paid jobs for a large share of the population and impeding the social reproduction of workers. This **precarization of employment also engenders heightened insecurities for households in terms of housing accessibility and affordability.**

Previous literature has explored the distinct paths of European countries within labour market change. National paths of labour market flexibilization vary across welfare regimes, for example in Southern Europe (Gialis & Leontidou, 2016), as well as in Eastern Europe (Drahokoupil, 2007; Lendvai, 2008). National-level characteristics have been captured by contextual indicators, measuring policies

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and regulations using composite variables (Dewilde, 2022; Gialis & Taylor, 2016). According to the literature, welfare regimes, labour regimes and housing-welfare regimes result in relatively similar country groupings across Europe (Dewilde, 2022; Halleröd et al., 2015). **The six housing-welfare regime country groups of Chapter 1 will be used to structure the findings across European countries.**

In this chapter's analysis, **national-level characteristics of labour markets and housing markets will not be taken into account as precariousness variables.** The national-level variables used by previous studies measure policy contexts, and not labour outcomes. Through measuring labour outcomes at the regional level, the effects of the national contexts will also be captured indirectly. If regions within a country are homogeneous in terms of housing precariousness and labour precariousness as well as differ from neighbouring countries, it could be assumed that national contexts play an important role in shaping those patterns. Unique national contexts, characterised by strong state intervention in housing and labour markets, might, however, also lead to regional heterogeneity in precariousness indicators. This is because national policies shape different regions' labour and housing markets differently (McGuinness et al., 2018).

The second aspect to be considered is the role of labour markets in shaping housing precariousness through intermediary mechanisms, particularly through income. As we have seen in previous chapters, income has been a major factor in tenure restructuring across Europe in recent decades. Household income can influence access to specific segments of the housing market for certain households, while at the same time excluding others. For instance, higher-income households may have a higher chance of entering homeownership, while families with modest incomes may be eligible for social rental housing. In addition, income matters in generating housing wealth, as well as influencing the housing precariousness of current and future generations.

In a series of studies that analysed housing inequalities, household income has been used as a proxy variable for complex labour market characteristics. Income is a key (and often the sole) proxy indicator of complex labour market positions of individuals and households alike. Income disparities are theorised to manifest as inequalities in housing consumption (Berry, 2023). In

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addition to total household income, the proportion of income allocated to housing expenditures (including mortgage payments) has been identified as a crucial factor in conceptualising household precariousness (Hick & Stephens, 2023; Yrigoy, 2021). In research based on individual microdata, individuals and households are frequently categorised into income quantiles (deciles, quintiles, tertiles). In other instances, some part of the income distribution is cut off (e.g. households with incomes below or above a threshold) and different housing indicators are examined across these income groups (Angel & Mundt, 2024; Dewilde, 2022; Hick et al., 2022; Soaita & Dewilde, 2021).

The equivalent disposable household income and the individual income are the most widely used indicators, as these are abundant in statistical surveys and conceptually largely harmonised across the European Union. Indicators that are used less frequently include employees' compensation in wages, the share of employee compensation in disposable income and the wage share in gross value added – although these statistics are also widely available from national accounts and harmonised surveys. Notable exceptions are Arundel & Doling (2024) who discussed the role of wage share in homeownership across Europe, as well as a longue durée study on how the labour share is dependent on financial factors, such as mortgage-to-debt ratios in two European countries (Gouzoulis, 2021).

The understanding that employment opportunities affect housing precariousness primarily through income might be informative to policymakers, who often address housing challenges of the working-age population with interventions into employment, income levels and housing subsidies based on the employment status of households. **The empirical part of this chapter will also examine whether housing precariousness and labour precariousness correlate with the average income levels of regions.**

Less prevailing in the housing scholarship is the discussion of how **housing wealth is structured by employment opportunities and workers' wages**. Recent studies found emerging inequalities in housing wealth within the working class (Barnes, 2024). This phenomenon is attributed to the fact that less and less workers can transform earnings into homeownership due to labour market flexibility and insecurity. The literature has identified another channel of salaries switching into

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housing: financialisation, particularly through pension fund contributions. In such cases, wage workers appear on the housing markets as rentier capitalists through their pension fund savings, as pension funds invest in housing as well (Christophers, 2021; Yrigoy, 2021). Pension fund savings are expected to reduce the likelihood of housing precariousness after retirement.

Stephens (2020) discussed how labour and welfare regimes are interlinked with housing systems. In countries with strong labour protection, welfare systems can serve as a stabilizing factor against labour precariousness, whereas in other systems dominated by mortgaged homeownership, workers tend to prefer lower taxation and less state distribution, resulting in a smaller share of the government-subsidized rental market in the long term.

Previous chapters in this deliverable examined how income constricts opportunities to accumulate housing wealth for the current working-age population in member states of the European Union. In Eastern Europe, where super-homeownership is prevalent, intergenerational housing wealth has been an even larger structuring factor in housing inequalities, and an asset for substituting for income insecurity in precarious households (Smith et al., 2008; Soaita & Dewilde, 2021). Due to the absence of comparable data on housing wealth at the regional scale, the housing wealth aspect could not be accounted for in this part of the research.

The effect of **labour market precariousness** is widely discussed in the housing inequalities literature as a determinant of housing inequalities. Labour market precariousness or employment insecurity can be operationalised in a variety of ways. These include the share of self-employment, the share of full-time workers, the length of job tenure, the share of youth not in employment, education or training, and other variables (Akdogan et al., 2019; Arundel & Doling, 2017; Halleröd et al., 2015; Lersch & Dewilde, 2015; Vincze, 2023; Wigger, 2021). Housing scholars have used the same indicators as labour scholars have done in this regard. Research also found that labour market precariousness limits the chances of households to enter homeownership (Lersch & Dewilde, 2015) and to move out from residualised housing types (Soaita & Dewilde, 2021). Patterns of housing precariousness and labour precariousness have shown parallel patterns across

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Europe when analysed at the country level (Clair et al., 2019). The conceptualisation of labour precariousness for the empirical study will be discussed in detail in a separate section.

In addition to indicators of labour precariousness, other characteristics of the labour market have been assessed by a wide range of housing scholarship. Employment status (employment, unemployment, inactivity) has been a standard suspect in explaining housing inequalities (Akdogan et al., 2019; Clair et al., 2019; Soaita & Dewilde, 2021). More sophisticated analyses have explored how transitions from employment to unemployment and vice versa combined with tenure structures: homeownership, for example, can limit workers' mobility which might lead to longer periods of unemployment (for a Turkish study see Aydede, 2016). Other indicators presumed to exert an influence on housing inequalities are gender gaps in employment and earnings, as well as the educational attainment of employees (Aydede, 2016; Dewilde & Waitkus, 2024; Halleröd et al., 2015; Lersch & Dewilde, 2015). These aspects will not be considered in the empirical analysis, as the analytical focus will rather be on how labour precariousness and housing precariousness intersect at the regional scale. This approach aligns with the theoretical chapter in this report which defined such characteristics of the labour market and socio-economic status as 'intersectionality aspects' of housing inequality (see Chapter 2 for details).

3.2 Conceptualisation and Operationalisation of Housing Precariousness at the Regional Scale

The empirical analysis of housing precariousness in this chapter builds on the findings of previous chapters in this deliverable. The conceptualisation for the regional level analysis is consistent with other chapters, particularly Chapter 4 with the latent class analysis of housing precariousness across Europe. **Modifications were necessary during the conceptualisation and operationalisation phase,** particularly due to unavailable data on the regional scale.

Housing precariousness is a multidimensional phenomenon. It captures individuals' and households' risk in meeting appropriate housing needs. Chapter 1 concluded that housing precariousness can be observed in five main dimensions: affordability, housing quality, overcrowding, security and energy poverty. Chapter

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2 discussed in detail, how housing affordability, housing quality, overcrowding and housing security vary across housing-welfare regimes and tenure structures in Europe. The latent class analysis in Chapter 4 constructed eight variables from the EU-SILC survey which represent all five dimensions of housing precariousness, as defined in Chapter 1 (Table 1). Some of the dimensions were captured by multiple variables (affordability with the objective and subjective cost burden, security with three types of arrears), others by a single variable (energy poverty) or a composite variable (housing deprivation which takes into account different housing amenities). The latent class analysis demonstrated that the five dimensions of the conceptualisation represent relatively distinct aspects of housing challenges of individuals across Europe, with multiple precarizations present in terms of quality, overburden and security.

Table 1. Conceptualisation and operationalisation of housing precariousness

Conceptualisation (Chapter 1)	Operationalisation in the Latent Class Analysis (Chapter 4)	Operationalisation in the Regional Analysis (Chapter 7)
Affordability	Housing cost burden (variable threshold) Subjective cost burden	Housing cost overburden rate
Overcrowding	Overcrowding (Eurostat definition with small modifications)	Average number of rooms per person
Quality	Housing deprivation	Severe material and social deprivation
Security	Rent arrears Mortgage arrears	
Energy poverty	Perceived energy poverty	Inability to keep the home adequately warm Utility arrears

The objective of the regional analysis in this chapter was to operationalize housing precariousness analogous to Chapter 4. However, as regional-level data was not available for several indicators, as EU-SILC is not representative on the regional scale in several countries, some modifications were necessary. The affordability measure is the share of the population experiencing (total) housing cost overburden, based on the Eurostat definition of 40% of disposable income. Using a fixed threshold results in lower housing cost burden rates compared to the variable threshold used in Chapter 4. Accounting for the subjective cost burden was not feasible based on published Eurostat data. For

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overcrowding, the average number of rooms per person was selected. This is a less precise estimate of overcrowding than the overcrowding indicator used in Chapter 4, as the average number of rooms per person does not take into account household composition. Member states use different definitions for the measurement of overcrowding, including the floor space per person and the number of rooms per person. As both the population number and the number of rooms are widely available from population censuses and regional scale surveys, a wide coverage could be achieved by dividing the two. Energy poverty was operationalised with the inability to keep the home adequately warm indicator. Unfortunately, the housing deprivation indicator was not available at the regional scale. Housing quality and security were operationalised with the share of the population living in severe material and social deprivation. Severe material and social deprivation is a composite indicator,[1] encompassing items beyond housing as well. It was assumed that the variable captures the quality and security aspects of housing, as households experiencing more material and social deprivation show an increasing risk of housing deprivation. The capacity to cope with arrears is one of the thirteen social and material deprivation items (representing security), whilst housing quality is captured by an amenity-related item of being able to replace worn-out furniture. A methodological shortcoming is that the ability to keep the home adequately warm is one of the thirteen deprivation items as well, which to some extent leads to a double representation.

Based on the four indicators, a composite indicator of housing precariousness was developed. For the details on how the composite indicator was constructed, see Section 4 of this Chapter.

As was the case in Chapters 1 and 4, the **tenure structure was not considered as a housing precariousness indicator.** While housing precariousness varies across housing tenure, tenure structures produce different housing challenges in different historical and geographical contexts. This chapter will analyse housing precariousness across housing-welfare regimes as well, to

[1] See the Eurostat glossary for the details.

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better capture the possible impact of regimes on regional patterns of housing precariousness across the European Union.

3.3 Conceptualisation and operationalisation of labour precariousness at the regional scale

Similarly to the conceptualisation of precarious housing, labour precariousness is defined as a multidimensional phenomenon. **Precarious employment comprises 'non-standard' work which deviates from full-time, permanent, direct employment** (Strauss, 2018). The polarisation of employment forms is a result of labour market flexibilization and deregulation in recent decades around the globe, including in member states of the European Union. Some of the aspects of non-standard employment represent the positions of individual workers in employment (such as the characteristics of the work contract, being, inter alia, temporary, part-time, and limited access to rights at work). Other aspects describe the macro-level characteristics of the labour regime, such as the absence of regulatory protection for workers, the lack of active labour market policies of the state, and the lack of access to social protection (Manca et al., 2010; Orfao et al., 2021). In this chapter, **precarious labour is defined in a narrower sense, encompassing precarious employment forms of workers with a formal employment contract.** Comprehensive data on precariousness beyond the formal employment contract, such as informal work or reproductive work, is missing from official statistical sources at the regional scale.

Literature on precarious employment overlaps with the literature on flexibility and security of employment. The flexibility of employment encompasses the contractual arrangements of employment (e.g., involuntarily part-time workers), but also other aspects such as the flexibility of the working time, the flexibility of work organisation (whether parents looking after children are able to enter certain employment forms), wage flexibility (performance-linked remuneration), and the externalisation of employment (e.g., teleworking, self-entrepreneurs) (Manca et al., 2010; Tangian, 2005). Insecure work may consist of different factors: job insecurity (protection against dismissal), employability security, income security and the opportunity to combine paid and unpaid work

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(Kalleberg, 2018; Seo, 2021; Tangian, 2005). **A limitation of comparative studies across the European Union is that precarious employment and the flexibilization of employment have different meanings in different national contexts.** For example, part-time employment increases the vulnerability of livelihoods in most Eastern and Southern European countries, as it is mainly involuntary. In several other countries, such as the Netherlands, part-time employment is voluntary to a high share and does not result in precariousness in terms of insecurity or vulnerability.

A recent set of literature has conceptualised employment precariousness at the subnational scale (Gialis & Leontidou, 2016; Gialis & Taylor, 2016; Herod et al., 2021; Kapitsinis & Gialis, 2023). It was found that regulatory reforms at the national level during the past decades, with a recent wave after the 2008-2009 crisis, opened the way for further flexibilization and precarization of employment, with varied outcomes within countries. Most measures capturing regulatory reforms describe changes at the national scale, and not at the subnational scale. Although national contextual indicators are sometimes incorporated in regional-level analyses (Gialis & Taylor, 2016; Kapitsinis & Gialis, 2023), these variables do not capture regional differences directly.

This chapter builds on the conceptual framework of Gialis & Taylor (2016) as well as Kapitsinis & Gialis (2023), both of which analyses are at the NUTS2 level. Table 2 summarises the indicators used by these two papers, and shows the operationalisation followed in the current analysis. To ensure coherence with the operationalisation of housing precariousness, the same number of indicators (four) was targeted. Capturing most dimensions of the conceptual framework of labour precariousness was also aimed at.

The first dimension of labour precariousness considers working time. The two papers from which this analysis was derived take different measures of working time. For the current analysis, the average yearly hours worked by an employee was selected. This variable does not function as a unidirectional measure of precariousness, because it encompasses both overtime and underemployment. To differentiate between these two aspects, the part-time employment share is used as a second measure of working time precariousness. The average working

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hours account for overtime (with high values representing precariousness), and part-time employment is used to measure underemployment. The second dimension of the conceptualisation is contractual arrangements and employment forms. Gialis & Taylor (2016), as well as Kapitsinis & Gialis (2023) have chosen a range of indicators to account for various forms of precarious employment, including temporary employment, self-employment and informal employment (contributing family workers). These indicators also overlap with the next dimension capturing precarious work with involuntary self-employment. For these two dimensions, this analysis considers the share of self-employment in the total employment of the regions, as well as the share of 0-11 months of job tenure in the total employment of the regions. The last dimension of the institutional level, representing the national context, is excluded from this analysis. This methodological choice ensures that the unifying effect of national labour regimes does not obliterate regional differences. Similarly to the housing precariousness measures, the results will be analysed across regimes. This approach will enable us to discuss the effect of the national scale on the homogeneity and heterogeneity of labour precariousness characteristics of regions within a country.

The methodology for calculating the composite variable of labour precariousness is described in Section 4 below.

Table 2.Conceptualisation and operationalisation of labour precariousness

Conceptualisation (Gialis & Taylor 2016, Kapitsinis & Gialis 2023)	Operationalisation (Gialis & Taylor 2016, Kapitsinis & Gialis 2023)	Operationalisation in this chapter
Working time	Working hours above the 40 hours week Average hours worked Working time variation Part-time employment share	Average hours worked by an employee Part-time employment share
Contractual arrangements / employment forms	Permanent employment share Temporary employment share Individually self-employed share Contributing family workers share	Self-employed share
Precarious work	Involuntary temporary employment share	Share of 0-11 months job tenure
Institutional level (regulatory protection)	OECD Employment Protection Legislation Index (national scale)	–

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3.4 The Importance of the Regional Scale of Analysis

Most literature on the interlinkages between housing and labour market inequalities focuses on the national scale. Two main reasons explain this scholarly attention. Firstly, the national scale is important in policy making both within housing and labour. National legislation establishes the fundamental frameworks of labour law and housing provision – which regulations apply evenly throughout the territory of a country. Differences among nation-states within the European Union are informative for understanding cross-national patterns and national-scale policies. Secondly, the partial unavailability of subnational data on housing and labour inequalities limits scholarly work concerning the interlinkages of housing and labour market inequalities.

The regional scale of analysis is important both from a housing and a labour perspective, because of their organising principles. In the context of labour, **the travel-to-work area is often equated with local labour markets,** based on the assumption that geographical distance produces spatially contiguous territories in which characteristics of work and social reproduction (including housing) are similar, and in which people are 'rooted' through their housing as a fixity in space (Hanson & Pratt, 1992; Peck, 1989). Empirical research has shown that local labour markets are, in fact, segmented and heterogeneous, with travel-to-work areas differing across occupations, skills and gender. The local level of government has become an important actor in the regulation of local labour markets in the past decades. Active local governance precipitates the competition for capital and labour, for example, through special employment measures, incentives to attract people with specific skills which would promote local economic growth as well as through the provision of the infrastructures of social reproduction (e.g., housing, public services) (Peck, 1989).

The understanding that local labour markets are interrelated with housing markets is reflected in the concept of housing market areas or segmented local housing markets. These describe areas in which most people both live and work (Brown & Hincks, 2008). As travel-to-work areas, local labour markets are defined by commuting zones. The interaction between local housing and labour markets is an outcome of commuting and migration patterns.

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Migration can be considered as an outcome indicator of how households make decisions about the location of work and the location of residence – with the caveat that both immigration into and outmigration from a region could have different implications for labour and housing market prospects (Hincks, 2010). Such analyses necessitate data more detailed than the NUTS2 scale of this analysis. Work Package 9 of the EqualHouse project will provide some insight into the role of local initiatives in regulating the local labour market and local housing processes.

4. Methodology

The subsequent analysis builds on NUTS2 data on housing and labour across Europe. Data accessibility limits and enables the scope of the analysis in four major ways:

(1) Theories imply interrelationships between housing precariousness and labour precariousness. However, **there is no overarching data collection** by national statistical offices and authorities about these aspects. As statistical data collection is embedded in social contexts and structured by the decision-making of the nation-state, some data collection is essential for the state to verify their policies, while others are not. Also, data collection is path-dependent: the introduction of new classifications and new concepts more accurately capturing social realities is constrained by the need for longitudinal comparability. One recent example has been how standard labour market statistics did not adequately cover people temporarily unable to work during the COVID-19 pandemic.

(2) Data collection exists, but **data is not disseminated in an appropriate division and aggregation**. This means that questions regarding labour market and housing inequalities cannot be answered by predefined published datasets of statistical agencies, and one needs to consult the microdata for a better alignment with the conceptual framework. Previous chapters of this deliverable have performed such an analysis based on EU-SILC (EU statistics on income and living conditions) microdata.

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(3) The third methodological issue is if **no data exists on the regional scale**. The scale of data collection varies across thematic fields and data sources. Some survey-based data collections conducted by national statistical offices do not have the appropriate sample size to provide reliable data on the sub-national level. Even if data collections are standardised across the European Union, they do not necessarily provide the same regional breakdown in one member state as in the other. One example is EU-SILC, where most countries disclose data at the NUTS1 scale, several countries (Czechia, France, Portugal, Spain) at the NUTS2 level, whereas the Netherlands does not disclose the region of interviewed households' residence.[2] National statistical offices may disseminate more detailed information than harmonised microdata and aggregated data published by Eurostat. A wider range of regional data is anticipated when the data source is register-based, i.e., data can be easily aggregated into any geographical and administrative breakdown. Such examples include unemployment registers by unemployment offices, employment data collected by tax authorities, and decennial population and housing censuses which cover all individuals and all dwellings within a country. The scope of the EU policies limits which kind of data is harmonised and published by Eurostat, the statistical office of the European Union. Regional data might be irrelevant for the EU if it is a member state competence, as in housing. Concerning the labour market, regional-level data is needed for monitoring the efficacy of EU cohesion policy and the results of the 'social pillar' of the European Union.

(4) Selecting **the unit of observation** is not trivial when combining data on labour and housing. Most labour market statistics are focused on individuals (e.g. share of unemployed persons among the 15–64 year-olds), and sometimes on households (e.g. number of households without a working person). Housing statistics are either about the housing situation of

[2] For more detailed descriptions on data availability, see the EU-SILC metadata and variable documentation at the GESIS MISSY (Microdata Information System).

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households (e.g. tenure structure, overcrowding, arrears of payment of living costs) or about the dwelling (e.g. share of dwellings heated with gas).

(5) The final methodological note relates to the use of **2021 census round data**. As we prepared the EqualHouse project, it was anticipated that the data of the 2021 census round would be published on the Eurostat Census Hub website by mid-2024. Although member states have submitted harmonised datasets to Eurostat by March 31, 2024,[3] data-checking and publication are still ongoing as of January 2025. Therefore, we opted for a conceptualisation of housing precariousness and labour precariousness that is not based on census data, in order to complete Task 3.6 of Work Package 3 in a timely manner.

The appropriate scale for a regional analysis should be informed by the organizing principles of the phenomena that are observed. Housing markets and labour markets are regionally differentiated phenomena. The following options were theoretically possible:

- **Functional urban areas:** both the OECD and the European Union use a common definition of the functional urban area which comprises a city and its labour commuting zone (Dijkstra et al., 2019). The definition is based on local-level statistical data. This statistical definition is useful for both labour market analysis and understanding urban development. Functional urban areas are usually delimited using decennial census data, whereas commuting zones might undergo more rapid changes (for example after opening a large manufacturing plant). As labour market opportunities exert an influence on housing accessibility and vice versa, this scale of analysis would be theoretically appropriate. The ninth cohesion report of the European Union also underlines the importance of functional urban areas in understanding labour and housing markets (European Commission, 2024). Due to the **limited scope of data provided by national statistical offices on labour and housing for functional urban areas,** this territorial scale is

[3] For an overview of the Population and housing census 2021, see the Eurostat website.

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not applicable to our analysis of housing precariousness and labour precariousness. Furthermore, functional urban areas have no administrative functions in member states of the European Union, constraining their applicability in research which informs policymaking.

- **NUTS3 level regions:** The population of NUTS3[4] level regions of EU member states ranges between 150,000 and 800,000 inhabitants, according to Regulation (EC) No 1059/2003. This range is relatively close to the average size of functional urban areas in several member states. NUTS3-level regions possess administrative functions in several member states, thereby they could directly intervene politically. Most data on housing and labour markets which could be used as measures of housing precariousness and labour precariousness, however, are not available at the NUTS3 level. Consequently, this option was not viable for the purposes of this study.
- Taking into account the opportunities and limitations, **the following analysis is conducted on the NUTS2 scale.** NUTS2 is one of the three levels of regional breakdown within the European Union. According to Regulation (EC) No 1059/2003 of the European Parliament and the Council, the population numbers of NUTS2 territorial units are between 800,000 and 3 million persons on average. (If a country is below the minimum threshold, the whole country is one NUTS2 unit.) The current (2024) classification lists 244 NUTS2 regions in the 27 member states (Eurostat, 2024). As no comparable data could be acquired for all variables at the NUTS2 equivalent scale for the United Kingdom, International Territorial Level 2 (ITL2) (Office for National Statistics, 2024), the United Kingdom was not included in the analysis. NUTS2 regions have administrative functions in several countries, therefore the results may directly inform policymakers for evidence-based policy interventions.

[4] NUTS refers to the Nomenclature of territorial units for statistics, a three-level classification used for statistical purposes across the European Union.

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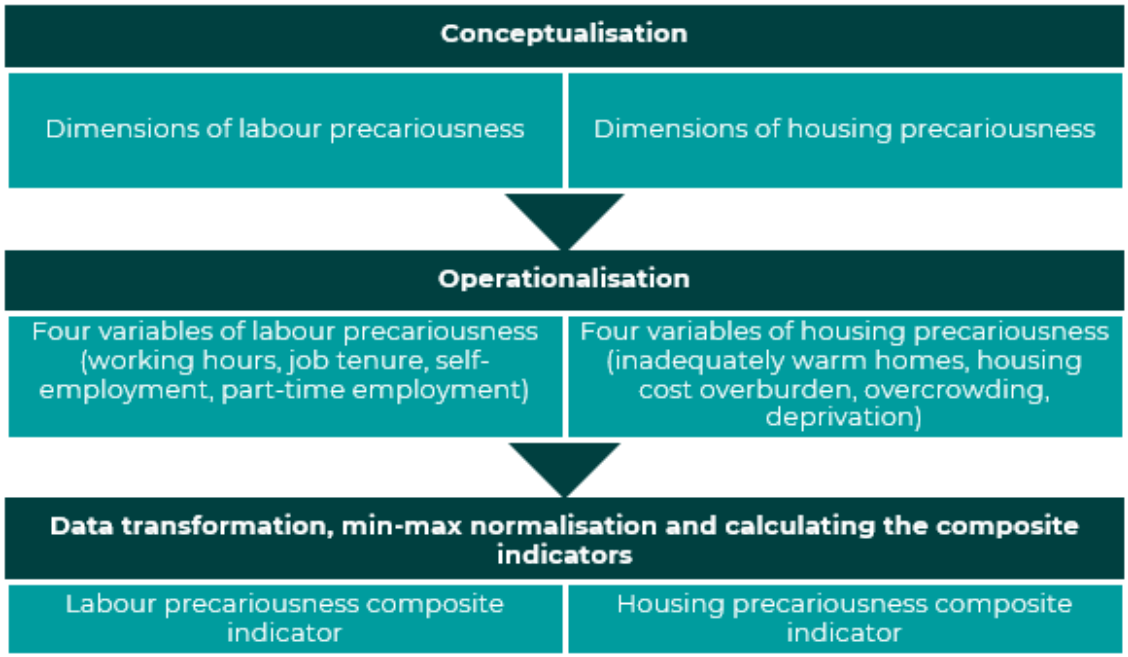
The subsequent analysis uses **four labour precariousness variables and four housing precariousness variables to estimate labour precariousness and housing precariousness on the NUTS2 scale.** The conceptualisation was presented in detail in the previous section. The initial eight indicators were directly accessible from the Eurostat database or are derived from these datasets. Table 3 summarises the variables used in the following analysis, including their sources. Figure 1 summarises the methodological steps of the analysis.

Table 3.Labour precariousness and housing precariousness variables used in the analysis

Variable group	Variable name	Variable description	Eurostat table code
Labour precariousness	HOURS	Average hours worked by an employee, 2021	nama_10r_3empers, nama_10r_2emhrw
	JOBTENURE	Share of 0–11 months job tenure (15-64 years), %, 2023	lfst_r_egad
	SELFEMPL	Share of self-employed persons in employment (15-64 years), %, 2023	lfst_r_lfe2estat
	EMPLPART	Share of part-time employment among employed persons (15-64 years), %, 2023	lfst_r_lfe2eftpt
Housing precariousness	WARM	Share of households unable to keep home adequately warm, %, 2023	ilc_mdes01_r
	OVERBURDEN	Housing cost overburden rate, %, 2023	ilc_lvho07_r
	ROOMS	Average number of rooms per person, 2023	ilc_lvho04n
	DEPRIV	Share of population in severe material and social deprivation, %, 2023	ilc_mdsd18

Figure 1. Methodological steps of the analysis



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The data was retrieved from the Eurostat website in November and December of 2024. Despite the extensive coverage of the NUTS2 regions, the Eurostat database exhibited notable data gaps. Different techniques were used to address missing values, including substitution with data from different years, data from a different geographical scale and imputation. Appendix 1 provides a detailed description of which data gaps were filled with which methodology. The complete dataset contained no missing values.

NUTS codes were used to ensure data interoperability with the geographical vector map retrieved from the GISCO database.[5] Microsoft Excel was used for data preparation and for producing the figures. For statistical calculations, the open-source software Jamovi (version 2.3.28.0) was used. Mapping was undertaken in QGIS (version 3.36).

To calculate the housing precariousness composite indicator and the labour precariousness composite indicator, all variables were min-max normalized to the 0–1 scale, with higher numbers representing higher precariousness. This is a standard methodological procedure in several labour precariousness studies (Gialis & Taylor, 2016; Pipas, 2024). For most initial variables, higher values are indicative of precariousness. Two exceptions are the average hours worked by employees and the average number of rooms per person variables. For hours worked, the standard min-max normalization was used to capture excessive working hours by employees as a factor of precariousness. Underemployment was assumed to be appropriately captured by the part-time employment indicator.[6] The rooms per person variable was inverted during the min-max normalization so that overcrowding corresponded to higher normalized values. **The composite labour precariousness indicator and the composite housing precariousness indicator are calculated as the unweighted averages of the four normalized variables in each variable group.** The use of unweighted composite indicators is

[5] https://ec.europa.eu/eurostat/web/gisco/geodata/statistical-units/territorial-units-statistics

[6] This is a different strategy than that of Gialis and Taylor (2016), who used the average usual hours worked above or below the 40 hours working week indicator. Their strategy both captures underemployment and excessive overtime, but overrepresents underemployment because part-time work as an additional indicator was also used.

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popular both in housing precariousness and labour precariousness literature (Clair et al., 2019; Gialis & Taylor, 2016; Gutiérrez-Barbarrusa, 2016; Kapitsinis & Gialis, 2023; Maselli, 2010). Such an approach assumes that different dimensions can be substituted for each other.

5. Results

The results of the analysis are presented in two sections. Firstly, regional patterns of housing precariousness and labour precariousness are examined. The description starts with the regional patterns of the composite indicators, discusses regional inequalities within countries and across housing-welfare regimes, as well as shows the correlation between the initial indicators. Secondly, a typology of regions is presented that combines housing precariousness and labour precariousness levels. The typology will be assessed across housing-welfare regimes as well. The housing precariousness and labour precariousness composite indices for each NUTS2 region can be found in Appendix 2. More detailed datasets will be made available later in the EqualHouse project.

5.1 Regional Patterns of Housing Precariousness and Labour Precariousness

This section discusses regional patterns of the composite labour precariousness indicator and the housing precariousness indicator and examines how the eight initial variables of the study interact with each other.

The median value of the **labour precariousness composite indicator** is 0.368 across regions of the European Union. The highest values are observed in the Netherlands, in Southern Europe and parts of Finland (Figure 2). This pattern is analogous to the findings of the literature in two respects: **high precarious employment in Southern Europe** (Gialis & Leontidou, 2016; Gialis & Taylor, 2016), as well as **labour market flexibilization with a high share of part-time work and short-term employment contracts** in the Netherlands. Greek regions show differentiated patterns of labour precariousness. One group of the regions is characterised by long working hours (the Aegean islands region of Voreio Aigaio

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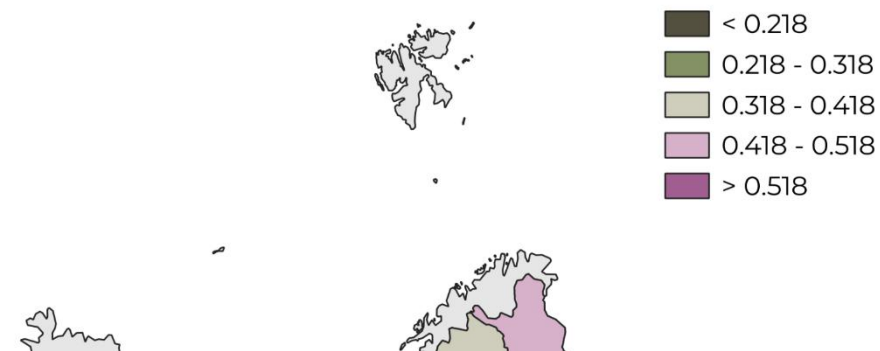
has the longest working hours across Europe with 2251 / year, which is 12 hours higher per week than the median value across all EU regions), and a high share of self-employment (Peloponnisos leading in the European Union with 39.1% of total employment). In other Greek regions, long hours and self-employment are combined with high values of the job tenure indicator: Notio Aigaio and Ionia Nisia with around a quarter of the employment being precarious in this latter aspect. Netherlands' regions are showing 40-50% part-time employment share within total employment (Groningen has the highest proportion across the European Union with 47.5%), and about a fifth of the population has less than 12 months of work contract duration. Self-employment levels are moderate, and average working hours are low, due to the high share of part-time work. Therefore, Southern European and Western European labour precariousness have different meanings because of the national contexts, despite the same scores of the composite indicator.

Central and Eastern European regions (Bulgaria, Romania and Slovakia, in particular) demonstrated the lowest levels of labour precariousness. This is due to the national regulation of formal employment. Formal employment is typically full-time, with permanent contracts (less than 10% have a contract of less than 12 months), with low to moderate self-employment shares. Excessive working hours (annual hours exceeding 2000 in all but one region) and a higher share of self-employment are typical in Poland. This leads to slightly higher precariousness levels and an outlier situation in Central and Eastern Europe. It should be noted that the labour precariousness composite indicator is designed to assess precarity in formal employment. Precarious informal employment is widespread across Central and Eastern Europe which is not reflected in the labour precariousness composite indicator. Also, labour regulation and employment policies may render the 'standard' employment form susceptible to vulnerability and insecurity, such as easy dismissal, low income or lack of appropriate social dialogue.

Figure 2.Labour precariousness in the European Union at the NUTS2 level



and do

Figure 3 shows regional variations of the labour precariousness composite indicator across countries and housing-welfare regimes. **Central and Eastern European countries have been identified as the least precarious. These countries also exhibit regional homogeneity.** Outliers to be mentioned in this group are two Bulgarian regions (one of them, Yugozapaden consists of the capital city Sofia, this region has the lowest labour precariousness measure across all 27 member states), and the region Nord-Est with a high labour precariousness within Romania.

Social-democratic unitary rental market countries are showing high labour precariousness indicators due to the national context of flexicurity in labour markets, with low regional inequalities within countries. Conservative-corporatist unitary rental market and North-West European homeownership with a dual rental market countries show moderate values. Luxembourg is somewhat of an outlier with a lower precariousness value. Belgium is a highly uneven country in terms of regional values of labour precariousness. Southern European family-based homeownership countries are diverse: Greece features a high median value and the largest internal differences across all member states. Other countries in this group, such as Spain or Italy exhibit a similar level of heterogeneity to unitary rental market countries of a comparable size and number of regions (France, Germany).

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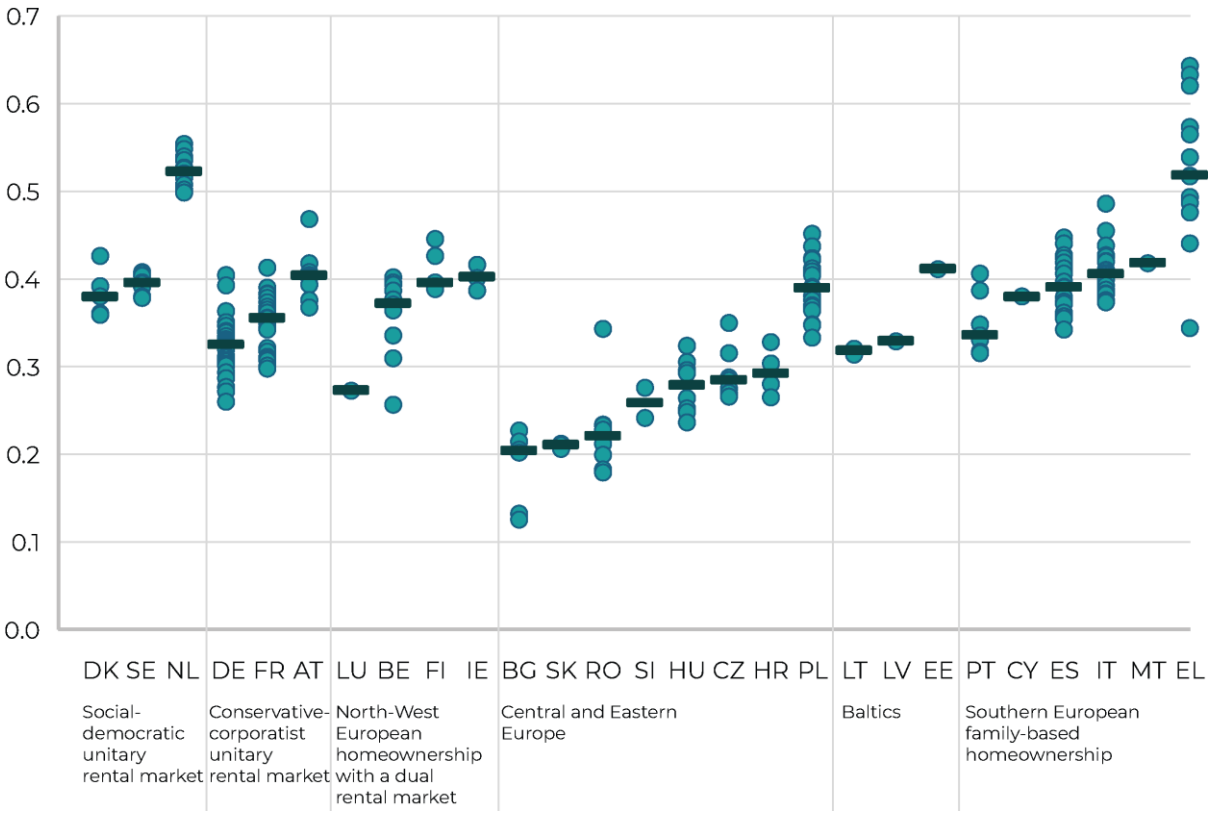
Figure 3.Regional labour precariousness values across countries and housing-welfare regimes



Note: Lines show the median values of the regions.

Despite different combinations of the initial four indicators at the two extremes of the spectrum, **the four initial indicators of labour precariousness are all statistically significantly correlated with each other at the regional scale** ($p < .001$) (Table 4). The strong correlation between part-time employment and average working hours is obvious, based on the theoretical literature and empirical findings. In regions where the job tenure indicator is high (employees tend to have shorter contracts), average working hours are lower. Regional data also shows that working hours increase with a higher share of self-employment.

Table 4.Correlation matrix of the labour precariousness indicators

Variables	HOURS	JOBTENURE	SELFEMPL	EMPLPART
HOURS	—			

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JOBTENURE		-0.531	***	—					
SELFEMPL		0.645	***	-0.274	***	—			
EMPLPART		-0.745	***	0.592	***	-0.325	***	—	
Note. * p < .05, ** p < .01, *** p < .001									

The housing precariousness composite indicator demonstrates significant variance at the NUTS2 scale. The median value of the composite indicator is 0.279. Figure 4 illustrates the regional patterns, with the median value representing the midpoint of the five categories.

The highest values of housing precariousness were identified in certain regions of Central and Eastern Europe (Bulgaria, Romania, Eastern parts of Hungary and Slovakia), as well as in regions of Southern Europe (parts of Spain, Italy and the whole of Greece). Among the 20 regions with the highest precariousness, ten are located in Greece, four in Bulgaria and Romania each, and one each in Hungary and Spain. These regions differ if we also consider the values of the four initial indicators. Greece is characterised by higher housing cost overburden and overcrowding. This result signifies the affordability crisis and households' strategies to secure housing through intergenerational cohabitation (Siatista, 2021). Romanian regions among the highest precariousness group are overcrowded with deprived households, as evidenced also by the literature (Soaita & Dewilde, 2021). Bulgarian regions among the 20 most precarious regions exhibit a combination of overcrowding, deprivation and the inability to keep homes warm.

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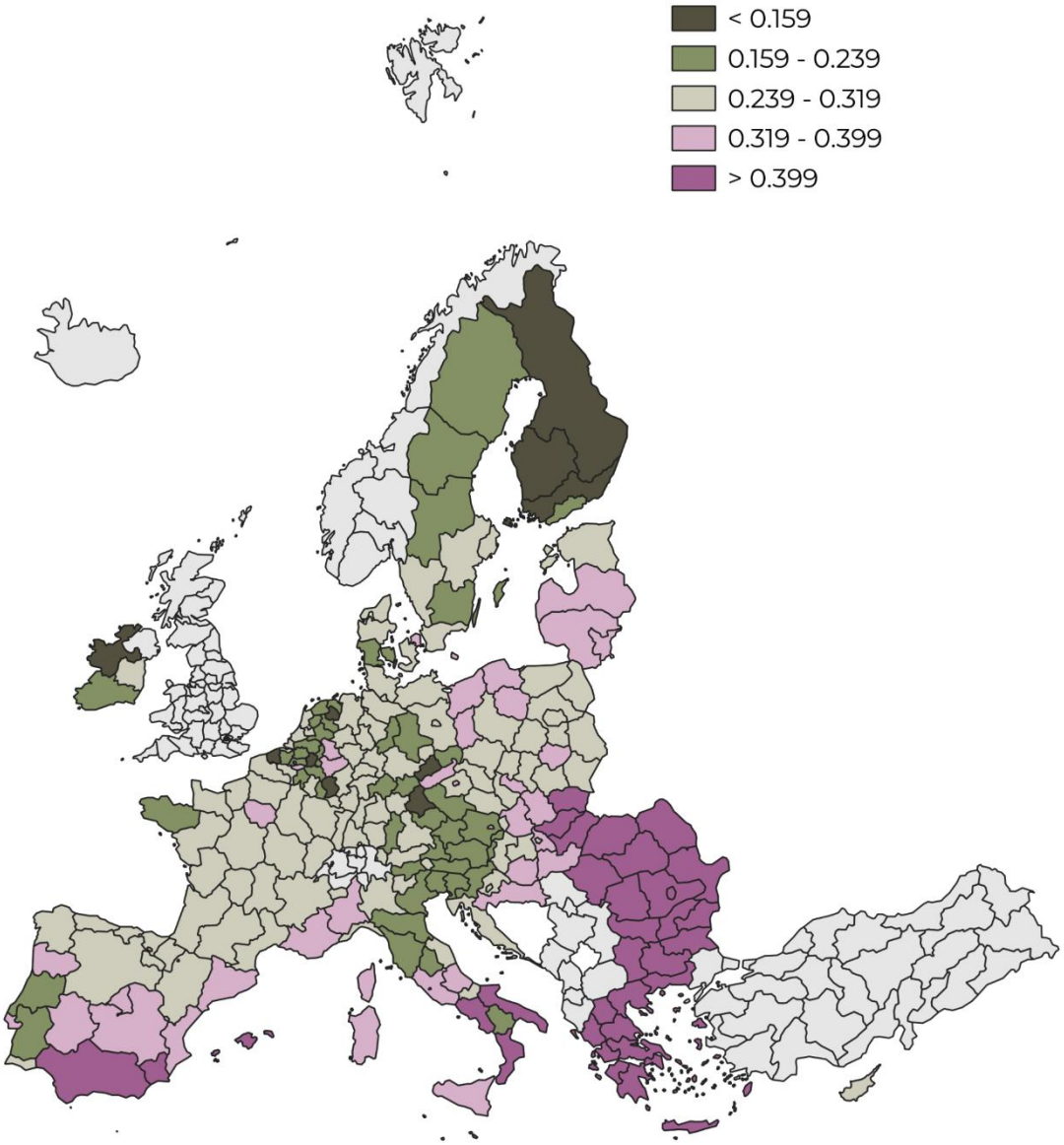
Figure 4.Housing precariousness in the European Union at the NUTS2 level



The lowest levels of housing precariousness were observed in regions throughout Europe, showing that **national policies have less influence on a homogeneously low value of housing precariousness.** The 20 regions with the

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lowest values are located in seven countries: five regions in Belgium and Germany each, four in Finland, three in the Netherlands, and one each in Austria, Ireland and Sweden. These countries belong to the unitary rental market or the dualist rental market housing-welfare regimes.

Figure 5 shows regional variations of the housing precariousness indicator within each country, with countries grouped based on housing-welfare regimes. The lowest values of regional housing precariousness were measured in the dual rental market countries. These countries are also relatively homogeneous, Belgium is an exception with a wide range of regional values, the capital city region Brussels is at the top of the precariousness values. Unitary rental market countries show modest and homogeneous housing precariousness values. Outliers with higher precariousness than other regions in the same country are either capital city regions (Vienna in Austria, Hovedstaden in Denmark) or special geographies (Guyane in France). Central and Eastern European countries are diverse in terms of housing precariousness: some countries, such as Croatia and Poland are relatively homogeneous regionally, while Hungary is a highly uneven country with Észak-Magyarország, a disadvantaged region in the Northeastern part of the country, as an outlier. All Southern European countries that are not single-region entities are internally unequal as well. The capital cities of Southern Europe are not outliers in their respective countries. Rather, regions with specific geographies have severe precariousness issues (Azores and Madeira in Portugal, Ceuta and the Canary Islands in Spain).

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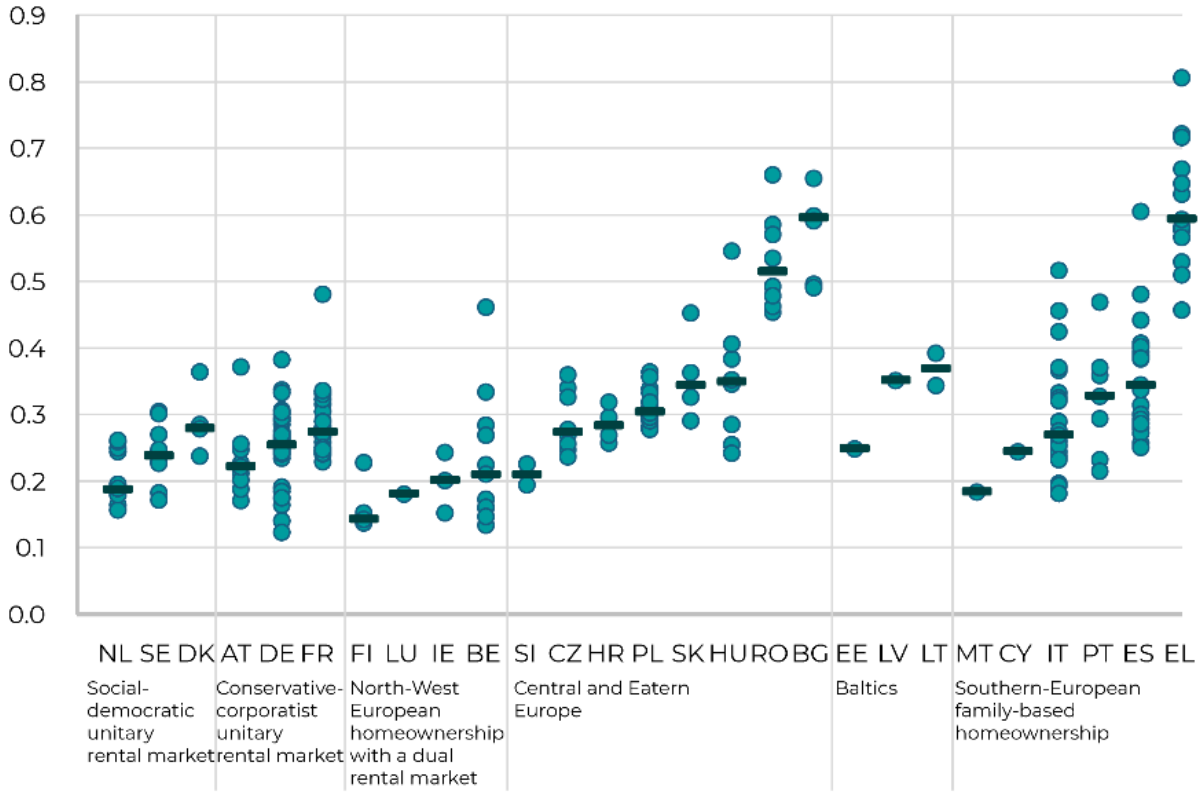
Figure 5. Regional housing precariousness values across countries and housing-welfare regimes



Note: Lines show the median values of the regions.

The correlation matrix of the regional housing precariousness indicators (Table 5) generally shows weaker associations compared to what was observed in the labour indicators. In particular, the number of rooms per person indicator captures a different aspect of housing precariousness at the regional level than the other three indicators. The strongest correlation was found between the deprivation and the keeping the homes warm variables.

Table 5.Correlation matrix of the housing precariousness indicators

Variables	WARM	OVERBURDEN	ROOMS	DEPRIV
WARM	—			
OVERBURDEN	0.259 ***	—		

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Variables	WARM		OVERBURDEN		ROOMS		DEPRIV
ROOMS	-0.020		0.005		—		
DEPRIV	0.544	***	0.351	***	-0.215	***	—

Note. * p < .05, ** p < .01, *** p < .001

5.2 A Regional Typology of Housing Precariousness and Labour Precariousness

This section compares housing precariousness indicators and labour precariousness indicators at the regional scale. The previous section already implied that regional patterns of housing precariousness and labour precariousness do not completely overlap in the European Union.

Table 6 shows the correlation between housing and labour precariousness indicators. The number of rooms per person as a housing indicator exhibits the highest correlations with all labour precariousness indicators, statistically significant at the p < .001 level. In regions where people live in less overcrowded conditions, employees work fewer overtime hours and have more precarious employment in terms of self-employment and job tenure. Moderate, but statistically highly significant correlations were found between regions characterised by a high share of overburdened households and a high share of self-employment, as well as between the part-time employment variable and the deprivation variable (deprivation rates are higher in regions with less part-time employment). **Overall, the correlation matrix underlines that relationships between housing precariousness and labour precariousness vary significantly across regions of the European Union.** From the policy point of view, this underscores that housing precariousness cannot be solved by regional policy measures facilitating less precarious employment, as such policies do not automatically trickle down into less precarious housing conditions. Vice versa, despite labour precariousness observed in many regions, housing issues do not necessarily constitute a significant challenge in that part of the country.

Table 6. Correlation matrix of the labour and housing precariousness indicators

Variables	HOURS	JOBTENURE	SELFEMPL	EMPLPART

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WARM		0.166	**	0.021		0.184	**	-0.301	***
OVERBURDEN		0.086		0.022		0.323	***	0.041	
ROOMS		-0.756	***	0.548	***	-0.494	***	0.691	***
DEPRIV		0.065		-0.183	**	0.058		-0.314	***
Note. * p < .05, ** p < .01, *** p < .001									

To further evaluate the interrelationship between housing precariousness and labour precariousness variables, a principal component analysis was undertaken, to go beyond pairwise correlations among the eight variables, and validate the results. A two-component solution explains 64% of the variance in the initial values, with the first component contributing 41%. The results of the principal component analysis confirm that labour precariousness indicators (with high loadings in the first component) and housing precariousness indicators (with high loadings in the second component) represent two different aspects of regional precariousness in the European Union. The only exception is the overcrowding variable, having a high loading in the first component (Table 7). To streamline the argument, a typology of the regions was developed based on the previously discussed composite labour precariousness indicator and the composite housing precariousness indicator.

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Table 7.Results of the principal component analysis with the eight labour and housing precariousness variables

	Component		
Variables	1	2	Uniqueness
HOURS	-0.912		0.165
JOBTENURE	0.741		0.449
SELFEMPL	-0.617		0.565
EMPLPART	0.841		0.262
WARM		0.804	0.345
OVERBURDEN		0.681	0.535
ROOMS	0.883		0.220
DEPRIV		0.797	0.343

Note. 'varimax' rotation was used. Loadings below 0.3 are not shown.

The typology of the regions was developed based on the combinations of the two composite indicators. The median regional values of the composite labour precariousness indicator (0.368) and the composite housing precariousness indicator (0.279) were used as cut-off points between precarity and non-precarity. The combination of labour and housing precariousness was identified in 62 regions. 66 regions were not precarious either in the labour aspect or in the housing aspect. 57-57 regions were precarious only in one aspect of the two. (Values equal to the median were categorised as non-precarious.)

Regional patterns are shown in Figure 6. The approach with two categories in the two composite indicators smooths high intra-country differences, such as in Greece with high and very high levels of precariousness. Conversely, a high degree of variation is observed in countries where most of the regions have scores around the EU-wide median values. Spain is one example, showing a patchwork of the four types, whereas values are much closer to each other than the map suggests.

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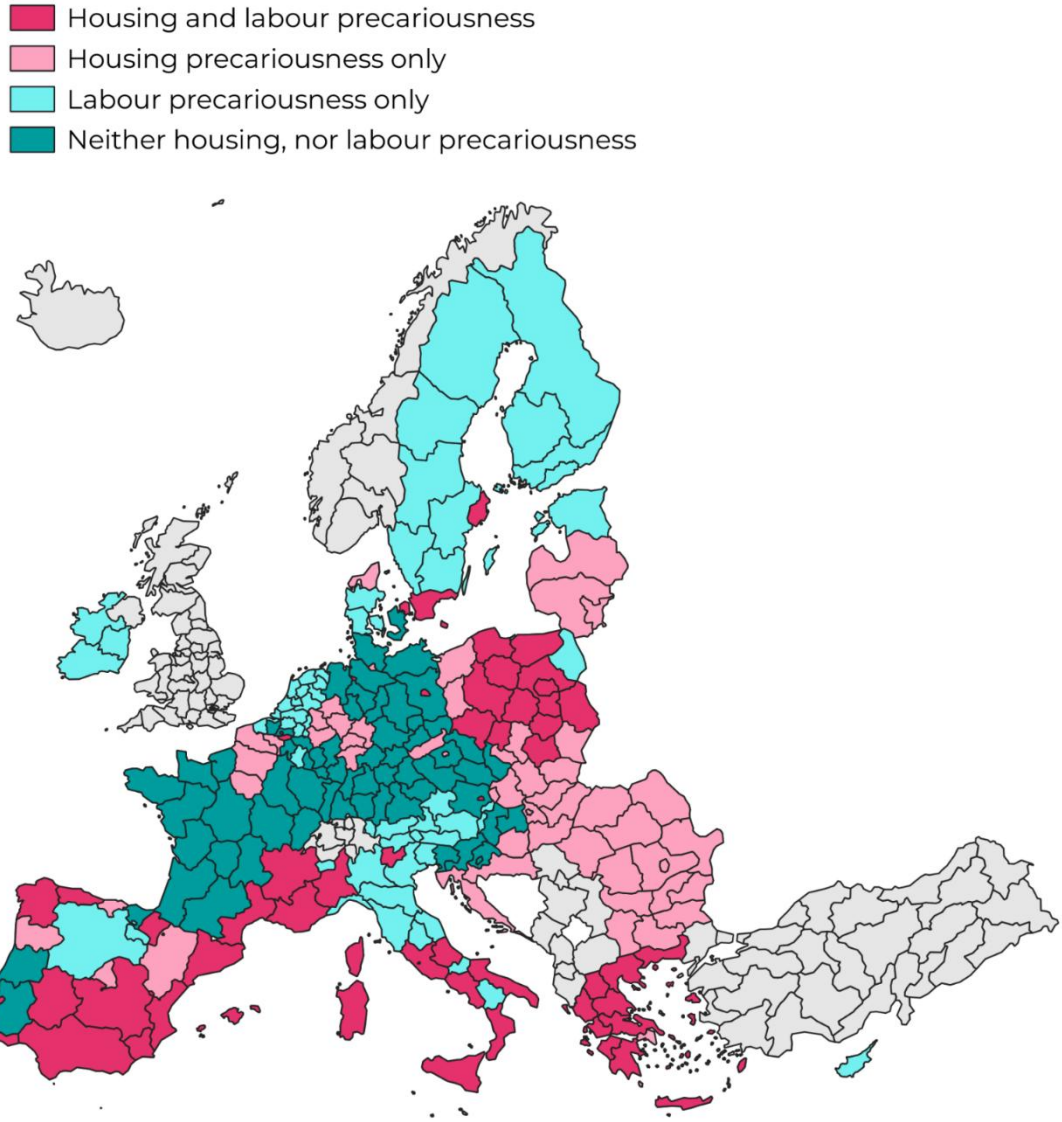
Figure 6. Regional typology of labour precariousness and housing precariousness



Southern Europe, Eastern Europe and the Baltics are characterised by widespread housing precariousness, mixed with labour precariousness in the case of Southern Europe and most of Poland. In this part of Europe, a multifaceted policy tackling both the housing crisis and the employment crisis is necessitated. **Labour precariousness without housing precariousness is typical in Finland, Sweden, Ireland, as well as in the Netherlands – representing the flexibility of labour markets in these countries.** Northern Italy and most of

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Austria also fall into this category. In Central and Western Europe, both aspects of precariousness are below the European median value for regions.

The typology highlights various challenges of housing precariousness and labour precariousness across Europe's regions. Most member states are regionally variegated. Consequently, **a uniform policy mix of nation-states to tackle the housing crisis and employment precarity will not necessarily solve diverse problems in regions.** Regions with specific geographies, such as maritime islands and metropolitan regions often stand out from the national averages in terms of housing precariousness and labour precariousness. Also, types cut across many national borders, showing similar levels of precariousness across borders. The role of cross-border economic regions in influencing labour precariousness and housing precariousness might be considered as well, to better understand the patterns found in this study and develop adequate policy solutions. In other cases, national borders also represent strong differences in housing and labour market precariousness.

The levels of regional precariousness across housing-welfare regimes are shown in Figure 7. Most regions in social-democratic unitary rental market countries tend to have housing precariousness levels below the EU-wide median, with labour precariousness present. Regions in dual rental market countries have lower labour precariousness levels, conservative-corporatist unitary rental market countries being between the two former housing-welfare regimes. Regions in the Central and Eastern European housing-welfare regime are less precarious in terms of employment, but demonstrate a wide range of housing precariousness. Baltic regions are around the median values in both aspects. Southern European family-based homeownership regions are characterised by a large variance of housing and labour precariousness, with only a few regions below the median threshold in both precariousness aspects.

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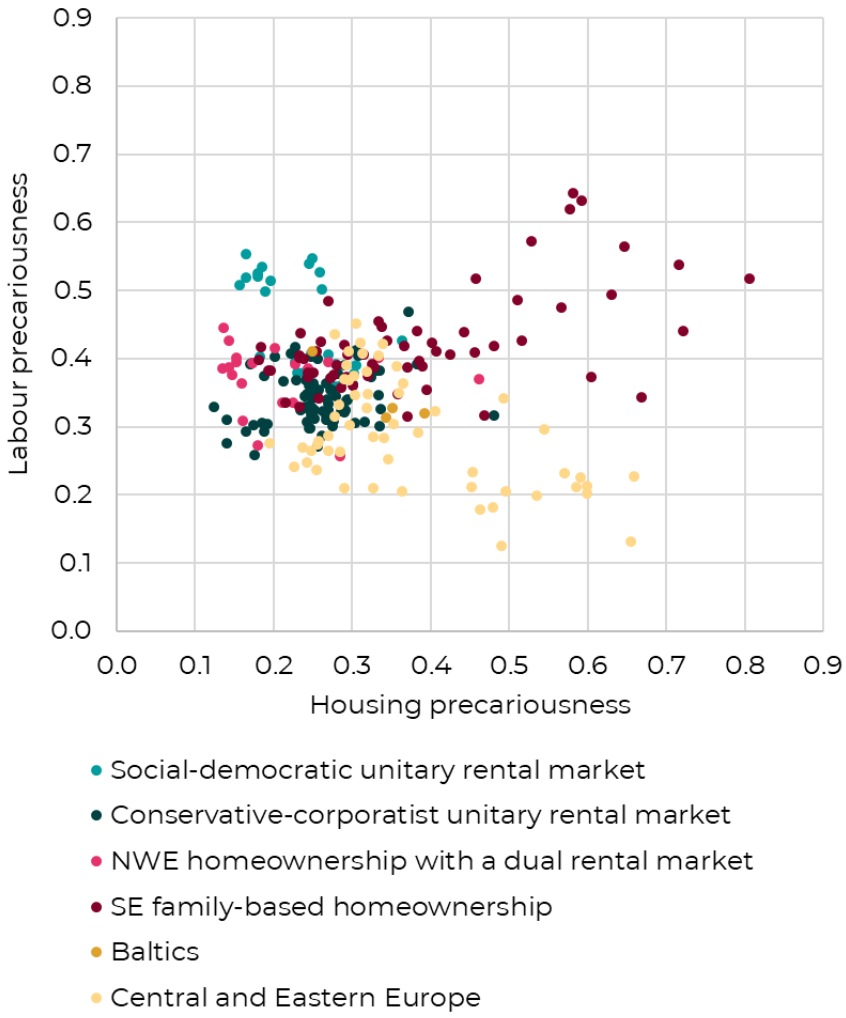
Figure 7. Regional labour and housing precariousness across housing-welfare regimes



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The Pearson correlation coefficient between the two composite indicators is -0.002, which is not significant at the $p < .05$ level. However, if housing-welfare regimes are observed differently, two regime groups are observed. **In conservative-corporatist unitary rental market countries and Southern European countries, regional scores of labour precariousness and housing precariousness are positively correlated. In these two regimes, labour market challenges and housing challenges reinforce each other** (or as a positive scenario, reducing one aspect of precariousness would contribute to a decrease in the other). **For the rest of Europe, housing precariousness is negatively correlated with labour precariousness.** In the latter four housing-welfare regimes, the simplistic approach of enhancing the housing situation of employed persons by strengthening less precarious employment forms does not appear to provide a solution for the regional inequalities.

As a final aspect of the analysis, we revisit the literature that assumes **income as an intermediary mechanism between employment and housing**. Taking into account the average compensation of employees and the disposable income per capita (both measured in euros, not considering differences in purchasing power parities) a **robust negative correlation was identified between the housing precariousness composite indicator and both income measures at the regional scale** (the Pearson correlation coefficient is -0.562 for the average compensation of employees and -0.629 for the disposable income, respectively). This means that higher incomes and wages are associated with lower values of housing precariousness, measured at the regional scale. However,

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the correlation is weak between the labour precariousness composite variable and the two income indicators (0.132 for the compensation of employees, and 0.188 for the disposable income). Higher average incomes in a region do not necessarily translate into lower levels of housing precariousness and labour precariousness. Consequently, **a regional policy objective aimed at elevating the income levels of households does not constitute a quick fix for both housing and employment challenges of the population.**

6. Conclusion

This chapter analysed disparities in housing precariousness and labour precariousness at the NUTS2 scale during the early 2020s. A methodology was developed to assess the multidimensional character of housing precariousness and labour precariousness alike. A total of eight indicators were selected to measure housing and labour precariousness, for which data was available at the regional scale for all 27 member states of the European Union. The United Kingdom was excluded from the study, due to the unavailability of comparable data.

The results of the analysis confirmed different regional patterns of housing and labour precariousness within the European Union. National level regulations and contexts seem to matter more in regional inequalities of labour precariousness, compared to what was found in regional variations of housing precariousness. If the European Commission launches the new European Affordable Housing Plan during the 2024–2029 term, including a reform of the cohesion policy to encompass housing policy interventions, **regionally differentiated challenges in housing markets and labour markets should be considered.** The implementation of uniform solutions and policy responses across the European Union does not seem to provide adequate results, given the geographical variety of housing challenges. Southern Europe and conservative-corporatist unitary rental market countries (Austria, France, Germany), for example,

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show distinctive patterns of the combination of labour precariousness and housing precariousness when compared to the rest of Europe. Tackling housing precariousness in Central and Eastern Europe is also of utmost importance. Chapter 4 has shown multifaceted challenges in Central and Eastern Europe regarding housing precariousness, which might also inform policy-makers to develop satisfactory solutions.

One important conclusion of the study is that policy responses which aim at tackling the housing crisis by increasing income levels and increasing employability will not deliver sufficient results at the regional scale. **The regionally differentiated housing crisis is not synonymous with an employability crisis or a challenge of people having insufficient income to cover housing costs.** Housing challenges of the working poor and employed persons are key issues to solve, besides developing instruments for marginalised people in housing poverty. A policy mix combining multiple precarity in labour and housing, with regionally tailored solutions, needs to be developed by policymakers in the European Union and the 27 member states. Uniform national housing policies would not solve the EU-wide housing crisis either. Some countries, such as Belgium and Greece, turned out to be regionally more heterogeneous than other countries in the same housing-welfare regimes. This highlights the importance of reducing regional inequalities within a country as well.

From the methodological point of view, the analysis revealed that NUTS2 level data is missing for a relatively wide range of useful housing precariousness and some of the labour precariousness indicators. The labour force survey (LFS) and the EU statistics on income and living conditions (EU-SILC) survey are either not representative on the NUTS2 scale, or detailed aggregated data on the NUTS2 scale is missing from the Eurostat database. **A wider range of comparable and harmonised housing precariousness and labour precariousness indicators are needed on the subnational level, to better inform cohesion policy planning and monitoring across member states of the European Union.** To capture fine-grained subnational structures of urban-rural housing and labour inequalities more accurately, such as the interrelations of commuting and housing at the local level, further data collection and analysis are needed. The 2021 census round will

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provide detailed information on some aspects, as the harmonised datasets will be fully available on the Eurostat website.

This study was a cross-sectional analysis of regional housing and labour precariousness levels within the European Union during the early 2020s. Both regional housing and labour precariousness might undergo rapid change in a relatively short period. The 2008-2009 economic crisis and the 2020s energy crisis are two examples which considerably changed geographical patterns of housing and labour precariousness**. More detailed studies are therefore needed to examine longer trends of housing precariousness and labour precariousness at the regional level.**

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APPENDIX

Appendix 1: The Methodology of Replacing Missing Values

This appendix discusses the detailed methodology of how missing values of the Eurostat database were replaced during the dataset preparation. A combination of different data substitution techniques was utilised to ensure full coverage without missing values for all eight indicators of housing precariousness and labour precariousness.

- **Substituting with a previous year.** For some regions, data from the year shown in Table 3 was not available in the Eurostat database, therefore a figure from the most recent year was used. This was the case for Åland (job tenure, part-time employment: 2020, self-employment: 2021), Bucureşti-Ilfov (part-time employment 2021) and Mayotte (job tenure, self-employment, part-time employment: 2020). The data regarding the number of rooms per person in Austrian regions is from the year 2018. As housing precariousness and labour precariousness indicators do not change considerably in a few years, the effects on the results are negligible.
- **Substituting with data of a larger region.** For Länsi-Suomi and Åland, housing indicators were only available for the two regions combined. This average value was used for both NUTS2 regions. For the deprivation indicator of Mayotte, the NUTS1 level Régions ultrapériphériques data was used as a substitute. As the EU-SILC survey is not representative on the NUTS2 level in the Netherlands, the keeping the home warm, the overburden and the rooms per person values were substituted with the corresponding NUTS1 region's value. The same strategy was used for the overburden indicator in Belgium.
- **Substituting with zero.** The keeping the home warm indicator was not available for France's maritime regions in low latitudes. Given the climatic conditions in these regions, it was assumed that everybody was able to keep their home warm.

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- **Substituting with national statistical office sources.** The number of rooms per person was substituted with NUTS2 data from the year 2021 for France, Germany and Portugal, from published national statistical office sources. The number of rooms variable for France was aggregated from NUTS3 level data. Similarly, the published EU-SILC results by the national statistical office of Austria (Statistik Austria, 2024) were consulted to fill data gaps in the keeping the home warm indicator as well as the overburden indicator. The statistical office marked in both cases that regional data is either unreliable or unavailable, due to the small number of observations. Published data marked as unreliable were used, if available. If not, the national average was used as a substitute. Data refer to the three-year-averages of 2021–2023.
- **Imputed data.** A more sophisticated imputation technique was used for the overburden indicator in France's NUTS2 regions which was not available either from the Eurostat database or from the national statistical office. Data on the median share of housing costs in the household income for social benefit recipients at the département (NUTS3) level was available from a national source (Direction de la recherche, des études, de l'évaluation et des statistiques, 2024). This variable was converted to the overburden indicator, using a linear regression model of country-level Eurostat data of the overburden rate and the median of the housing cost burden in 2023 in the 27 member states (Eurostat tables tessi160 and tessi300). The correlation coefficient between the two variables at the country level was 0.912. The NUTS2 level data for France was calculated as the population-weighted average of the NUTS3 level imputed overburden data. 0.4 percentage points were added to each imputed French NUTS2 overburden rate, which is the residual of the country-level estimation for France.

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Appendix 2: Housing Precariousness and Labour Precariousness Values of NUTS2 Regions

NUTS code	Coun-try code	Name of the NUTS2 region	Housing-welfare regime	Housing precariousness	Labour precariousness
DK03	DK	Syddanmark	Social-democratic unitary rental market	0.238	0.379
DK02	DK	Sjælland	Social-democratic unitary rental market	0.279	0.359
DK04	DK	Midtjylland	Social-democratic unitary rental market	0.279	0.392
DK05	DK	Nordjylland	Social-democratic unitary rental market	0.285	0.361
DK01	DK	Hovedstaden	Social-democratic unitary rental market	0.364	0.426
NL13	NL	Drenthe	Social-democratic unitary rental market	0.156	0.508
NL11	NL	Groningen	Social-democratic unitary rental market	0.165	0.554
NL12	NL	Friesland (NL)	Social-democratic unitary rental market	0.165	0.520
NL41	NL	Noord-Brabant	Social-democratic unitary rental market	0.179	0.520
NL23	NL	Flevoland	Social-democratic unitary rental market	0.179	0.525
NL22	NL	Gelderland	Social-democratic unitary rental market	0.185	0.535
NL42	NL	Limburg (NL)	Social-democratic unitary rental market	0.189	0.498
NL21	NL	Overijssel	Social-democratic unitary rental market	0.196	0.515
NL31	NL	Utrecht	Social-democratic unitary rental market	0.245	0.539
NL32	NL	Noord-Holland	Social-democratic unitary rental market	0.250	0.548
NL33	NL	Zuid-Holland	Social-democratic unitary rental market	0.259	0.527
NL34	NL	Zeeland	Social-democratic unitary rental market	0.261	0.501
SE33	SE	Övre Norrland	Social-democratic unitary rental market	0.172	0.394
SE32	SE	Mellersta Norrland	Social-democratic unitary rental market	0.183	0.403
SE31	SE	Norra Mellansverige	Social-democratic unitary rental market	0.227	0.395
SE21	SE	Småland med öarna	Social-democratic unitary rental market	0.230	0.380
SE23	SE	Västsverige	Social-democratic unitary rental market	0.247	0.407
SE12	SE	Östra Mellansverige	Social-democratic unitary rental market	0.270	0.406
SE11	SE	Stockholm	Social-democratic unitary rental market	0.302	0.378
SE22	SE	Sydsverige	Social-democratic unitary rental market	0.304	0.391
AT31	AT	Oberösterreich	Conservative-corporatist unitary rental market	0.170	0.393
AT11	AT	Burgenland	Conservative-corporatist unitary rental market	0.188	0.375
AT21	AT	Kärnten	Conservative-corporatist unitary rental market	0.202	0.403
AT12	AT	Niederösterreich	Conservative-corporatist unitary rental market	0.212	0.367
AT22	AT	Steiermark	Conservative-corporatist unitary rental market	0.221	0.408
AT32	AT	Salzburg	Conservative-corporatist unitary rental market	0.227	0.418
AT33	AT	Tirol	Conservative-corporatist unitary rental market	0.248	0.404
AT34	AT	Vorarlberg	Conservative-corporatist unitary rental market	0.256	0.400
AT13	AT	Wien	Conservative-corporatist unitary rental market	0.372	0.468
DEB2	DE	Trier	Conservative-corporatist unitary rental market	0.124	0.329
DED4	DE	Chemnitz	Conservative-corporatist unitary rental market	0.140	0.276

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DE23	DE	Oberpfalz	Conservative-corporatist unitary rental market	0.140	0.310
DE26	DE	Unterfranken	Conservative-corporatist unitary rental market	0.165	0.293
DE22	DE	Niederbayern	Conservative-corporatist unitary rental market	0.174	0.302
DEE0	DE	Sachsen-Anhalt	Conservative-corporatist unitary rental market	0.175	0.259
DED2	DE	Dresden	Conservative-corporatist unitary rental market	0.185	0.306
DE24	DE	Oberfranken	Conservative-corporatist unitary rental market	0.189	0.293
DE27	DE	Schwaben	Conservative-corporatist unitary rental market	0.191	0.303
DE91	DE	Braunschweig	Conservative-corporatist unitary rental market	0.235	0.324
DED5	DE	Leipzig	Conservative-corporatist unitary rental market	0.239	0.329
DE94	DE	Weser-Ems	Conservative-corporatist unitary rental market	0.241	0.328
DEB1	DE	Koblenz	Conservative-corporatist unitary rental market	0.243	0.308
DE93	DE	Lüneburg	Conservative-corporatist unitary rental market	0.246	0.331
DE14	DE	Tübingen	Conservative-corporatist unitary rental market	0.247	0.319
DE21	DE	Oberbayern	Conservative-corporatist unitary rental market	0.249	0.350
DE11	DE	Stuttgart	Conservative-corporatist unitary rental market	0.250	0.328
DE25	DE	Mittelfranken	Conservative-corporatist unitary rental market	0.251	0.312
DE13	DE	Freiburg	Conservative-corporatist unitary rental market	0.252	0.325
DE40	DE	Brandenburg	Conservative-corporatist unitary rental market	0.256	0.272
DEG0	DE	Thüringen	Conservative-corporatist unitary rental market	0.262	0.286
DE92	DE	Hannover	Conservative-corporatist unitary rental market	0.263	0.323
DEA4	DE	Detmold	Conservative-corporatist unitary rental market	0.266	0.310
DEF0	DE	Schleswig-Holstein	Conservative-corporatist unitary rental market	0.267	0.363
DE80	DE	Mecklenburg-Vorpommern	Conservative-corporatist unitary rental market	0.269	0.340
DEB3	DE	Rheinhessen-Pfalz	Conservative-corporatist unitary rental market	0.270	0.334
DE12	DE	Karlsruhe	Conservative-corporatist unitary rental market	0.270	0.324
DEC0	DE	Saarland	Conservative-corporatist unitary rental market	0.275	0.300
DE72	DE	Gießen	Conservative-corporatist unitary rental market	0.285	0.323
DE73	DE	Kassel	Conservative-corporatist unitary rental market	0.291	0.324
DE71	DE	Darmstadt	Conservative-corporatist unitary rental market	0.292	0.339
DEA3	DE	Münster	Conservative-corporatist unitary rental market	0.294	0.339
DE60	DE	Hamburg	Conservative-corporatist unitary rental market	0.300	0.363
DEA5	DE	Arnsberg	Conservative-corporatist unitary rental market	0.303	0.306
DE30	DE	Berlin	Conservative-corporatist unitary rental market	0.307	0.404
DEA2	DE	Köln	Conservative-corporatist unitary rental market	0.333	0.346
DEA1	DE	Düsseldorf	Conservative-corporatist unitary rental market	0.337	0.325
DE50	DE	Bremen	Conservative-corporatist unitary rental market	0.383	0.392
FRH0	FR	Bretagne	Conservative-corporatist unitary rental market	0.229	0.368
FRC2	FR	Franche-Comté	Conservative-corporatist unitary rental market	0.239	0.345
FRI3	FR	Poitou-Charentes	Conservative-corporatist unitary rental market	0.241	0.368
FRK1	FR	Auvergne	Conservative-corporatist unitary rental market	0.242	0.348
FRB0	FR	Centre — Val de Loire	Conservative-corporatist unitary rental market	0.245	0.297
FRD1	FR	Basse-Normandie	Conservative-corporatist unitary rental market	0.245	0.361
FRY2	FR	Martinique	Conservative-corporatist unitary rental market	0.247	0.297

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FRI2	FR	Limousin	Conservative-corporatist unitary rental market	0.249	0.342
FRC1	FR	Bourgogne	Conservative-corporatist unitary rental market	0.250	0.355
FRY1	FR	Guadeloupe	Conservative-corporatist unitary rental market	0.250	0.364
FRG0	FR	Pays de la Loire	Conservative-corporatist unitary rental market	0.258	0.354
FRF2	FR	Champagne-Ardenne	Conservative-corporatist unitary rental market	0.267	0.317
FRD2	FR	Haute-Normandie	Conservative-corporatist unitary rental market	0.269	0.310
FRJ2	FR	Midi-Pyrénées	Conservative-corporatist unitary rental market	0.273	0.355
FRI1	FR	Aquitaine	Conservative-corporatist unitary rental market	0.273	0.355
FRF1	FR	Alsace	Conservative-corporatist unitary rental market	0.276	0.308
FRF3	FR	Lorraine	Conservative-corporatist unitary rental market	0.278	0.345
FRK2	FR	Rhône-Alpes	Conservative-corporatist unitary rental market	0.282	0.378
FRY4	FR	La Réunion	Conservative-corporatist unitary rental market	0.289	0.390
FRE2	FR	Picardie	Conservative-corporatist unitary rental market	0.291	0.321
FRJ1	FR	Languedoc-Roussillon	Conservative-corporatist unitary rental market	0.305	0.412
FRE1	FR	Nord-Pas de Calais	Conservative-corporatist unitary rental market	0.316	0.307
FRL0	FR	Provence-Alpes-Côte d'Azur	Conservative-corporatist unitary rental market	0.324	0.372
FRY5	FR	Mayotte	Conservative-corporatist unitary rental market	0.331	0.382
FRM0	FR	Corse	Conservative-corporatist unitary rental market	0.334	0.383
FR10	FR	Ile-de-France	Conservative-corporatist unitary rental market	0.336	0.301
FRY3	FR	Guyane	Conservative-corporatist unitary rental market	0.480	0.317
BE22	BE	Prov. Limburg (BE)	North-West European homeownership with a dual rental market	0.134	0.386
BE25	BE	Prov. West-Vlaanderen	North-West European homeownership with a dual rental market	0.147	0.376
BE23	BE	Prov. Oost-Vlaanderen	North-West European homeownership with a dual rental market	0.160	0.363
BE24	BE	Prov. Vlaams-Brabant	North-West European homeownership with a dual rental market	0.161	0.309
BE21	BE	Prov. Antwerpen	North-West European homeownership with a dual rental market	0.172	0.393
BE35	BE	Prov. Namur	North-West European homeownership with a dual rental market	0.210	0.335
BE33	BE	Prov. Liège	North-West European homeownership with a dual rental market	0.224	0.335
BE34	BE	Prov. Luxembourg (BE)	North-West European homeownership with a dual rental market	0.269	0.395
BE32	BE	Prov. Hainaut	North-West European homeownership with a dual rental market	0.285	0.256
BE31	BE	Prov. Brabant Wallon	North-West European homeownership with a dual rental market	0.334	0.401
BE10	BE	Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest	North-West European homeownership with a dual rental market	0.462	0.371
FI1D	FI	Pohjois- ja Itä-Suomi	North-West European homeownership with a dual rental market	0.137	0.446
FI19	FI	Länsi-Suomi	North-West European homeownership with a dual rental market	0.143	0.426
FI20	FI	Åland	North-West European homeownership with a dual rental market	0.143	0.388
FI1C	FI	Etelä-Suomi	North-West European homeownership with a dual rental market	0.152	0.395
FI1B	FI	Helsinki-Uusimaa	North-West European homeownership with a dual rental market	0.228	0.392
IE04	IE	Northern and Western	North-West European homeownership with a dual rental market	0.152	0.401
IE05	IE	Southern	North-West European homeownership with a dual rental market	0.201	0.415
IE06	IE	Eastern and Midland	North-West European homeownership with a dual rental market	0.244	0.386
LU00	LU	Luxembourg	North-West European homeownership with a dual rental market	0.180	0.272
CY00	CY	Kýpros	Southern European family-based homeownership	0.244	0.379

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EL54	EL	Ipeiros	Southern European family-based homeownership	0.457	0.517
EL61	EL	Thessalia	Southern European family-based homeownership	0.510	0.487
EL43	EL	Kriti	Southern European family-based homeownership	0.529	0.573
EL64	EL	Sterea Elláda	Southern European family-based homeownership	0.567	0.475
EL41	EL	Voreio Aigaio	Southern European family-based homeownership	0.577	0.620
EL42	EL	Notio Aigaio	Southern European family-based homeownership	0.582	0.643
EL62	EL	Ionia Nisia	Southern European family-based homeownership	0.593	0.632
EL51	EL	Anatoliki Makedonia, Thraki	Southern European family-based homeownership	0.631	0.493
EL53	EL	Dytiki Makedonia	Southern European family-based homeownership	0.647	0.564
EL30	EL	Attiki	Southern European family-based homeownership	0.669	0.344
EL65	EL	Peloponnisos	Southern European family-based homeownership	0.717	0.538
EL52	EL	Kentriki Makedonia	Southern European family-based homeownership	0.721	0.440
EL63	EL	Dytiki Elláda	Southern European family-based homeownership	0.806	0.517
ES41	ES	Castilla y León	Southern European family-based homeownership	0.250	0.379
ES21	ES	País Vasco	Southern European family-based homeownership	0.258	0.342
ES23	ES	La Rioja	Southern European family-based homeownership	0.272	0.372
ES12	ES	Principado de Asturias	Southern European family-based homeownership	0.280	0.390
ES24	ES	Aragón	Southern European family-based homeownership	0.286	0.357
ES22	ES	Comunidad Foral de Navarra	Southern European family-based homeownership	0.293	0.373
ES13	ES	Cantabria	Southern European family-based homeownership	0.300	0.361
ES11	ES	Galicia	Southern European family-based homeownership	0.314	0.406
ES43	ES	Extremadura	Southern European family-based homeownership	0.337	0.447
ES42	ES	Castilla-La Mancha	Southern European family-based homeownership	0.344	0.426
ES52	ES	Comunitat Valenciana	Southern European family-based homeownership	0.383	0.440
ES64	ES	Ciudad de Melilla	Southern European family-based homeownership	0.385	0.396
ES51	ES	Cataluña	Southern European family-based homeownership	0.389	0.389
ES30	ES	Comunidad de Madrid	Southern European family-based homeownership	0.395	0.354
ES62	ES	Región de Murcia	Southern European family-based homeownership	0.402	0.423
ES53	ES	Illes Balears	Southern European family-based homeownership	0.407	0.411
ES61	ES	Andalucía	Southern European family-based homeownership	0.442	0.440
ES70	ES	Canarias	Southern European family-based homeownership	0.481	0.419
ES63	ES	Ciudad de Ceuta	Southern European family-based homeownership	0.605	0.374
ITI2	IT	Umbria	Southern European family-based homeownership	0.181	0.399
ITH5	IT	Emilia-Romagna	Southern European family-based homeownership	0.193	0.383
ITH4	IT	Friuli-Venezia Giulia	Southern European family-based homeownership	0.197	0.382
ITF5	IT	Basilicata	Southern European family-based homeownership	0.233	0.402
ITI1	IT	Toscana	Southern European family-based homeownership	0.233	0.405
ITH1	IT	Provincia Autonoma di Bolzano/Bozen	Southern European family-based homeownership	0.235	0.437
ITH3	IT	Veneto	Southern European family-based homeownership	0.238	0.400
ITI3	IT	Marche	Southern European family-based homeownership	0.244	0.373
ITC3	IT	Liguria	Southern European family-based homeownership	0.254	0.410
ITC2	IT	Valle d'Aosta/Vallée d'Aoste	Southern European family-based homeownership	0.260	0.425

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ITF2	IT	Molise	Southern European family-based homeownership	0.269	0.485
ITC4	IT	Lombardia	Southern European family-based homeownership	0.276	0.376
ITH2	IT	Provincia Autonoma di Trento	Southern European family-based homeownership	0.290	0.420
ITC1	IT	Piemonte	Southern European family-based homeownership	0.320	0.374
ITI4	IT	Lazio	Southern European family-based homeownership	0.325	0.392
ITG2	IT	Sardegna	Southern European family-based homeownership	0.333	0.455
ITG1	IT	Sicilia	Southern European family-based homeownership	0.367	0.419
ITF1	IT	Abruzzo	Southern European family-based homeownership	0.371	0.387
ITF4	IT	Puglia	Southern European family-based homeownership	0.425	0.407
ITF3	IT	Campania	Southern European family-based homeownership	0.456	0.409
ITF6	IT	Calabria	Southern European family-based homeownership	0.517	0.427
MT00	MT	Malta	Southern European family-based homeownership	0.184	0.417
PT18	PT	Alentejo	Southern European family-based homeownership	0.215	0.335
PT16	PT	Centro (PT)	Southern European family-based homeownership	0.232	0.330
PT15	PT	Algarve	Southern European family-based homeownership	0.294	0.405
PT17	PT	Área Metropolitana de Lisboa	Southern European family-based homeownership	0.327	0.387
PT11	PT	Norte	Southern European family-based homeownership	0.358	0.348
PT30	PT	Região Autónoma da Madeira	Southern European family-based homeownership	0.370	0.315
PT20	PT	Região Autónoma dos Açores	Southern European family-based homeownership	0.469	0.317
EE00	EE	Eesti	Baltics	0.249	0.411
LT01	LT	Sostinės regionas	Baltics	0.343	0.313
LT02	LT	Vidurio ir vakarų Lietuvos regionas	Baltics	0.392	0.320
LV00	LV	Latvija	Baltics	0.351	0.328
BG41	BG	Yugozapaden	Central and Eastern Europe	0.490	0.125
BG33	BG	Severoiztochen	Central and Eastern Europe	0.496	0.205
BG42	BG	Yuzhen tsentralen	Central and Eastern Europe	0.591	0.226
BG34	BG	Yugoiztochen	Central and Eastern Europe	0.599	0.214
BG31	BG	Severozapaden	Central and Eastern Europe	0.599	0.202
BG32	BG	Severen tsentralen	Central and Eastern Europe	0.654	0.131
CZ03	CZ	Jihozápad	Central and Eastern Europe	0.236	0.269
CZ05	CZ	Severovýchod	Central and Eastern Europe	0.247	0.266
CZ02	CZ	Střední Čechy	Central and Eastern Europe	0.256	0.275
CZ06	CZ	Jihovýchod	Central and Eastern Europe	0.269	0.287
CZ07	CZ	Střední Morava	Central and Eastern Europe	0.278	0.315
CZ04	CZ	Severozápad	Central and Eastern Europe	0.326	0.285
CZ08	CZ	Moravskoslezsko	Central and Eastern Europe	0.340	0.284
CZ01	CZ	Praha	Central and Eastern Europe	0.360	0.350
HR05	HR	Grad Zagreb	Central and Eastern Europe	0.257	0.279
HR06	HR	Sjeverna Hrvatska	Central and Eastern Europe	0.269	0.265
HR03	HR	Jadranska Hrvatska	Central and Eastern Europe	0.296	0.303

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HR02	HR	Panonska Hrvatska	Central and Eastern Europe	0.319	0.328
HU22	HU	Nyugat-Dunántúl	Central and Eastern Europe	0.242	0.248
HU21	HU	Közép-Dunántúl	Central and Eastern Europe	0.255	0.236
HU11	HU	Budapest	Central and Eastern Europe	0.285	0.263
HU12	HU	Pest	Central and Eastern Europe	0.346	0.252
HU33	HU	Dél-Alföld	Central and Eastern Europe	0.352	0.305
HU23	HU	Dél-Dunántúl	Central and Eastern Europe	0.383	0.292
HU32	HU	Észak-Alföld	Central and Eastern Europe	0.406	0.323
HU31	HU	Észak-Magyarország	Central and Eastern Europe	0.545	0.296
PL84	PL	Podlaskie	Central and Eastern Europe	0.278	0.436
PL82	PL	Podkarpackie	Central and Eastern Europe	0.283	0.333
PL21	PL	Małopolskie	Central and Eastern Europe	0.290	0.370
PL92	PL	Mazowiecki regionalny	Central and Eastern Europe	0.293	0.391
PL91	PL	Warszawski stołeczny	Central and Eastern Europe	0.295	0.412
PL41	PL	Wielkopolskie	Central and Eastern Europe	0.296	0.368
PL52	PL	Opolskie	Central and Eastern Europe	0.303	0.375
PL22	PL	Śląskie	Central and Eastern Europe	0.304	0.347
PL81	PL	Lubelskie	Central and Eastern Europe	0.304	0.451
PL51	PL	Dolnośląskie	Central and Eastern Europe	0.310	0.423
PL71	PL	Łódzkie	Central and Eastern Europe	0.312	0.408
PL62	PL	Warmińsko-mazurskie	Central and Eastern Europe	0.318	0.381
PL43	PL	Lubuskie	Central and Eastern Europe	0.319	0.348
PL61	PL	Kujawsko-pomorskie	Central and Eastern Europe	0.333	0.404
PL72	PL	Świętokrzyskie	Central and Eastern Europe	0.339	0.421
PL63	PL	Pomorskie	Central and Eastern Europe	0.356	0.389
PL42	PL	Zachodniopomorskie	Central and Eastern Europe	0.364	0.363
RO11	RO	Nord-Vest	Central and Eastern Europe	0.454	0.233
RO32	RO	Bucureşti-Ilfov	Central and Eastern Europe	0.463	0.179
RO42	RO	Vest	Central and Eastern Europe	0.479	0.182
RO21	RO	Nord-Est	Central and Eastern Europe	0.493	0.343
RO31	RO	Sud-Muntenia	Central and Eastern Europe	0.535	0.199
RO41	RO	Sud-Vest Oltenia	Central and Eastern Europe	0.571	0.233
RO12	RO	Centru	Central and Eastern Europe	0.585	0.212
RO22	RO	Sud-Est	Central and Eastern Europe	0.660	0.228
SI04	SI	Zahodna Slovenija	Central and Eastern Europe	0.194	0.276
SI03	SI	Vzhodna Slovenija	Central and Eastern Europe	0.226	0.241
SK01	SK	Bratislavský kraj	Central and Eastern Europe	0.291	0.209
SK02	SK	Západné Slovensko	Central and Eastern Europe	0.326	0.210
SK03	SK	Stredné Slovensko	Central and Eastern Europe	0.363	0.206
SK04	SK	Východné Slovensko	Central and Eastern Europe	0.453	0.211

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