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Does the Level of Living Conditions of the Population Depend on the Place of Residence? – Rural and Urban Perspective of European Union Countries

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Agnieszka Kozera[1], Joanna Stanisławska[2], Cezary Kozera[3]

Abstract:

Purpose: *The main objective of the article is to assess the impact of place of residence (city vs. village) on the level of living conditions of the population in the countries of the European Union and to verify the research hypothesis that states, "In EU countries, the level of living conditions of the population in urban areas is significantly higher than in rural areas."*
Design/Methodology/Approach: *The subjects of the research were EU member states. The study focused on analysing living conditions and their variation based on the population's place of residence — rural and urban areas. Data from 2013 and 2023, sourced from Eurostat, were analysed. Descriptive statistics methods and the TOPSIS method were used to construct a composite measure of living conditions for populations living in urban and rural areas in EU countries.*
Findings: *The research indicated that the level of living conditions in rural areas is higher than in urban areas. Urban areas in the EU face issues such as overcrowding, as well as adverse environmental conditions that directly affect living standards — such as noisy surroundings and environmental problems.*
Practical Implications: *The findings have cognitive significance and practical applications for creating living conditions for populations in urban and rural areas within EU countries.*
Originality/value: *The conducted research fills a research gap regarding the lack of multifaceted analysis of differences in living conditions between urban and rural populations in EU countries. Previous studies encompassed the perspective of the entire EU but did not evaluate the internal variation in living conditions between populations residing in urban and rural areas.*

Keywords: *living conditions, quality of life, synthetic measure, urban areas.*

JEL codes: *I30, I32, I39,*

Paper type: *Research article.*

[1]*Department of Finance and Accounting, Faculty of Economics, Poznan University of Life Sciences, Poland, agnieszka.kozera@up.poznan.pl;*
[2]*The same as in 1.*
[3]*Department of Economics and Economic Policy in Agribusiness, Faculty of Economics, Poznan University of Life Sciences, Poland.*

1. Introduction

In the conditions of contemporary European societies, the level of life and social inequalities are key indicators of socio-economic development (Kalinowski, 2015). These issues are a central element of policy and social development strategies, resulting from significant ongoing differences in the standard of living and material deprivation of residents in European Union (EU) countries.

Among the factors determining the level of life, housing conditions hold a special place, as confirmed by studies including those by Spirkova and team (2017), Łuczak and Kalinowski (2020), and Kozera and team (2021). Housing is indeed a key element of the material sphere of human life, providing shelter, security, and satisfying basic needs essential for the development of higher-order needs (Matel, 2019). Its significance is universal and lasts throughout life, making housing conditions an important aspect of social policy. The lack of ability to meet housing needs leads to housing poverty, negatively affecting health, education, well-being, and increasing the risk of social exclusion (Kurowski and Broda-Wysocki, 2017; Stephens van Steen, 2011; Grecu *et al.*, 2024).

Over the years in the EU, a clear contrast has been noticeable between housing conditions in urban and rural areas. These differences significantly affect the quality of life of residents and their socio-economic prospects. Factors such as the availability and quality of infrastructure, level of wealth, access to services, and spatial policy play a key role in shaping housing standards. At the same time, these differences influence migration patterns, settlement patterns, and models of living among populations, highlighting the importance of territorial issues in EU policy.

The impact of place of residence, considered in terms of rural and urban areas, on the quality of housing conditions in EU countries, is particularly important in the context of striving for harmonization of living standards and reducing regional developmental disparities. Numerous studies concerning both Western Europe and Central-Eastern European countries indicate significant differences in living conditions arising from factors such as housing infrastructure, access to services, level of wealth, as well as local policies and support for less developed areas (Valceanu *et al.*, 2011; Alpopi *et al.*, 2014).

Previous studies assessing housing conditions have mainly focused on the overall picture of the situation in the EU (Kozera *et al.*, 2021; Piekut, 2024) or analysed phenomena in the context of individual countries (Głowicka-Wołoszyn *et al.*, 2021; Kolennikova, 2024; Jyothi *et al.*, 2024). However, there is a lack of multifaceted analyses that would capture the internal variation in housing conditions between residents of urban and rural areas across the entire EU. Filling this research gap is crucial for better understanding the challenges faced by the EU in striving for socio-economic cohesion.

The main objective of this article is therefore to assess the impact of place of residence (city vs. village) on the level of housing conditions for populations in EU countries. Empirical research was conducted to answer the following research questions:

- What differences occurred in the level of selected housing condition indicators of the population between urban and rural areas in EU countries in 2013 and 2023?
- Did the studied period see an improvement or deterioration in the housing conditions of the population living in urban and rural areas in EU countries?
- Were significant differences observed in the dynamics of changes in housing conditions of the population between urban and rural areas in the analysed EU countries?

Additionally, the studies aimed to verify the research hypothesis assuming that *"In EU countries, the level of housing conditions of the population in urban areas is significantly higher than in rural areas".*

2. Source Materials and Study Methods

The subject of the research was the EU member states (27 member states as of 2023, excluding Malta due to a lack of statistical data on the studied phenomenon). The studies focused on analysing the living conditions of the population and their differentiation based on residence: rural and urban areas. A total of 26 rural areas and 26 urban areas in EU countries were examined (52 entities). Data from 2013 and 2023 were analysed, and obtained from Eurostat (Database) (accessed: November 3, 2024).

To achieve the research objectives and verify the hypothesis, a two-stage empirical study was conducted, involving both univariate and multivariate analysis. In the first stage, basic descriptive statistical methods were used to assess the level, differentiation, and dynamics of changes in living conditions for the population in rural and urban areas in EU countries based on selected indicators. The second stage, due to the complex nature of the phenomenon, involved constructing a synthetic measure of living conditions using the TOPSIS method, which allows for evaluating the level and differentiation of the studied complex phenomenon.

The construction of the synthetic measure of living conditions proceeded in six steps, as presented in Table 1. In the first step, indicators (so-called simple characteristics) describing urban and rural areas in EU countries regarding living conditions were selected.

Based on substantive and statistical criteria as well as data availability at the level of urbanization degree, six indicators (considered as destimulants of the studied complex phenomenon) were included: housing cost overburden rate (%), overcrowding rate (%), persons living in a dwelling not comfortably warm during winter (%), severe housing deprivation rate (%), noise from neighbours or from the street (%), pollution,

grime or other environmental problems (%), crime, violence or vandalism in the area (%).

Table 1. *Stages of constructing the value of the synthetic measure of living conditions for populations residing in rural and urban areas in EU countries using the TOPSIS method*

Stages of proceedings		Description of stages	Details and calculator formulas
1	Selection of simple features for research	Substantive selection of simple features for research and their verification in terms of statistical significance	
2	Normalization of simple feature values	Utilization of the zeroed unitarization procedure	for stimulant: $z_{ik} = \frac{x_{ik} - min\{x_{ik}\}}{max\{x_{ik}\} - min\{x_{ik}\}}$ for destimulant: $z_{ik} = \frac{max\{x_{ik}\} - x_{ik}}{max\{x_{ik}\} - min\{x_{ik}\}}$ where: x_{ik} – value of the feature in the object, $min\{x_{ik}\}$ – minimum value for the *k*- feature, $max\{x_{ik}\}$ – maximum value for the *k*-feature
3	Determination of the coordinates of model objects of the pattern and anti-pattern of development	The coordinates of the pattern (*A*+) and the anti-pattern of development (*A*) are determined respectively as the maximum and minimum values from the set of normalized values	$A^+ = (\max_i(z_{i1}),\ \max_i(z_{i2}), \dots, \max_i(z_{ik})) = (z_1^+,\ z_2^+, \dots, z_k^+),$ $A^- = (\min_i(z_{i1}),\ \min_i(z_{i2}), \dots, \min_i(z_{ik})) = (z_1^-,\ z_2^-, \dots, z_k^-).$
4	Calculation of the distance of each object from the pattern and anti-pattern of development	Calculation of the distance of each evaluated *i*-th multi-feature object from the pattern and anti-pattern of development using Euclidean distance	$d_i^+ = \sqrt{\sum_{k=1}^{K}(z_{ik} - z_k^+)^2}$ $d_i^- = \sqrt{\sum_{k=1}^{K}(z_{ik} - z_k^-)^2}$
5	Calculation of the value of the synthetic measure	Using Euclidean distances from the pattern (d_i^+) and the anti-pattern of development (d_i^+) (TOPSIS method)	$S_i = \frac{d_i^-}{d_i^- + d_i^+}$

Source: *Own elaboration based on Wysocki (2010).*

In the second step, a zeroed unitarization procedure was applied to normalize the values of the studied simple features. All simple features were considered as destimulants of the examined complex phenomenon. In the third step, the coordinates of the model objects—the pattern and anti-pattern—were established based on the maximum and minimum values of the normalized simple feature values, respectively.

These coordinates were then used to calculate the Euclidean distances of the evaluated objects from the pattern and anti-pattern of development (Step IV). In the final, fifth step, the values of the synthetic measure (Si) for the living conditions of the population residing in urban and rural areas in the EU were calculated using the TOPSIS method. The obtained measure values were used to develop a ranking of countries and a typological classification based on the level of living conditions for populations in urban and rural areas in EU countries (Table 1).

3. Differentiation of Living Conditions in an Urban Context: City vs. Village – Theoretical Connotations

Housing is a place where we spend most of our time (Howden-Chapman *et al.*, 2021). It is a key element of the material sphere of human life and one of the most important aspects of household functioning. It provides shelter and a sense of security, enabling the fulfilment of basic physiological needs such as food, sleep, and protection from weather conditions. As a result, the development of higher-order needs, such as belonging, esteem, and self-actualization, becomes possible (Almusaed *et al.*, 2022; Oleńczuk-Paszel and Sompolska-Rzechuła, 2017; Tinson *et al.*, 2020; Wu, 2016; Wołoszyn *et al.*, 2021).

Housing, as a key element of the 2030 Agenda for Sustainable Development, plays an essential role in achieving sustainable development goals, both directly and indirectly. Providing adequate and affordable housing conditions brings measurable benefits to public health, education, and economic growth (Jyothi, 2024).

Adequate housing conditions provide numerous benefits for both individuals and society as a whole. A comfortable living space affects the quality of sleep, rest, and mental well-being. Maintaining appropriate hygiene standards, such as the absence of dampness and mould, reduces the risk of diseases and health problems (Tinson *et al.*, 2020). Housing also provides privacy and autonomy, allowing individuals to control their environment, which enhances their sense of independence (Fogel, 2019). In addition to its shelter function, housing protects against threats posed by harsh weather conditions and ensures safety, which is crucial for health and well-being.

Good housing conditions also foster family and social relationships and support personal development. Housing enables the pursuit of passions, interests, and skills, positively impacting productivity. It is also significant for education and work—access to a quiet, well-equipped space promotes success in learning and remote work (Piekut, 2024).

It is worth noting that the COVID-19 pandemic has significantly influenced people's perceptions and expectations regarding housing conditions (Ribeiro, 2021; Horne *et al.*, 2021). The period of isolation and mobility restrictions made people appreciate comfort, space, and access to green areas more. The advantages of rural areas became

particularly evident as they offer not only more living space but also cleaner air and better conditions for remote work.

These factors contributed to an increased interest in migrating from cities to rural areas, highlighting the critical role of residence in shaping quality of life. The pandemic also underscored the need to adapt housing and spatial policies to the changing needs of society, especially concerning providing adequate housing conditions in rural areas.

Housing conditions are a multidimensional phenomenon that describes the degree to which housing needs are met (Ćwiek *et al.*, 2014). They are defined as a set of factors related to the quality of life in one's place of residence and differ significantly depending on the type of inhabited area. The contrast between urban and rural areas pertains to many aspects such as the availability of technical infrastructure, quality of residential buildings, and access to public and social services.

Currently, the surrounding housing conditions play a significant role in shaping quality of life and housing standards. Factors such as noise levels, neighbourhood safety, availability of green spaces, and air quality significantly impact comfort and health. In urban areas, challenges often include excessive noise, high population density, and air pollution that can lower satisfaction with living conditions.

Conversely, rural areas may offer better access to cleaner air and natural surroundings but can struggle with limited infrastructural safety and lower availability of public services. As a result, the quality of the residential environment becomes a key element in analysing housing conditions, particularly in the context of sustainable development policy and improving quality of life (Di, 2024; Yuan, 2021).

According to social capital theory, cities and villages also differ in terms of social structure and levels of social integration, which affects housing quality. Rural residents often benefit from local social networks and family support that facilitate building and maintaining family homes (Putnam, 2000). On the other hand, in cities—despite better access to infrastructure—the high cost of living and expensive housing can lead to overcrowding phenomena and low availability for low-income individuals.

Higher-priced apartments, high property purchase costs, and rising rental prices pose additional barriers for many city residents—especially young people and low-income families—who struggle with limited options for renting or purchasing suitable homes. Consequently, overcrowding is more frequently observed in cities where the housing needs of less affluent individuals are harder to meet compared to rural areas (Murie *et al.*, 2004). Economic differences between urban and rural areas arise from their levels of economic development.

Cities offer higher employment levels and better wages due to capital concentration; however, these higher earnings are offset by rising living costs—particularly housing

costs—which often represent the largest expense for urban households. High living costs can lead to housing inequalities and exacerbate issues related to affordable housing availability.

In rural areas, due to lower incomes and limited access to financing, residents often lack opportunities to invest in modernizing their homes. However, lower living costs—including cheaper properties and lower rental prices—make rural areas offer more affordable housing conditions for low-income individuals despite infrastructural limitations.

4. Results of Empirical Research

4.1 Housing Conditions of the Population in Rural and Urban Areas in EU Countries in 2013 and 2023

One of the important indicators considered in assessing housing conditions in EU countries is the indicator of severe housing deprivation (Hick *et al.*, 2022). It shows what portion of society in a given country lives in conditions that deviate from accepted standards. A high value of the indicator means that there is a significant problem regarding access to adequate housing conditions, which can negatively affect health, education, and quality of life among residents.

The severe housing deprivation indicator measures the percentage of the population living in conditions deemed highly inadequate. It takes into account not only overcrowding but also other factors such as the lack of basic amenities (e.g., lack of a toilet, bathroom, or heating), the technical condition of the building (e.g., dampness on walls, floors, or foundations), and the availability of space.

Conducted studies have shown that the average level of severe housing deprivation in EU countries is relatively low, but higher in urban areas. In 2023, just over 3% of the total population in EU countries lived in severe housing deprivation; however, this figure was 4.4% in rural areas. During the studied period, which can be considered a concerning phenomenon, an increase was observed in urban areas—in 9 countries.

The highest increase in the percentage of people living in severe housing deprivation in urban areas was particularly noted in France (from 3.2% in 2013 to 7.3% in 2020) and Belgium (from 1.9% in 2013 to 5.2% in 2020) (Table 2). The high level of socio-economic development in France and Belgium is associated with rising living costs, especially in urban areas. Increasing property prices and rents (especially during the COVID-19 pandemic) can lead to situations where low-income individuals are unable to maintain a housing standard adequate to their needs, increasing housing deprivation levels. In cities where demand for housing exceeds supply, individuals with limited financial resources are more susceptible to worsening housing conditions.

In studies on the differentiation of severe housing deprivation levels within the European Union, it is noticeable that this problem is particularly pronounced in rural areas due to a number of structural and socio-economic factors. The highest level of deprivation concerns the rural population in Romania, where in 2020 as much as one-quarter of society was affected by this problem, and in Bulgaria, where severe housing deprivation affected just over one-tenth of the population.

However, it should be emphasized that Romania and Bulgaria also exhibit the largest disparity in housing deprivation levels between rural and urban areas. In Romania, for example, severe deprivation affected 24.4% of the rural population compared to less than 5% of the urban population. In countries like Romania and Bulgaria, there are significant disparities in access to public and social services between rural and urban areas.

Rural residents often have limited access to social assistance and programs aimed at improving housing conditions, which are more developed in urban areas. Significant migration from rural areas to cities has been observed in Romania and Bulgaria as people seek better living and working conditions. This migration can lead to the impoverishment of rural areas, which are left with a smaller, often older population with lower incomes, further exacerbating the issue of housing deprivation.

Table 2. *Descriptive statistics for the development of the severe housing deprivation indicator for populations residing in rural and urban areas in EU countries from 2013 to 2020 (%)*

Specification	2013			2020		
	rural areas	urban areas	overall	rural areas	urban areas	overall
Min	0.6	0.9	0.7	0.6	1.1	1.0
Q1	1.2	2.3	1.7	1.2	2.0	1.8
Median	3.7	4.1	4.0	2.3	4.4	3.1
Average	6.8	5.8	6.0	4.5	4.4	4.2
Q3	8.2	8.4	8.9	5.2	6.1	5.6
Max	31.4	15.8	22.8	24.4	12.2	14.3
Range	30.8	14.9	22.1	23.8	11.1	13.3

Note: *No data for the year 2023.*
Source: *Own calculations based on data from the Eurostat Database.*

From the perspective of assessing the housing conditions of the population, the housing cost overburden rate is taken into account. This indicator shows the percentage of households that allocate more than 40% of their net income to housing costs. These costs include expenses related to maintaining an apartment or house, such as rent, mortgage payments, utility bills (water, energy, heating), local taxes, maintenance, and other related housing costs.

This indicator reflects how large a portion of the population struggles with excessive housing costs. A high level of this indicator may indicate that many people have difficulties covering basic housing expenses, which also affects their ability to meet other needs, not only higher-order ones but also basic ones—such as food and health—impacting their quality of life.

The housing cost overburden rate often varies among different social groups, regions, or types of areas (rural and urban). A high rate in a given group may indicate economic inequalities and limited access to affordable housing for low-income individuals. For policymakers, this indicator is crucial in monitoring the effectiveness of housing and social policies. Changes in this rate may signal the need for interventions such as building social housing, rent regulations, or support for low-income individuals.

Empirical studies indicate that a higher rate of excessive housing costs primarily affects the urban population in the EU. In 2023, over 10% of households in urban areas allocated more than 40% of their net income to cover housing costs, representing a significant burden on household budgets (Table 3). Particularly unfavourable results were recorded for the urban population in Greece (31% in 2023), Denmark (23.3%), and Luxembourg (21.6%), where rates are significantly higher than the European average.

It is worth noting that although this issue mainly concerns cities, housing costs also constitute a significant portion of household expenditures in rural areas, especially in countries like Greece (nearly 25% in 2023) and Luxembourg (over 22%). In nine EU countries, the rate of excessive housing costs in rural areas was below 5%, while only five countries achieved similarly low values in cities. This indicates greater variability in housing conditions depending on the type of settlement and a tendency for higher burdens on household budgets among urban residents, where living costs and property prices are often higher.

In urban areas, especially in countries with developed real estate markets like Denmark and Luxembourg, housing prices are particularly high, which directly impacts greater burdens on households from housing costs. In some EU countries with lower levels of socio-economic development, such as Bulgaria, Croatia, or Romania, a higher level of excessive housing cost rates is observed in rural areas, which may result from limited access to infrastructure and housing options. Countries with well-developed support systems, such as rent subsidies or access to social housing, can effectively reduce the rate of excessive housing costs. In countries where such support is less developed, this issue becomes more acute for society.

On a European scale, a positive trend can be seen in reducing the problem of excessive housing costs between 2013 and 2023, which may indicate improved housing availability and the effectiveness of social and housing policies in many states. An exception is Luxembourg, where this rate has significantly increased both in rural (by 17.8 percentage points) and urban areas (by 13 percentage points). Such changes may

result from rising property prices and an influx of immigrants that has increased demand for housing.

Additionally, it is worth emphasizing that in several EU countries such as Bulgaria, Croatia, or Romania, the rate of excessive housing costs is higher in rural areas than in urban ones. In these countries, the level of socio-economic development is lower, which translates into poorer access to social housing and less developed infrastructure, increasing living costs in rural regions.

Table 3. *Descriptive statistics for the formation of the housing cost overburden rate for rural and urban areas in EU countries from 2013 to 2023 (%)*

Specification	2013			2023		
	rural areas	urban areas	overall	urban areas	rural areas	overall
Min	2.2	2.5	2.5	0.7	3.4	2.6
Q1	4.8	8.6	6.6	4.3	6.1	5.6
Median	7.8	11.6	8.9	5.7	8.5	7.2
Average	9.3	12.4	10.5	7.8	10.1	8.7
Q3	10.6	14.0	13.0	9.5	11.5	9.2
Max	34.4	39.6	36.9	24.7	31.0	28.5
Range	32.2	37.1	34.4	24.0	27.6	25.9

Source: *Own calculations based on data from the Eurostat Database.*

With socio-economic development, environmental aspects are playing an increasingly important role in assessing the housing conditions of the population. Ecological problems, such as air pollution, directly affect the level of housing conditions by negatively impacting residents' health, reducing the aesthetics and attractiveness of properties, and accelerating infrastructure degradation. Residents of areas with high pollution levels generally experience a lower quality of life, which influences their subjective perception of housing conditions as worse. In the long term, this can lead to a decline in property values in areas affected by high levels of pollution.

Research shows that the average level of environmental problems affecting housing conditions, and the quality of life is higher in urban areas than in rural areas (Table 4). Urban areas are also characterized by significantly greater variability regarding these problems, suggesting that some groups of residents are more exposed to their effects. In 2023, particularly high percentages of people reporting environmental problems in their place of residence were recorded among the urban population in Greece (35.3%), as well as in Belgium, Germany, France, and Latvia (over 20%). Despite generally more favourable conditions in rural areas, in some countries such as Cyprus, Latvia, Hungary, Portugal, and Slovenia, over 10% of the rural population also reported the impact of environmental problems on their housing conditions.

A comparison of data from 2013 and 2023 indicates an overall decrease in the percentage of the population reporting environmental problems, both in rural and urban areas in most EU countries, which should be regarded as a positive trend.

However, in several countries—Denmark, Ireland, France, and Finland—a rise in the percentage of residents reporting environmental problems was observed, both in cities and rural areas.

Urban areas are more susceptible to environmental problems due to high population density, intense car traffic, and proximity to industrial sources. The high level of urbanization and industrialization generates air pollution, noise, and degradation of urban aesthetics, which negatively affects perceptions of housing conditions.

The decrease in the percentage of people reporting environmental problems in their place of residence in most EU countries may indicate the effectiveness of pro-environmental policies and investments in infrastructure modernization and low-emission economy development. Improvements in air quality, development of green spaces, and better waste management may have contributed to reducing the impact of pollution on housing conditions.

Another of the analysed indicators, namely the percentage of the population living in a dwelling not comfortably warm during winter, presented by Eurostat, measures the percentage of the population that is unable to maintain a comfortable temperature in their place of residence during the winter season. This is an important indicator in the context of energy poverty and the quality of housing conditions. This indicator is a key measure of energy poverty, which refers to the situation where households do not have sufficient financial resources to cover heating costs.

A high level of this indicator may mean that many people cannot afford to maintain a comfortable temperature, which can have negative effects on health and quality of life. The problem of maintaining a comfortable temperature at home may also result from the poor technical condition of buildings. Drafty windows, lack of thermal insulation, or outdated heating systems can make heating costs too high or render heating systems insufficient. This indicator may also reflect low energy efficiency in buildings. Countries and regions with low energy efficiency may experience higher values of this indicator, indicating a need for investment in building modernization and improvement of insulation.

Empirical studies have shown that the percentage of the population living in inadequately heated dwellings during winter remains relatively high in EU countries, both in rural and urban areas, exceeding 13% (Table 5). However, this phenomenon is significantly regionally diverse, reflecting different economic conditions, levels of infrastructure, and the effectiveness of social and energy policies in individual countries.

Table 4. *Descriptive statistics for the formation of the indicator illustrating pollution, grime or other environmental problems for rural and urban areas in EU countries from 2013 to 2023 (%)*

Specification	2013			2023		
	rural areas	urban areas	overall	urban areas	rural areas	overall
Min	3.2	5.5	4.6	2.7	6.2	4.2
Q1	6.1	12.8	10.4	5.3	11.8	8.0
Median	10.3	17.6	14.6	6.9	13.7	10.5
Average	9.2	19.0	14.6	7.2	16.1	11.9
Q3	11.5	22.0	16.5	9.1	17.7	14.8
Max	16.5	42.7	40.2	12.3	42.9	34.7
Range	13.3	37.2	35.6	9.6	36.7	30.5

Source: *Own calculations based on data from the Eurostat Database.*

The highest values were recorded in Portugal, where as much as 41% of the rural population and 38% of the urban population struggle with inadequate heating during winter. Similarly, in Ireland, where the rate is 29.4% in rural areas and 37.8% in cities, indicating serious challenges related to energy poverty and limited thermal insulation in residential buildings there.

In countries such as France and Greece, the problem of inadequate heating is more visible across different types of areas: in France, a higher percentage concerns the urban population (32%), while in Greece, a greater problem occurs in rural areas (29.6%). This may result from differences in building structures and access to resources for modernizing buildings in both types of areas.

The lowest percentage of people living in inadequately heated dwellings is found in countries such as Slovenia (below 5%), Estonia (4.3%), the Netherlands (4.9%), and Austria (3.7%). The low values in these countries may result from more advanced insulation technologies and effective social programs supporting heating expenditures.

The largest disparities between rural and urban areas were observed in Lithuania, where the difference is as much as 14 percentage points against rural areas, and in Bulgaria, where the disparity is nearly 10 percentage points. These differences may be due to poorer energy infrastructure in rural areas and lower income levels, which affect the ability to maintain an appropriate temperature during winter.

A high percentage of people living in unheated apartments indicates significant issues with energy poverty, particularly in regions with low energy efficiency of buildings. Regional differences within the EU may reflect climatic conditions, social policy, and the availability of heating infrastructure. Countries with higher rates, such as Portugal and Ireland, require political support for improving energy efficiency and financial assistance for the poorest households

Table 5. *Descriptive statistics for the formation of the indicator illustrating the percentage of the population living in a dwelling not comfortably warm during winter for rural and urban areas in EU countries in 2023 (%)*

Specification	rural areas	urban areas	overall
Min	1.9	3.5	3.7
Q1	6.7	7.5	6.7
Median	13.7	13.1	14.0
Average	15.3	15.5	15.3
Q3	23.7	19.1	19.7
Max	41.0	38.0	38.0
Range	39.1	34.5	34.3

Note: *No data for the year 2013.*
Source: *Own calculations based on data from the Eurostat Database.*

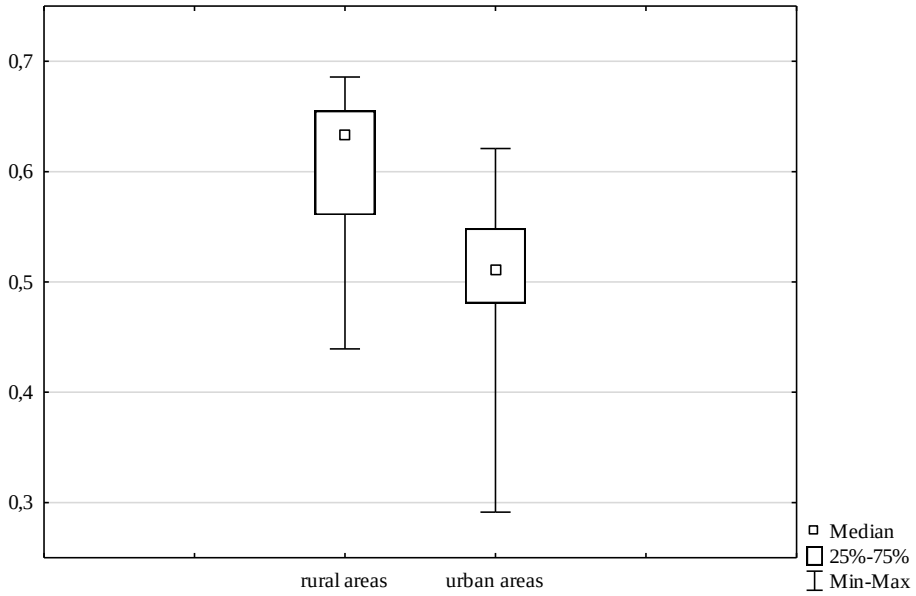
4.2 Synthetic Assessment of the Housing Conditions of the Population Living in Rural and Urban Areas in the Countries of the European Union

Housing conditions of the population are a complex and multidimensional phenomenon (Ulman 2011; 2016; Głowicka-Wołoszyn *et al.*, 2019), therefore, their measurement and assessment of variation between EU countries in the rural-urban cross-section were conducted using the TOPSIS method.

Values of the synthetic indicator measuring the level of housing conditions for populations residing in rural and urban areas in EU countries were constructed for the year 2023. In total, the study covered 52 units (excluding urban and rural areas in Malta due to lack of statistical data).

The research showed that the average level of housing conditions in the EU is higher for the population residing in rural areas compared to urban areas (Figure 1). The median value of the synthetic indicator (S_i) for housing conditions in rural areas was 0.63, while for urban areas it was 0.51. The highest level of housing conditions was characterized by rural areas in Austria (S_i = 0.68), while the lowest was found in urban areas in Greece (S_i = 0.29). In rural areas, a significantly higher value of the interquartile range of the synthetic indicator was also observed compared to urban areas. Based on the values of the synthetic indicator measuring housing conditions, the studied units were ordered in a non-decreasing manner. Then, ranks (positions among the studied units) were assigned to them, and a typological classification was conducted, distinguishing classes of units with *high*, *medium higher*, *medium lower*, and *low* levels of housing conditions (Tables 6 and 7).

***Figure 1**. Box plot for the synthetic indicator of housing conditions for populations residing in rural and urban areas in EU countries*



***Source:** Calculations based on data from the Eurostat Database.*

Only in the case of three countries – Cyprus, Hungary, and Romania – were the living conditions of the population residing in rural and urban areas at a similar level, allowing them to be classified into the same typological class. In Cyprus and Hungary, these conditions were rated as average to higher, while in Romania, they were rated as low.

In Greece and Bulgaria, relatively small differences in living conditions between rural and urban areas were observed; however, in both cases, this level was rated as average to lower and low, respectively. Similarly small disparities were noted in Estonia, where living conditions in rural areas were at a high level (8th place out of 52 analysed units, Class I), while urban areas were rated as average to higher (19th place, Class II) (Table 7).

The greatest differentiation in living conditions between rural and urban areas was observed in France, Belgium, and Austria. In France, there is significant variation in living conditions between rural and urban areas. While living conditions in villages are generally higher, urban areas face numerous problems that negatively impact residents' quality of life. For instance, over 32% of people in cities live in homes that are inadequately heated during winter, leading not only to discomfort but also potential health consequences. Additionally, nearly 30% of urban residents in France struggle with noisy environments. Noise in cities can be linked to traffic, industrial

activity, or entertainment, which may affect stress levels, sleep quality, and overall mental health.

Table 6. *Ranking and level of housing conditions for populations residing in rural and urban areas in EU countries in 2023*

Specification	Rural areas			Urban areas		
	Value of the synthetic indicator (S_i)	Position in ranking	Level of housing conditions (typological class)	Value of synthetic indicator (S_i)	Position in ranking	Level of housing conditions (typological class)
Belgium	0.69	1	1	0.50	40	3
Austria	0.68	2	1	0.49	42	3
Netherlands	0.67	3	1	0.53	31	3
Finland	0.67	4	1	0.55	28	3
Slovenia	0.66	5	1	0.58	20	2
Czechia	0.66	6	1	0.53	34	3
Denmark	0.66	7	1	0.50	39	3
Estonia	0.65	8	1	0.59	19	2
Ireland	0.65	9	1	0.55	27	3
Germany	0.64	10	1	0.48	43	3
France	0.64	11	1	0.40	50	4
Sweden	0.64	12	2	0.55	29	3
Cyprus	0.64	13	2	0.62	15	2
Spain	0.63	14	2	0.51	36	3
Luxembourg	0.61	16	2	0.48	44	3
Italy	0.60	18	2	0.49	41	3
Croatia	0.58	21	2	0.53	33	3
Lithuania	0.57	22	2	0.53	32	3
Hungary	0.57	23	2	0.60	17	2
Portugal	0.56	24	2	0.47	46	3
Poland	0.56	25	2	0.51	37	3
Slovakia	0.56	26	2	0.54	30	3
Latvia	0.52	35	3	0.40	51	4
Bulgaria	0.50	38	3	0.42	49	4
Greece	0.48	45	3	0.29	52	4
Romania	0.44	48	4	0.45	47	4

Note: *Linear ordering according to non-increasing values of the synthetic indicator of housing conditions for the population in rural areas of EU countries. Due to the lack of data, rural and urban areas in Malta were not included in the studies*

Source: *Calculations based on data from the Eurostat Database.*

Table 7. *Inter-class differentiation of indicator values illustrating living conditions for populations residing in rural and urban areas in EU countries in 2023 (average values – medians)*

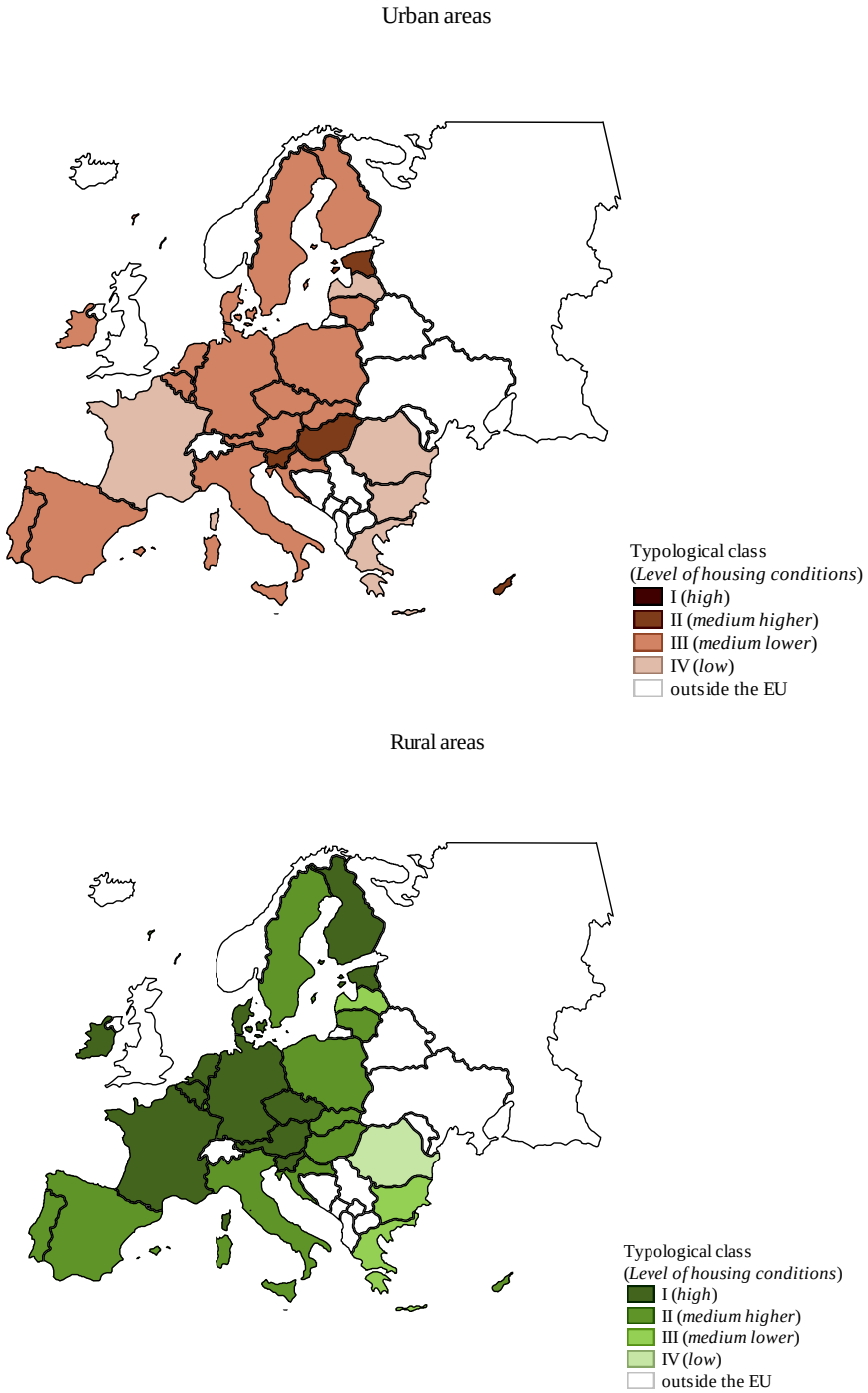
Specification	Typological class (*level of housing conditions*)				Total
	I *high*	II *medium higher*	III *medium lower*	IV *low*	
Number of study units	11	15	20	6	52
including the number of rural study units	11	11	3	1	26
Housing cost overburden rate (%)	5.7	5.6	10.1	9.3	7.1
Overcrowding rate (%)	5.6	14.5	21.3	40.8	14.7
Persons living in a dwelling not comfortably warm during winter (%)	5.8	16.4	13.2	17.8	13.2
Severe housing deprivation rate (%)	1.3	4.2	4.5	6.9	3.9
Noise from neighbours or from the street (%)	10.8	11.2	17.7	23.4	13.8
Pollution, grime or other environmental problems (%)	7.0	8.1	12.4	19.7	10.2
Crime, violence or vandalism in the area (%)	4.2	5.0	12.7	16.9	6.8

Source: *Calculations based on data from the Eurostat Database.*

A *high* level of living conditions was represented by 11 surveyed units that formed Class I (21% of the surveyed units). These were exclusively rural areas (Tables 6 and 7). High living conditions distinguished rural areas characterized by the lowest percentage of people living in overcrowded housing, suffering from severe housing deprivation, and with low levels of environmental problems. Meanwhile, a *medium higher* of living conditions was recorded for 15 surveyed units (29% of the surveyed entities), of which as many as 11 were rural areas in selected countries.

A *medium lower* level of living conditions distinguished 20 surveyed units (nearly 39%), with the majority – 17 – being urban areas. Conversely, a *low* level of living conditions characterized 6 surveyed units (11.5%), with only 1 being a rural area (Romania). Class IV stood out with the weakest average values for all studied partial characteristics of the living conditions of the population. In this group of countries, particularly significant problems were noted regarding overcrowding (over 40%) and unfavourable environments – noise (over 23%) and environmental issues (nearly 20%).

Figure 2 (Urban, Rural). *Spatial delimitation of the level of living conditions for the population in urban and rural areas in the countries of the European Union in 2023*



Source: *Own study.*

Empirical studies have shown that in most rural areas of EU countries, the level of living conditions is higher compared to urban areas. Only in the case of two countries – Hungary and Romania – was the level of living conditions in urban areas slightly higher than in rural ones (differences in ranks), but ultimately these units were classified into the same typological classes. The majority of rural areas in EU countries (42,3%) were classified I and II, which correspond to *high* and *medium higher* levels of living conditions for the population. In contrast, a significant portion of urban areas in EU countries (42.3%) formed Classes III and IV, characterized by *medium lower* and *low* levels of living conditions.

The results obtained confirmed previous studies by Siedlecka (2018) and negatively verified the research hypothesis assuming that in EU countries the level of living conditions for the population in urban areas is significantly higher than in rural areas.

5. Summary and Practical Implications

Housing conditions are a significant element in assessing the quality of life of the population and a key indicator of socio-economic development in EU countries. In light of contemporary challenges such as rising living costs (including energy costs), demographic changes, and the impacts of the COVID-19 pandemic, analysing housing situations has gained particular importance. Findings from conducted research allow for a deeper understanding of the complex relationships between housing conditions and place of residence, while also considering regional diversity within the European community.

Research has shown that although the average level of severe housing deprivation in EU countries is relatively low, this phenomenon is intensifying in cities, especially in countries with high socio-economic development like France and Belgium. The increase in living costs, particularly property prices and rents during the COVID-19 pandemic, has heightened the vulnerability of low-income individuals to housing deprivation in urban areas where demand for housing exceeds supply.

Simultaneously, studies indicate that the issue of housing deprivation is more pronounced in rural areas due to limited access to public and social services and lower levels of infrastructure. Examples from Romania and Bulgaria illustrate a significant disparity in deprivation levels between rural and urban areas, where rural populations, lacking access to appropriate support programs and opportunities to improve housing conditions, face higher levels of deprivation.

Conducted studies highlight significant differences in housing conditions based on place of residence and the specific characteristics of individual EU regions. Research has revealed a clear distinction in housing conditions between rural and urban areas in the EU, with more favourable conditions prevailing in rural regions. The average value of the synthetic measure for housing conditions was higher for rural populations

than for urban ones, indicating a relatively higher level of comfort in rural housing conditions.

The studies also uncovered notable differences among countries regarding the phenomenon studied. In Greece and Bulgaria, minor disparities were recorded between housing conditions in rural and urban areas; however, both had average lower values on the synthetic measure for housing conditions. France exhibited significant variation in housing conditions between urban and rural areas, where urban regions face numerous issues such as lack of heating in winter and noise pollution, which diminishes the quality of life in cities.

It is worth noting that only in three countries (Cyprus, Hungary, Romania) were the differences between housing conditions in rural and urban areas so minimal that they were classified into the same typological categories. These regions are characterized by less developed economic structures, limited access to infrastructure and public services, and lower levels of housing infrastructure. These factors contribute to difficulties in raising living standards for residents and improving their living conditions, ultimately leading to restricted socio-economic development opportunities.

Although EU countries strive to reduce inequalities through various programs and funds, in some nations these resources may be underutilized or poorly managed. In Romania and Bulgaria, despite support from European funds, administrative constraints and a lack of effective local development programs can diminish the effectiveness of efforts aimed at improving housing conditions.

Furthermore, environmental issues significantly impact housing conditions, particularly in urban areas where population density and industrial activity exacerbate pollution effects. The trend of declining percentages of people reporting environmental problems across most EU countries is a positive sign indicating the effectiveness of pro-environmental policies.

However, challenges remain prevalent in states where this percentage has increased, necessitating further actions at both national and local levels to mitigate the effects of environmental degradation on residents' quality of life and housing conditions. Meanwhile, housing conditions in cities, despite high regional wealth, continue to pose challenges that require further investments and policy implementations aimed at enhancing urban community quality of life.

The conducted studies emphasize the need for creating sustainable and affordable housing policies that address specific challenges faced by both urban and rural areas within the EU. In Western European and Nordic urban regions where high property costs and income inequalities limit access to comfortable housing, actions supporting affordable housing construction and favourable rental regulations are necessary to maintain a higher standard of living. In rural areas, especially in Eastern and Southern

Europe, investments in basic infrastructure such as water supply systems, sewage systems, and roads are essential to improve housing conditions and support socio-economic development. Research findings also indicate the necessity for creating support programs for modernizing homes, such as building insulation and noise protection measures—particularly important for city residents where these issues diminish the quality of life.

Additionally, it is crucial to develop pro-environmental policies aimed at reducing air pollution and supporting green urban spaces to counteract negative environmental impacts on residents. Moreover, in countries like Romania and Bulgaria where European funds do not always yield expected results, streamlining management processes and more efficient use of available resources is vital to accelerate improvements in housing conditions and reduce regional inequalities.

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