

Household Overcrowding and Income Poverty: Insights from Poland

Hanna Dudek

Warsaw University of Life Sciences

e-mail: hanna_dudek@sggw.edu.pl

ORCID: [0000-0001-8261-2745](https://orcid.org/0000-0001-8261-2745)

©2024 Hanna Dudek

This work is licensed under the Creative Commons Attribution-ShareAlike 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-sa/4.0/>

Quote as: Dudek, H. (2024). Household Overcrowding and Income Poverty: Insights from Poland. *Silesian Statistical Review*, 22(28), 21-30.

JEL: I32, C25, H31

Abstract: The paper aims to assess the issues of overcrowding and income poverty in Poland and identify the socio-economic factors associated with these problems. To achieve these objectives, a multinomial logit model is applied to analyse data from the 2022 European Union Statistics on Income and Living Conditions (EU-SILC) survey. The study reveals that overcrowding and income poverty do not fully overlap. It identifies significant associations between these issues and factors such as the degree of urbanisation of the residence, the housing tenure status, the household type, and the educational level of its members. Moreover, it was found that households with disabled individuals, unemployed members, and households of two adults with three or more children are particularly vulnerable. These findings highlight the need for targeted policy measures to address different aspects of poverty.

Keywords: household, overcrowding, income poverty, EU-SILC, multinomial logit model

1. Introduction

Providing adequate housing conditions is one of the most fundamental aspects of the existence and functioning of a household. Dwelling overcrowding is an indicator of housing deprivation (Dudek & Wojewódzka-Wiewiórska, 2024; Hick et al., 2022). It can reflect a community's low socio-economic status and significantly impact various aspects of quality of life (Hosseini et al., 2021). This issue arises not only in developing countries but also within the European Union (EU) (Hick et al., 2022; Sunega & Lux, 2016).

The overcrowding situation in Poland is unfavourable compared to the rest of European Union countries (Ćwiek et al., 2024; Głowicka-Wołoszyn et al., 2021; Kozera et al., 2017; Milewska-Wilk & Nowak, 2022; Wojewódzka-Wiewiórska & Deák, 2024). Historical factors largely shape the current housing situation in Poland. The destruction caused by the First and Second World Wars, combined with the lack of resources allocated to housing policy between 1945 and 1989, has led to a persistent housing shortage (Kucharska-Stasiak, 2016; Ulman & Ćwiek, 2021). The liberalization of the housing market after 1989 resulted in social disparities in the quality of the housing stock (Głowicka-Wołoszyn et al., 2021). Today, there is still a housing deficit. Despite the observed increase in the number of dwellings in Poland, the housing shortage issue, as measured by the so-called overcrowding index, remains significant (Ulman & Ćwiek, 2020).

Levels of overcrowding higher than those in Poland were recorded in Romania, Bulgaria, and Latvia, whereas countries such as the Netherlands, Belgium, and Luxembourg are characterised by low levels of overcrowding. This may suggest that overcrowding is more prevalent in poorer countries. The link between overcrowding and household income may seem obvious, although Grzybowska et al. (2024) found that income is not the most significant determinant of overcrowding in the Visegrad Group countries. Therefore, it is reasonable to investigate overcrowding in Polish income-poor and non-income-poor households.

The 2022 EU Statistics on Income and Living Conditions (EU-SILC, 2022) data were used to describe the phenomena of overcrowding and income poverty. In the study, four scenarios are considered: (1) not being income-poor and not living in overcrowded households, (2) experiencing only income poverty, (3) experiencing only overcrowding, and (4) living in income-poor and overcrowded households. The multinomial logit model was applied to analyse the probabilities of these different scenarios based on the socio-economic characteristics of households.

The study poses the following research hypotheses.

Hypothesis 1: overcrowding affects a larger proportion of Polish households than income poverty.
Hypothesis 2: key characteristics significantly linked to overcrowding and income poverty include housing tenure status, household type, the education level of household members, the degree of urbanisation of the place of household residence, and the presence of disabled or unemployed individuals in the household.

Hypothesis 3: households consisting of two adults and at least three children are less likely to avoid both overcrowding and income poverty than other household types.

The paper is structured as follows. The first section is the introduction, where a brief literature review on housing overcrowding in Poland is presented. Next, the data and research methods are described. The following section details the empirical results and discussion, while the final section provides a summary and conclusions.

2. Material and Method

2.1. Data Interface Evaluation Methods

The study investigates household-level overcrowding and income poverty using cross-sectional data from the 2022 EU-SILC survey. The EU-SILC complies with obligatory European regulations, recognising the data as official microdata. It primarily serves as a tool for social policy, addressing the informational needs of policymakers and facilitating social monitoring at a European scale. It offers an extensive repository for empirical studies on various aspects, including different forms of poverty, health, and well-being within the European Union (EU) (Wirth & Pforr, 2022). The EU-SILC is a representative sample survey in which households and individuals were selected

through a multi-stage random sampling method. The study's sample includes 19,757 Polish households from the 2022 wave (EU-SILC, 2022).

According to the Eurostat definition, a household is considered overcrowded if it lacks a minimum number of rooms equivalent to:

- one room for the household,
- one room per couple within the household,
- one room for each individual aged 18 or older,
- one room per pair of single individuals of the same gender aged 12 to 17,
- one room for each single individual aged 12 to 17 not included in the previous category,
- one room per pair of children under 12 years of age (Eurostat 2024).

A household is considered income-poor if its equivalent income falls below the poverty line, which was €447 for single-person households in Poland in 2022.

The following socio-economic and demographic household features as potential explanatory variables are considered in the econometric analysis:

- tenure status (the variable with five categories: 1 – outright owner, 2 – owner paying the mortgage, 3 – tenant or subtenant paying rent at prevailing or market rate, 4 – accommodation is rented at a reduced rate (lower price than the market price), 5 – accommodation is provided free),
- unemployment (presence of unemployed in the household, binary variable),
- disability (presence of disabled in the household, binary variable),
- education (highest education level of household members, the variable with three response categories: 1 – lower than upper secondary, 2 – upper secondary, 3 – tertiary),
- degree of urbanization (the variable with three categories: rural areas – thinly populated area, towns – intermediate area, cities – densely populated area),
- household type (the variable with nine categories: 1 – single-person, 2 – two adults (both adults under 65 years), 3 – two adults 65+ (at least one adult ≥ 65 years), 4 – two adults with one dependent child, 5 – two adults with two dependent children, 6 – two adults with at least three dependent children, 7 – single-parent, 8 – other with dependent children, 9 – other without dependent children).

2.2. Method

In this study, a multinomial model approach is applied. It is assumed that the outcome, y_i , for the i -th household is one of the m alternatives. The outcome is denoted as $y_i = j$ it corresponds to the j -th alternative, $j = 1, 2, \dots, m$. The probability that the outcome for the i -th household is alternative j , conditional on the regressors $\mathbf{x}_i$, is expressed as (Cameron & Trivedi, 2022):

$$P(y = j | \mathbf{x}_i) = F_j(\mathbf{x}_i, \boldsymbol{\beta}), j = 1, 2, \dots, m, i = 1, 2, \dots, n, \quad (1)$$

where different functional forms $F_j(\cdot, \cdot)$ correspond to different multinomial models, wherein as probabilities sum to one,

$$\sum_{j=1}^m F_j(\mathbf{x}_i, \boldsymbol{\beta}) = 1. \quad (2)$$

In this research, the multinomial logit model is used, which is specified as:

$$P(y = j | \mathbf{x}_i) = \frac{\exp(\mathbf{x}_i^T \boldsymbol{\beta}_j)}{\sum_{l=1}^m \exp(\mathbf{x}_i^T \boldsymbol{\beta}_l)}, j = 1, 2, \dots, m, \quad (3)$$

where $\boldsymbol{\beta}_l$ ($l = 1, 2, \dots, m$) is the vector of parameters to be estimated, m is number of categories, $i = 1, 2, \dots, n$, n is sample size.

To ensure model identification, β_j is set to zero for one of the categories, which is referred to as the base category. Specifically, assuming the outcome of one as the base category, the predicted probabilities are calculated as (Hardin & Hilbe, 2018):

$$P(y = j | \mathbf{x}_i) = \begin{cases} \frac{1}{1 + \sum_{l=2}^m \exp(\mathbf{x}_i^T \beta_l)} & \text{for } j = 1 \\ \frac{\exp(\mathbf{x}_i^T \beta_j)}{1 + \sum_{l=2}^m \exp(\mathbf{x}_i^T \beta_l)} & \text{for } j = 2, \dots, m. \end{cases} \quad (4)$$

In this study, the outcome variable analysed has four categories:

- 1 – experiencing neither income poverty nor overcrowding,
- 2 – being only income-poor,
- 3 – experiencing only overcrowding,
- 4 – experiencing both income poverty and overcrowding.

The parameters of multinomial models are generally not directly interpretable. Specifically, a positive coefficient does not necessarily mean that an increase in the regressor leads to a higher probability of an outcome being selected. Instead, in this study, average marginal effects (AMEs) are computed.

In the multinomial logit model, the marginal effects illustrate how probabilities shift when the regressor increases by one unit. Specifically, for a binary variable X_r , they demonstrate how $P(y = j)$ changes as X_r shifts from 0 to 1 while holding the other variables in the model constant. However, marginal effects are dependent on the value of X_r and the values of all other regressors. To determine the average marginal effect (AME), one must first compute the marginal effect for each observation using its actual values and then average those marginal effects. There are as many marginal effects as observations in the analysis for a given explanatory variable. AME then represents the average of those marginal effects. Therefore, AME can be interpreted as the change in the probability of the outcome category associated with a one-unit change in the explanatory variable.

Hypothesis tests for model parameters are conducted using the Wald and likelihood-ratio tests. The Wald test can be applied to evaluate hypotheses involving single parameters, while the likelihood-ratio test can assess single and multiple parameters (Long & Freese, 2006). In this study, both tests are used, with the likelihood-ratio test specifically examining the influence of key household characteristics on overcrowding and income poverty.

All computations used the cross-sectional household weights provided by the EU-SILC. Statistical analyses were conducted using the Stata software.

3. Results and Discussion

Figure 1 illustrates the prevalence of the four analysed scenarios among Polish households in 2022, highlighting that overcrowding and income poverty do not fully overlap. The results reveal that 21% of households experienced overcrowding only, 7% were solely income-poor, and 9% faced both overcrowding and income poverty simultaneously. These findings confirm the first hypothesis.

To better understand the probabilities of various scenarios, the parameters of the multinomial logit model were estimated. The average marginal effects are shown in Tab. 1, and detailed parameter estimates are provided in the Appendix.

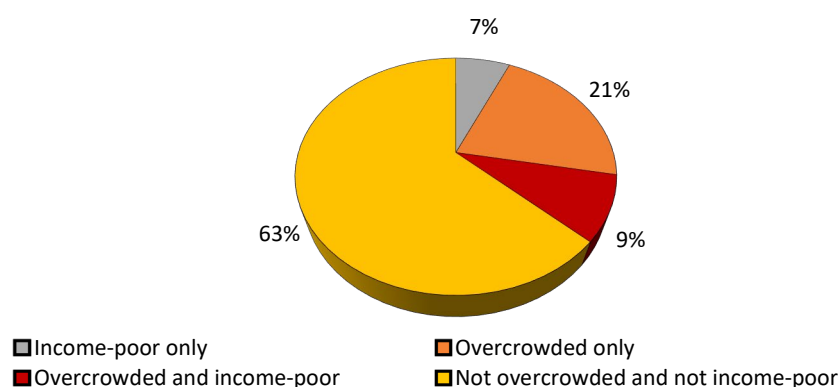


Figure 1. Prevalence of overcrowding and income poverty among Polish households in 2022

Source: own elaboration.

Table 1. The multinomial logit model results – average marginal effects

Variables	Not overcrowded and not income-poor		Only income-poor		Only overcrowding		Overcrowded and income-poor	
	AME	SE	AME	SE	AME	SE	AME	SE
Disabled	-0.050	0.010	0.015	0.006	0.012	0.010	0.023	0.005
Unemployed	-0.253	0.023	0.146	0.020	-0.036	0.018	0.143	0.017
Education: tertiary – ref.								
Lower than upper secondary	-0.303	0.019	0.092	0.017	0.063	0.024	0.148	0.025
Upper secondary	-0.170	0.011	0.056	0.006	0.064	0.010	0.050	0.007
Tenure status: outright owner – ref.								
Owner paying mortgage	0.108	0.015	-0.034	0.010	-0.042	0.013	-0.032	0.007
Tenant or subtenant paying rent at prevailing or market rate	-0.215	0.025	-0.050	0.008	0.214	0.026	0.051	0.014
Accommodation rented at a reduced rate	-0.273	0.049	-0.032	0.018	0.249	0.057	0.056	0.026
Accommodation provided free	-0.230	0.015	-0.025	0.007	0.200	0.016	0.054	0.009
Degree of urbanization: town – ref.								
City	-0.030	0.012	-0.033	0.006	0.070	0.011	-0.007	0.006
Rural areas	-0.070	0.013	0.054	0.007	-0.010	0.012	0.026	0.007
Household type: two adults with at least three children – ref.								
Single-parent household	0.100	0.035	-0.025	0.022	-0.070	0.026	-0.005	0.013
Single-person household	0.250	0.021	0.067	0.018	-0.269	0.013	-0.048	0.010
2 adults with 1 child	0.181	0.024	-0.045	0.013	-0.100	0.017	-0.036	0.008
2 adults with 2 children	0.149	0.025	-0.024	0.016	-0.094	0.017	-0.031	0.008
Other with children	0.195	0.022	-0.060	0.012	-0.079	0.019	-0.056	0.008
Adults without children	0.256	0.019	-0.056	0.011	-0.133	0.016	-0.066	0.007
Two adults under 65	0.340	0.016	-0.040	0.012	-0.233	0.010	-0.066	0.005
Two adults 65+	0.100	0.035	-0.055	0.010	-0.230	0.009	-0.063	0.006

Note: AME are average marginal effects; SE – are their standard errors; the numbers in bold denote statistically significant results at 0.05.

Source: own study based on EU-SILC (2022) data.

The AMEs presented in Tab. 1 facilitate interpreting the multinomial logit estimation results, assuming ceteris paribus. In particular, compared to households without disabled members, those with a disabled person have, on average, a 0.050 lower probability of being neither overcrowded nor income-poor. However, the probability of being income-poor only is 0.015 higher, the probability of experiencing overcrowding only is 0.012 higher, and the probability of

facing both overcrowding and income poverty is 0.023 higher on average. This indicates a worse situation for households with disabled individuals. These results are largely similar when analysing households with unemployed members. However, in this case, the presence of unemployed individuals does not increase the probability of overcrowding.

When analysing the AMEs for education, we observe that households without any members holding tertiary education are in a worse situation than those with at least one member who has tertiary education; specifically, they have a lower probability of being neither overcrowded nor income-poor.

Considering tenure status, households that pay mortgages are generally in a better position than those that own their homes outright. In contrast, tenant households often experience both overcrowding and income poverty simultaneously. Interestingly, the probability of being solely income-poor is lower for tenant households than those with outright ownership. However, tenant households have a higher probability of experiencing only overcrowding. This result aligns with that of Głowicka-Wołoszyn et al. (2021), who noted that overcrowding primarily affects households living in rented accommodations.

Intriguing findings emerged about the relationship between the degree of urbanisation and its effects on overcrowding and income poverty. Compared to households in small towns, those in cities and rural areas are significantly less likely to be categorised as 'not overcrowded and not income-poor'. However, while households in cities are less likely to be 'only income-poor' than those in small towns, they are more likely to experience 'only overcrowding'. The result concerning income poverty aligns with Kraftová et al. (2020), who reported a lower risk of poverty in cities than in small towns across many Central and Eastern European countries, including Poland. Additionally, the finding of higher overcrowding in cities compared to small towns is consistent with Hick et al. (2022), who noted this trend across all EU countries. One possible explanation for this is the higher cost of housing in cities relative to smaller towns.

Furthermore, households in rural areas are less likely to experience 'only overcrowding' but are more susceptible to income poverty than those in small towns. This latter finding is consistent with Kraftová et al. (2020), who observed a higher prevalence of income poverty in rural areas across most Central and Eastern European countries. Nevertheless, it is important to note that rural poverty has declined across all EU countries over the last 20 years, reinforcing the tangible benefits of EU cooperation (Kalinowski, 2024).

Focusing on household type, it is evident that all types are significantly more likely to be categorised as 'not overcrowded and not income-poor' compared to households consisting of two adults with at least three children. This suggests that households with two adults and at least three children are generally more disadvantaged than other household types, confirming the third hypothesis. A similar pattern holds for income poverty alone, as well as for the simultaneous experience of both overcrowding and income poverty, except for single-parent households.

The results regarding the impact of household type on overcrowding and income poverty are largely consistent with the findings of other researchers. Specifically, as noted by Matel (2024), they confirm that housing conditions are closely linked to the household formation cycle. Similarly to the findings of Ćwiek et al. (2024), we found that households without dependent children are less likely to live in overcrowded housing than households with two adults and at least three children. Consequently, the housing stock in Poland is largely underutilised, as families with dependent children frequently face cramped living conditions, while elderly couples and single individuals often occupy homes that exceed their needs (Ćwiek et al., 2024). This situation is particularly concerning in the context of the COVID-19 pandemic, when many children were required to learn remotely from home (Kocur-Bera, 2022). Additionally, it is important to note

that overcrowding negatively impacts children's health, environment, and schooling, as supported by qualitative evidence (Lorentzen et al., 2023).

It is worth noting that while income poverty is widely analysed, the issue of overcrowding is currently overlooked in discussions of housing problems in Poland (Milewska-Wilk & Nowak, 2022). Thus, this study aims to address this gap to some extent.

Finally, let us look at the statistical significance of the parameters. While the detailed results for individual parameters are provided in the appendix, Tab. 2 presents the results of the likelihood-ratio (LR) test, which evaluates the impact of each qualitative variable included in the model on the dependent variable.

Table 2. The likelihood-ratio test results

Variable	LR statistics	<i>df</i>	LR* at 0.05 level	<i>p</i> -value
Disabled	40.61	3	7.81	0.000
Unemployed	272.87	3	7.81	0.000
Education	364.21	6	12.59	0.000
Tenure status	513.88	12	21.03	0.000
Degree of urbanization	271.23	6	12.59	0.000
Household type	1509.69	24	36.42	0.000

Note: *df* represents the degrees of freedom, and LR* denotes the chi-squared value for the given degrees of freedom at a significance level of 0.05 (so-called the critical chi-squared value based on the 0.05 level and *df*).

Source: own study based on EU-SILC (2022) data.

Results presented in Tab. 2 confirm the second hypothesis that the presence of disabled or unemployed individuals in the household, the education level of household members, housing tenure status, the degree of urbanization of the place of household residence, and household type significantly influence overcrowding and income poverty. These results indicate that policies aimed at reducing income poverty and household overcrowding should specifically target certain groups of households. Specifically, these policies should include establishing systems to monitor housing conditions and overcrowding trends to inform decisions that assist the most vulnerable households, including large families and those with members who are unemployed, have disabilities, or lack education. They should also focus on maintaining affordable housing for low-income households, implementing laws to prevent discriminatory practices in the rental market, and increasing funding for social services that support disadvantaged households with housing issues, such as eviction prevention and legal assistance. Additionally, providing counselling and support to households facing housing instability is essential. By combining these tools, policies can effectively address overcrowding and its associated challenges, ultimately improving living conditions for affected communities.

4. Summary and Conclusions

In 2022, approximately 30% of Polish households lived in overcrowded dwellings, ranking among the EU's highest housing overcrowding levels. However, only about 9% of these overcrowded households are classified as income-poor.

The study finds that the presence of disabled or unemployed individuals in the household, the education level of household members, housing tenure status, the degree of urbanization of the place of household residence, and household type significantly influence overcrowding and income poverty. Households with at least three children, individuals with low educational attainment, households with disabled members, and unemployed individuals face particularly challenging situations.

The prevalence of overcrowding in Poland is much higher than the risk of income poverty. However, while the latter receives considerable attention in academic and political discourse, the former is insufficiently analysed. Given that overcrowded housing deteriorates the living conditions of households, policymakers should use their tools in a more targeted manner.

References

- Cameron, A. C., & Trivedi, P. K. (2022). *Microeconometrics Using Stata. Volume II: Nonlinear Models and Causal Inference Methods* (2nd ed.). Stata Press.
- Ćwiek, M., Sadko, M., & Ulman, P. (2024). *Sytuacja mieszkaniowa w Polsce i krajach europejskich*. Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie.
- Dudek, H., & Wojewódzka-Wiewiórska, A. (2024). Housing Deprivation Among Polish Households: Prevalence and Associated Factors. *Real Estate Management and Valuation*, 32(2), 58-69. <https://doi.org/10.2478/remav-2024-0015>
- Eurostat (2024). *Glossary: Overcrowding Rate*. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Overcrowding_rate
- EU-SILC. (2022). *EU-SILC Release 2 in 2023 (Autumn Release)*. <https://doi.org/10.2907/EUSILC2004-2022V1>
- Głowicka-Wołoszyn, R., Kozera, A., Stanisławska, J., & Wołoszyn, A. (2021). *Warunki mieszkaniowe gospodarstw domowych w Polsce*. CeDeWu.
- Grzybowska, U., Dudek, H., & Wojewódzka-Wiewiórska, A. (2024). Socioeconomic Factors Associated with Household Overcrowding in the Visegrad Group Countries – Analysis Based on Machine Learning Approach. *Procedia Computer Science*, 246(2), 4441-4450. <https://doi.org/10.1016/j.procs.2024.09.294>
- Hardin, J. W., & Hilbe, J. M. (2018). *Generalized Linear Models and Extensions*. Stata Press.
- Hick, R., Pomati, M., & Stephens, M. (2022). Severe Housing Deprivation in the European Union: A Joint Analysis of Measurement and Theory. *Social Indicators Research*, 164, 1271-1295. <https://doi.org/10.1007/s11205-022-02987-6>
- Hosseini, L. J., Samadi, A. H., Woldemichael, A., Gharebelagh, M. N., Rezaei, S., & Rad, E. H. (2021). Household Overcrowding in Iran, a Low-middle-income Country: How Major of a Public Health Concern Is It? *Journal of Preventive Medicine and Public Health*, 54(1), 73-80. <https://doi.org/10.3961/jpmph.20.568>
- Kalinowski, S. (2024). Zmieniający się obraz polskiej wsi – sukcesy i wyzwania społeczne. In W. Poczta, & A. Hałasiewicz (Eds.), *Polska wieś 2024. Raport o stanie wsi. 20 lat w Unii Europejskiej* (pp. 213-234). Wydawnictwo Naukowe Scholar.
- Kocur-Bera, K. (2022). Impact of the COVID-19 Pandemic Era on Residential Property Features: Pilot Studies in Poland. *Journal of Environmental Research and Public Health*, 19(9). <https://doi.org/10.3390/ijerph19095665>
- Kozera, A., Stanisławska, J., & Głowicka-Wołoszyn, R. (2017). Zjawisko ubóstwa mieszkaniowego w krajach Unii Europejskiej. *Wiadomości Statystyczne*, 668(1), 77-89.
- Kraftová, I., Provazníková, R., & Korovchenko, T. (2020). Poverty Risk and Quality of Housing in the EU Regions with a Different Urbanisation Rate. *Scientific Papers of the University of Pardubice, Series D: Faculty of Economics and Administration*, 28(4). <https://doi.org/10.46585/sp28041170>
- Kucharska-Stasiak, E. (2016). *Ekonomiczny wymiar nieruchomości*. Wydawnictwo Naukowe PWN.
- Long, J. S., & Freese, J. (2006). *Regression Models for Categorical Dependent Variables Using Stata*. Stata Press.
- Lorentzen, J. C., Georgellis, A., Albin, M., & Jonsson, M. (2023). Residential Overcrowding in Relation to Children's Health, Environment and Schooling – a Qualitative Study. *Scandinavian Journal of Public Health*, 52(7), 829-837. <https://doi.org/10.1177/14034948231198285>
- Matel, A. (2024). Inequalities in Transition to Homeownership in Household Life Cycle. *Real Estate Management and Valuation*, 32(2), 80-89. <https://doi.org/10.2478/remav-2024-0017>
- Milewska-Wilk, H., & Nowak, K. (2022). *Dane o mieszkalnictwie w Polsce. Definicje, źródła, zestawienia, zmiany. Badania Obserwatorium Polityki Miejskiej*. Instytut Rozwoju Miast i Regionów.
- Sunega, P., & Lux, M. (2016). Subjective Perception Versus Objective Indicators of Overcrowding and Housing Affordability. *Journal of Housing and the Built Environment*, 31, 695-717. <https://doi.org/10.1007/s10901-016-9496-3>
- Ulman, P., & Ćwiek, M. (2020). Housing Poverty in Polish Households and Its Diversity. *Folia Oeconomica Stetinensia*, 20(1), 437-455. <https://doi.org/10.2478/fofi-2020-0026>
- Ulman, P., & Ćwiek, M. (2021). Measuring Housing Poverty in Poland: A Multidimensional Analysis. *Housing Studies*, 36(8), 1212-1230. <https://doi.org/10.1080/02673037.2020.1759515>
- Wirth, H., & Pforr, K. (2022). The European Union Statistics on Income and Living Conditions After 15 Years. *European Sociological Review*, 38(5), 832-848. <https://doi.org/10.1093/esr/jcac024>

Wojewódzka-Wiewiórska, A., & Deák, Z. (2024). Household Overcrowding in Central and Eastern Europe Countries – Urban-Rural Approach. In P. Szikora, & A. Keszthelyi, A. (Eds.), *Proceedings II. MEB – 22nd International Conference on Management, Enterprise, Benchmarking*. Obuda University, Budapest, Hungary. https://kgk.uni-obuda.hu/wp-content/uploads/2024/10/MEB2024_Proceedings_II_27.09.24-1.pdf#page=105

Przeludnienie a ubóstwo dochodowe gospodarstw domowych w Polsce: wyniki analizy

Streszczenie: Celem pracy jest ocena częstości występowania przeludnienia i ubóstwa dochodowego w Polsce oraz identyfikacja cech społeczno-ekonomicznych gospodarstw domowych dotkniętych tymi problemami. W analizie mikroekonometrycznej wykorzystano dane z Europejskiego Badania Warunków Życia Ludności (EU-SILC) z 2022 r. Aby zidentyfikować cechy gospodarstw domowych, które są istotnie związane z występowaniem omawianych typów ubóstwa, zastosowano model logitowy dla wielu kategorii nieuporządkowanych. Wykazano, że przeludnienie nie zawsze wiąże się z ubóstwem dochodowym. Istotną rolę w doświadczaniu przeludnienia i ubóstwa dochodowego odgrywają cechy takie jak: stopień urbanizacji miejsca zamieszkania, status własności mieszkania, typ gospodarstwa domowego oraz wykształcenie jego członków. Ponadto stwierdzono, że gospodarstwa domowe z osobami niepełnosprawnymi, bezrobotnymi oraz gospodarstwa domowe dwóch osób dorosłych z co najmniej trojgiem dzieci są w szczególnie trudnej sytuacji. Ustalenia te powinny skłonić decydentów do opracowania skutecznych środków przeciwdziałania różnym rodzajom ubóstwa.

Słowa kluczowe: gospodarstwo domowe, przeludnienie, ubóstwo dochodowe, EU-SILC, model logitowy dla wielu kategorii nieuporządkowanych

Appendix. Multinomial logit model estimates

Variables	<i>b</i>	SE	<i>z</i>	<i>p</i> -value	[95% Conf. Interval]	
1 (being neither overcrowded nor income-poor) – base category						
2 (only income-poor)						
Constant	-2.211	0.246	-8.977	0.000	-2.693	-1.728
Disabled	0.298	0.071	4.175	0.000	0.158	0.439
Unemployed	1.828	0.151	12.102	0.000	1.532	2.124
Education: tertiary – ref.						
Lower than upper secondary tertiary	1.668	0.130	12.788	0.000	1.413	1.924
Upper secondary	1.077	0.088	12.258	0.000	0.905	1.250
Tenure status: outright owner – ref.						
Owner paying mortgage	-0.690	0.172	-4.019	0.000	-1.026	-0.353
Tenant or subtenant paying rent at prevailing or market rate	-0.211	0.189	-1.115	0.265	-0.582	0.160
Accommodation is rented at a reduced rate	0.290	0.328	0.884	0.377	-0.353	0.932
Accommodation is provided free	0.251	0.106	2.368	0.018	0.043	0.459
Degree of urbanization: town – ref.						
City	-0.348	0.085	-4.107	0.000	-0.514	-0.182
Rural areas	0.740	0.085	8.705	0.000	0.574	0.907
Household type: 2 adults with at least 3 children – ref.						
Single-parent household	-0.517	0.365	-1.414	0.157	-1.233	0.200
Single-person household	0.119	0.239	0.497	0.619	-0.350	0.588
2 adults with 1 child	-1.039	0.287	-3.615	0.000	-1.602	-0.476
2 adults with 2 children	-0.613	0.267	-2.298	0.022	-1.136	-0.090
Other with children	-1.394	0.269	-5.174	0.000	-1.922	-0.866
Adults without children	-1.454	0.270	-5.387	0.000	-1.982	-0.925

Variables	<i>b</i>	SE	<i>z</i>	<i>p</i> -value	[95% Conf. Interval]	
Two adults under 65	-1.263	0.248	-5.103	0.000	-1.749	-0.778
Two adults 65+	-1.573	0.254	-6.199	0.000	-2.070	-1.076
3 (only overcrowding)						
Constant	-0.167	0.160	-1.046	0.296	-0.481	0.146
Disabled	0.171	0.065	2.631	0.009	0.044	0.299
Unemployed	0.480	0.144	3.326	0.001	0.197	0.763
Education: tertiary – ref.						
Lower than upper secondary tertiary	1.113	0.135	8.245	0.000	0.848	1.377
Upper secondary	0.670	0.069	9.758	0.000	0.536	0.805
Tenure status: outright owner – ref.						
Owner paying mortgage	-0.439	0.095	-4.636	0.000	-0.625	-0.253
Tenant or subtenant paying rent at prevailing or market rate	1.318	0.139	9.502	0.000	1.046	1.589
Accommodation is rented at a reduced rate	1.586	0.296	5.360	0.000	1.006	2.165
Accommodation is provided free	1.312	0.085	15.484	0.000	1.146	1.478
Degree of urbanization: town – ref.						
City	0.393	0.072	5.448	0.000	0.252	0.534
Rural areas	0.098	0.081	1.210	0.226	-0.061	0.256
Household type: 2 adults with at least 3 children – ref.						
Single-parent household	-0.590	0.229	-2.582	0.010	-1.038	-0.142
Single-person household	-2.556	0.167	-15.315	0.000	-2.883	-2.229
2 adults with 1 child	-0.973	0.167	-5.838	0.000	-1.300	-0.647
2 adults with 2 children	-0.869	0.164	-5.291	0.000	-1.191	-0.547
Other with children	-0.915	0.172	-5.317	0.000	-1.252	-0.578
Adults without children	-1.434	0.170	-8.450	0.000	-1.766	-1.101
Two adults under 65	-2.659	0.179	-14.857	0.000	-3.010	-2.308
Two adults 65+	-2.740	0.173	-15.804	0.000	-3.080	-2.400
4 (overcrowded and income-poor)						
Constant	-2.340	0.286	-8.194	0.000	-2.900	-1.780
Disabled	0.587	0.110	5.336	0.000	0.371	0.803
Unemployed	2.346	0.164	14.345	0.000	2.026	2.667
Education: tertiary – ref.						
Lower than upper secondary tertiary	2.564	0.213	12.049	0.000	2.147	2.981
Upper secondary	1.582	0.179	8.849	0.000	1.232	1.933
Tenure status: outright owner – ref.						
Owner paying mortgage	-1.135	0.256	-4.438	0.000	-1.637	-0.634
Tenant or subtenant paying rent at prevailing or market rate	1.351	0.189	7.134	0.000	0.980	1.722
Accommodation is rented at a reduced rate	1.618	0.345	4.694	0.000	0.942	2.293
Accommodation is provided free	1.452	0.124	11.701	0.000	1.209	1.695
Degree of urbanization: town – ref.						
City	-0.072	0.124	-0.585	0.558	-0.315	0.170
Rural areas	0.696	0.135	5.177	0.000	0.433	0.960
Household type: 2 adults with at least 3 children – ref.						
Single-parent household	-0.376	0.317	-1.186	0.236	-0.998	0.246
Single-person household	-1.950	0.265	-7.370	0.000	-2.469	-1.431
2 adults with 1 child	-1.485	0.349	-4.249	0.000	-2.169	-0.800
2 adults with 2 children	-1.238	0.291	-4.252	0.000	-1.808	-0.667
Other with children	-2.089	0.296	-7.063	0.000	-2.669	-1.510
Adults without children	-2.833	0.305	-9.277	0.000	-3.431	-2.234
Two adults under 65	-3.589	0.300	-11.960	0.000	-4.177	-3.000

Wald $\chi^2(54) = 2848.02$, *p*-value = 0.000, Pseudo $R^2 = 0.154$.

Note: *b* represents an estimate, and SE denotes standard error. The numbers in bold denote statistically significant results at a level of 0.05. All standard errors are heteroscedasticity-robust standard errors.

Source: own calculations based on EU-SILC 2022 data.