Statistics Poland

Comparison of determinants of subjective and objective poverty in Poland based on the results of the EU-SILC

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Applied poverty measures

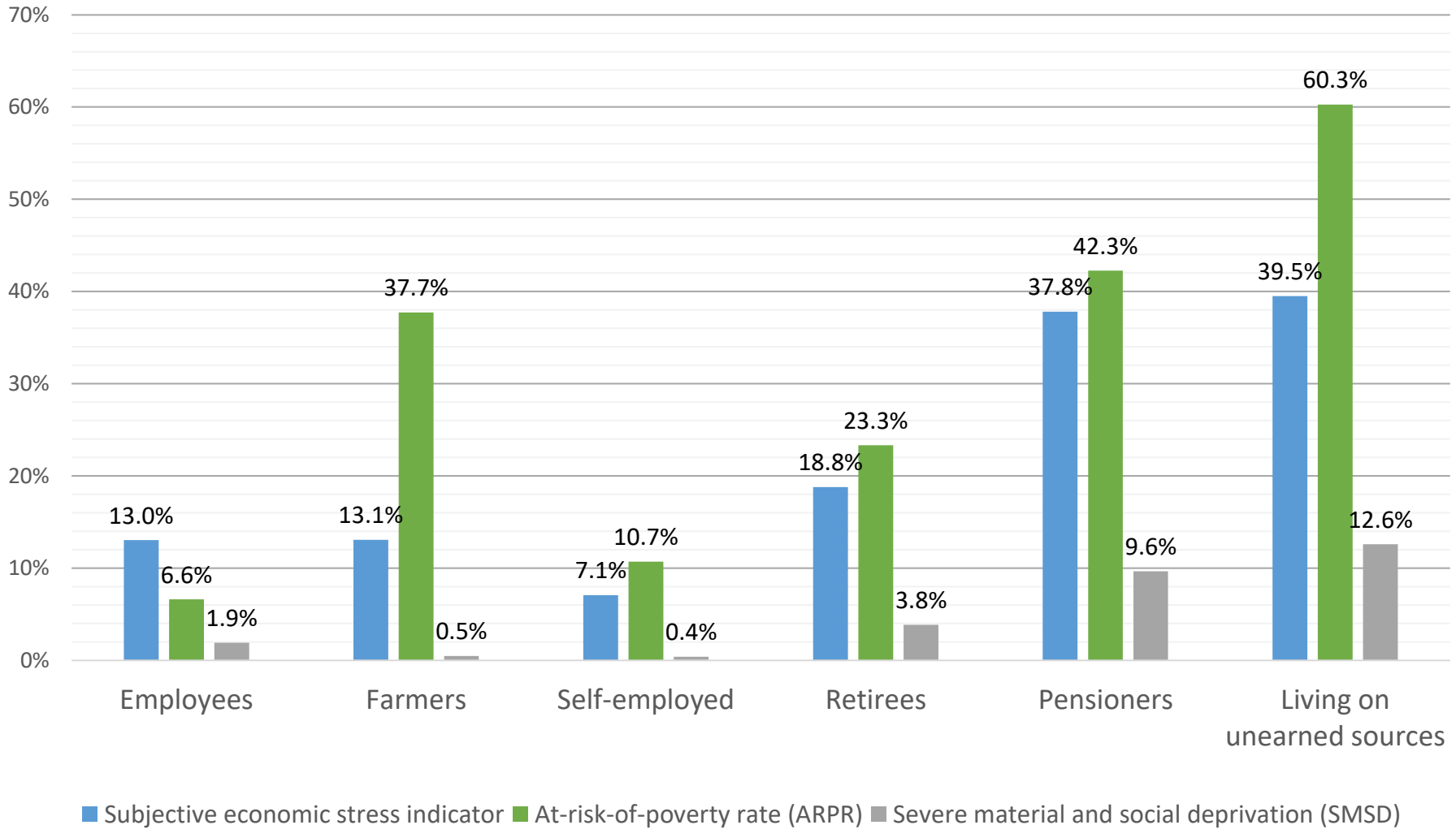
- subjective economic stress indicator (ECSTRESS) - indirect (proxy) subjective poverty measure
- at-risk-of-poverty-rate (ARPR) – objective relative measure of poverty based on income poverty threshold (60% of the national median equivalised disposable income after social transfers)
- severe material and social deprivation (SMSD) - objective absolute measure of non-monetary poverty (7 of 13 deprivation)
- severe material deprivation (SMD) - objective absolute measure of non-monetary poverty (4 of 9 deprivation)

Subjective assessments of ability "to make ends meet" and subjective economic stress indicator (ECSTRESS), % of people

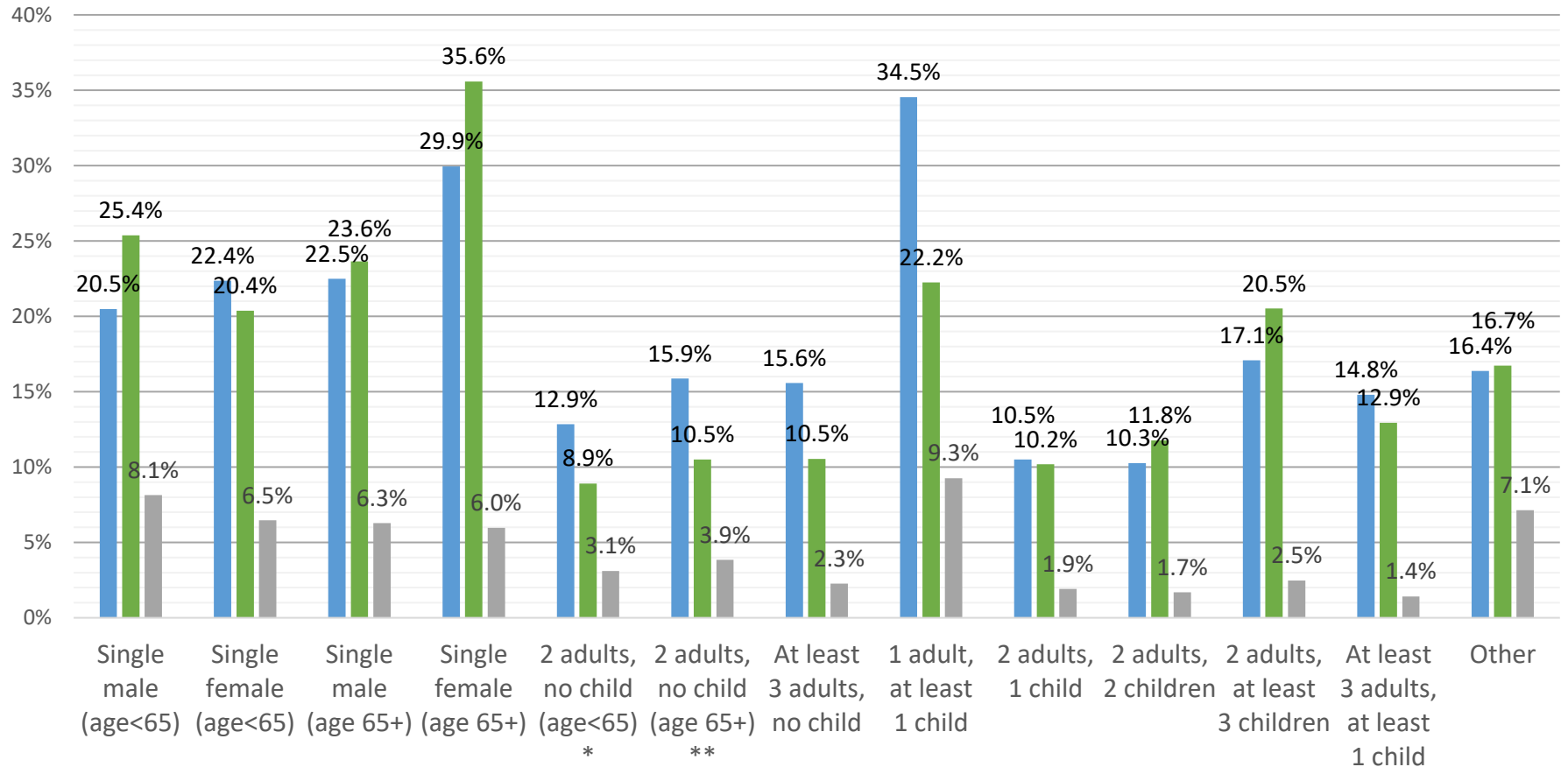
ECSTRESS - share of people living in households making ends meet with difficulty or great difficulty

	EU-SILC 2019	EU-SILC 2022
Households making ends meet with great difficulty	**4.5**	**3.7**
Households making ends meet with difficulty	**11.2**	**11.7**
Households making ends meet with some difficulty	*34.7*	*39.8*
Households making ends meet fairly easily	34.4	33.1
Households making ends meet easily	11.6	9.6
Households making ends meet very easily	3.6	2.0
ECSTRESS	**15.7**	**15.4**

Poverty indicators by socio-economic groups of households (main source of income), EU-SILC 2022

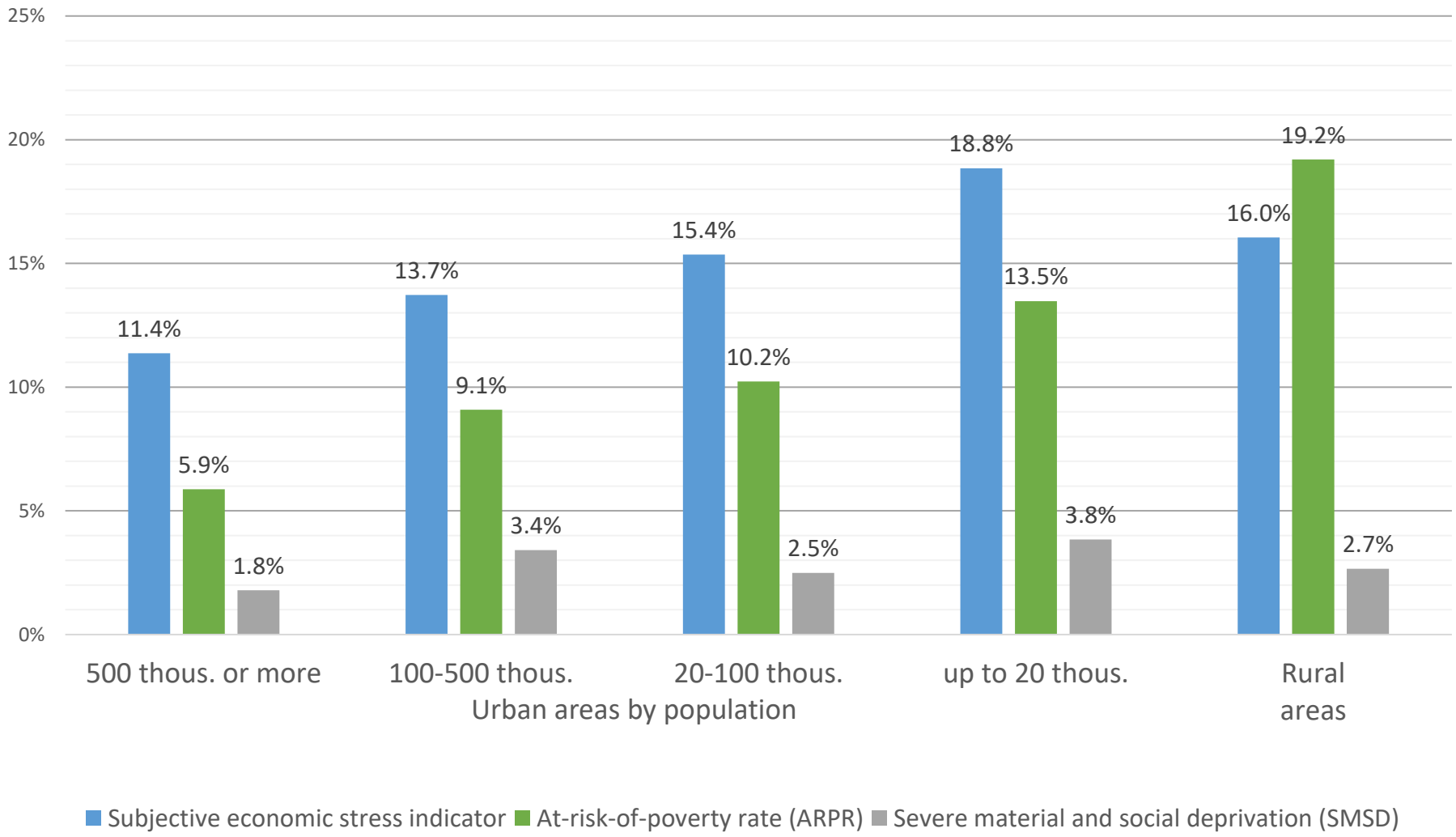


Poverty indicators by household type, EU-SILC 2022



* both persons aged less than 65 ** at least one person aged 65+

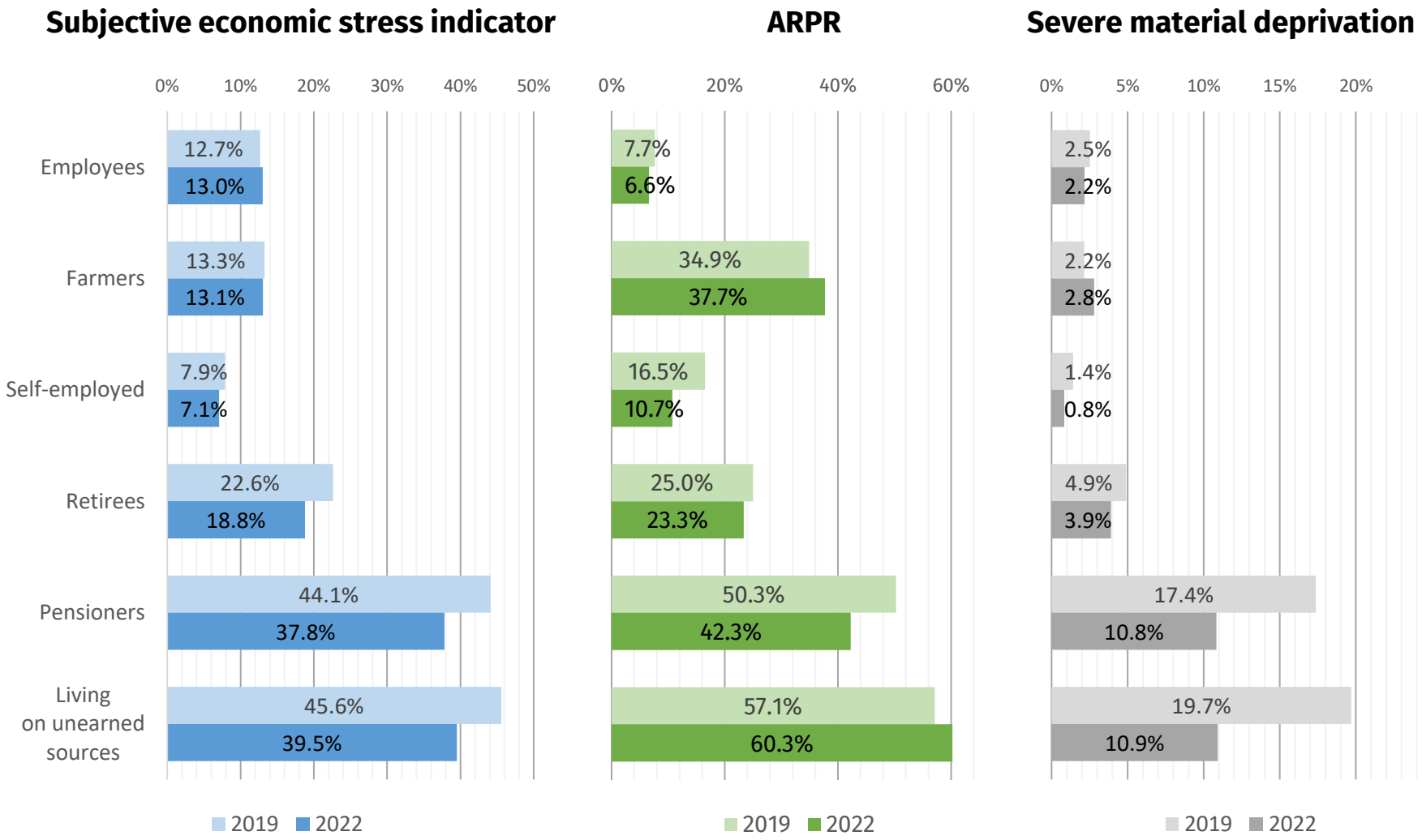
Poverty indicators by the type of locality, EU-SILC 2022



Comparison of poverty rates between EU-SILC 2019 and 2022

	EU-SILC 2019	EU-SILC 2022
Subjective economic stress indicator (ECSTRESS)	15.7	15.4
At-risk-of-poverty-rate (ARPR)	15.4	13.7
Severe material and social deprivation (SMSD)	3.5	2.8
Severe material deprivation (SMD)	3.6	3.0

Comparison of poverty distribution by socio-economic groups of households between EU-SILC 2019 and 2022



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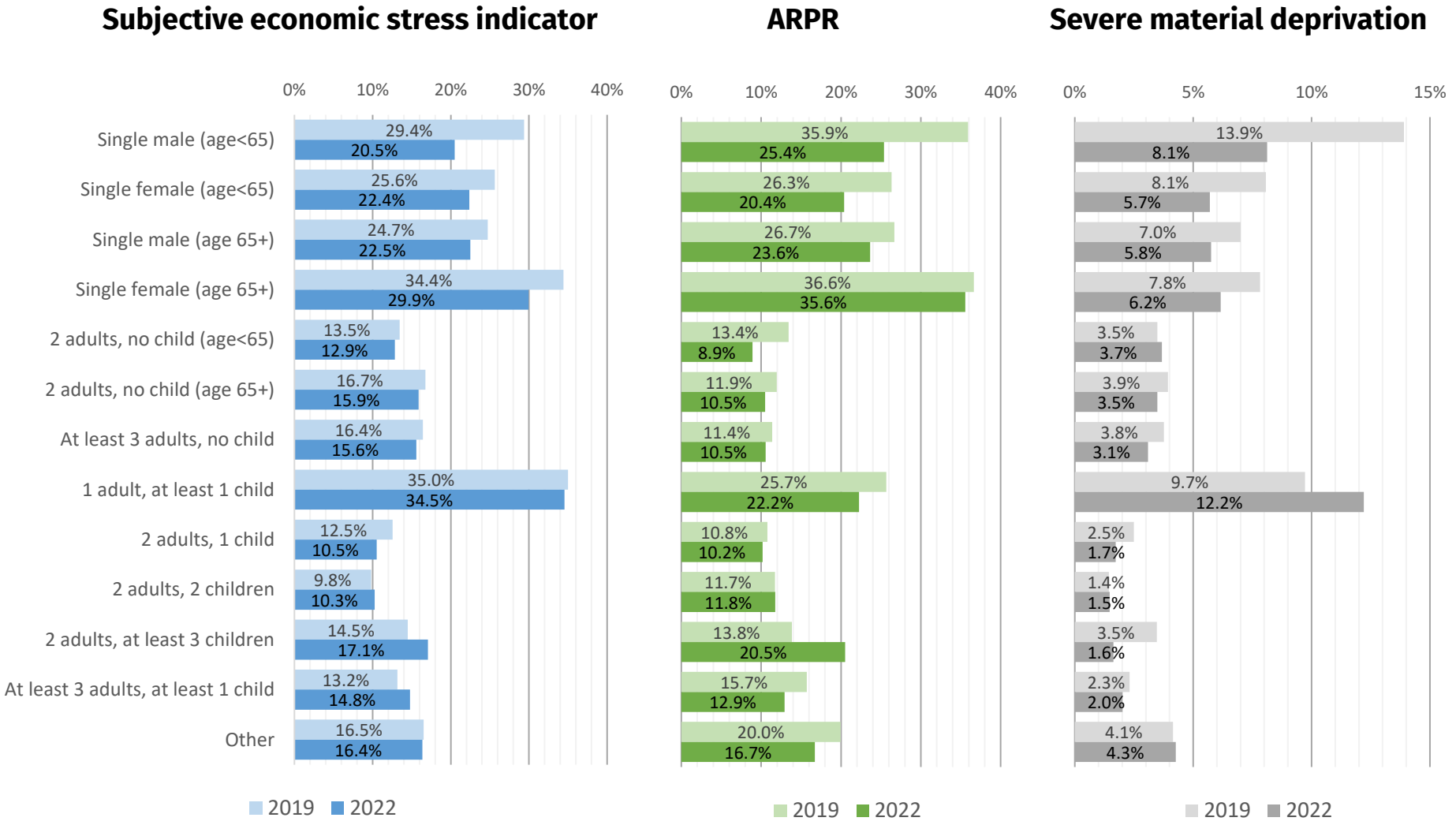
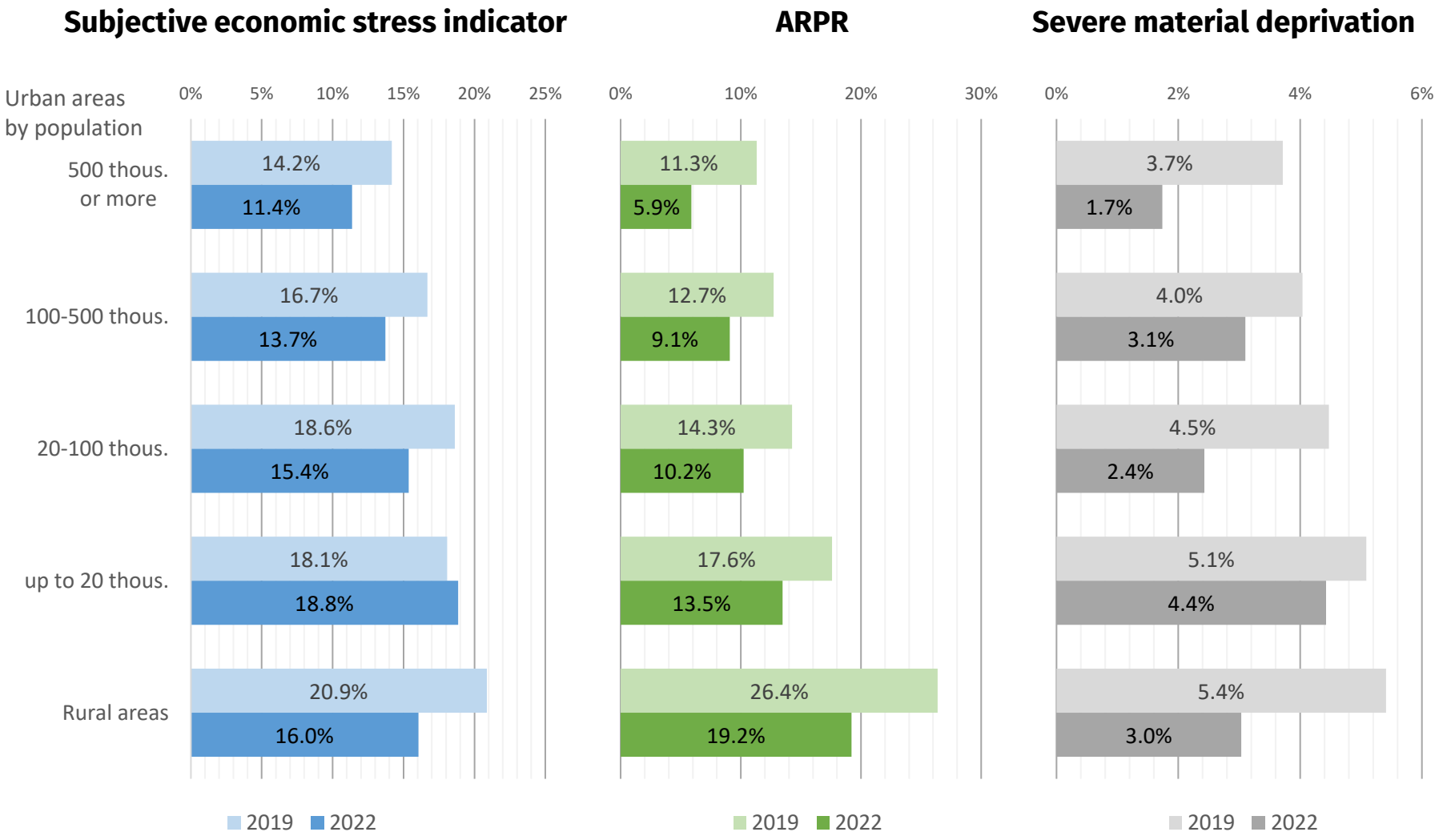
Comparison of poverty distribution by household type between EU-SILC 2019 and 2022



Comparison of poverty distribution by the type of locality between EU-SILC 2019 and 2022



Determinants of different kinds of poverty
Model based analysis

- Logistic regression models
- Households treated as statistical units (observations)
- Variables of interest:
  - subjective economic stress indicator (ECSTRESS, indirect subjective poverty measure)
  - at-risk-of-poverty-ratio (ARPR, relative income poverty objective measure)
  - severe material and social deprivation (SMSD, measure of needs deprivation, objective absolute assessment of material situation)
- Explanatory variables (factors):
  - socio-economic group (main source of household income)
  - household type (household composition)
  - place of residence (type of locality, NUTS-2)
  - reference person (head of the household) characteristics (age, education level, profession)
  - presence in the household of person with some individual socio-economic characteristics:
    - unemployed person
    - person without independent (own) source of income (including children)
    - person with biological disability (taking into account the level of disability)

Logistic regression results (EU-SILC 2022)
Aggregate influence of explanatory variables (factors)

Explanatory variable (factor)	Degr. of freedom	Variable of interest (kind of poverty to be explained)					
		ECSTRESS		ARPR		SMSD	
		Wald stat.	p-value	Wald stat.	p-value	Wald stat.	p-value
Socio-economic group	5	**123.7**	**<0.001**	**878.1**	**<0.001**	**98.7**	**<0.001**
Household type	9	**466.9**	**<0.001**	**1167.8**	**<0.001**	**121.5**	**<0.001**
Reference person characteristics:							
age	5	**17.5**	**0.004**	**130.8**	**<0.001**	**28.9**	**<0.001**
education level	9	**148.6**	**<0.001**	**123.9**	**<0.001**	**77.4**	**<0.001**
profession	10	**132.4**	**<0.001**	**411.1**	**<0.001**	**107.5**	**<0.001**
Presence in the household of specific person:							
unemployed	1	**151.9**	**<0.001**	**232.5**	**<0.001**	**137.2**	**<0.001**
without independent source of income	1	**17.2**	**<0.001**	**405.1**	**<0.001**	**18.2**	**<0.001**
with disability (not severe)	1	**113.9**	**<0.001**	0.7	0.408	**72.8**	**<0.001**
with severe disability	1	**307.8**	**<0.001**	**4.5**	**0.034**	**151.9**	**<0.001**
Characteristics of the residence place							
type of locality	4	**18.8**	**0.001**	**57.8**	**<0.001**	5.6	0.235
NUTS-2	16	**80.4**	**<0.001**	**52.1**	**<0.001**	**26.6**	**0.046**

Regression – detailed effects/parameters (EU-SILC 2022)
Socio-economic group (main income source)

Socio-economic group	Variable of interest (kind of poverty to be explained)					
	ECSTRESS		ARPR		SMSD	
	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)
Employees (ref.)						
Farmers	-0.06	0.720	**1.30**	**<0.001**	-0.25	0.542
Self-employed	**-0.81**	**<0.001**	**0.66**	**<0.001**	**-0.80**	**0.021**
Retirees	**0.15**	**0.031**	**1.75**	**<0.001**	0.10	0.407
Pensioners	**0.35**	**<0.001**	**2.21**	**<0.001**	**0.48**	**0.002**
Living on unearned sources	**0.83**	**<0.001**	**2.71**	**<0.001**	**1.24**	**<0.001**

Regression – detailed effects/parameters (EU-SILC 2022)
Household type

Household type (composition)	Variable of interest (kind of poverty to be explained)					
	ECSTRESS		ARPR		SMSD	
	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)
Single male (ref.)						
Single female	**0.31**	**<0.001**	**0.47**	**<0.001**	-0.12	0.388
2 adults. no child	**-0.71**	**<0.001**	**-1.55**	**<0.001**	**-0.73**	**<0.001**
At least 3 adults. no child	**-1.00**	**<0.001**	**-2.15**	**<0.001**	**-1.21**	**<0.001**
1 adult. at least 1 child	0.17	0.270	**-2.17**	**<0.001**	**-0.57**	**0.026**
2 adults. 1 child	**-0.91**	**<0.001**	**-2.55**	**<0.001**	**-1.15**	**<0.001**
2 adults. 2 children	**-1.08**	**<0.001**	**-2.48**	**<0.001**	**-1.60**	**<0.001**
2 adults. at least 3 children	**-0.73**	**<0.001**	**-2.34**	**<0.001**	**-1.67**	**<0.001**
At least 3 adults. at least 1 child	**-1.26**	**<0.001**	**-3.45**	**<0.001**	**-2.18**	**<0.001**
Other	**-0.66**	**<0.001**	**-2.07**	**<0.001**	**-0.72**	**0.003**

Regression – detailed effects/parameters (EU-SILC 2022)
Reference person education level

Reference person education level	Variable of interest (kind of poverty to be explained)					
	ECSTRESS		ARPR		SMSD	
	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)
At least primary (ref.)						
Basic vocational	-0.24	<0.001	-0.16	0.028	-0.39	<0.001
General secondary (without matriculation)	-0.43	0.001	-0.22	0.124	-0.79	0.001
General secondary (with matriculation)	-0.58	<0.001	-0.44	<0.001	-0.79	<0.001
Vocational secondary (without matriculation)	-0.43	<0.001	-0.34	0.002	-0.70	<0.001
Vocational secondary (with matriculation)	-0.65	<0.001	-0.54	<0.001	-0.78	<0.001
Post-secondary	-0.46	<0.001	-0.54	<0.001	-1.02	<0.001
Tertiary (bachelor degree)	-0.73	<0.001	-0.69	<0.001	-1.29	<0.001
Tertiary (master's degree or higher)	-1.16	<0.001	-1.23	<0.001	-1.82	<0.001

Regression – detailed effects/parameters (EU-SILC 2022)
Additional individual characteristics

Presence in the household of a person with specific individual characteristics:	Variable of interest (kind of poverty to be explained)					
	ECSTRESS		ARPR		SMSD	
	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)
Unemployed	**0.96**	**<0.001**	**1.35**	**<0.001**	**1.37**	**<0.001**
Without independent income source	**0.38**	**<0.001**	**2.15**	**<0.001**	**0.60**	**<0.001**
With biological disability (not severe)*	**0.50**	**<0.001**	0.04	0.408	**0.77**	**<0.001**
With severe biological disability	**1.02**	**<0.001**	**0.15**	**0.034**	**1.26**	**<0.001**

* and there is no person with severe biological disability

Regression – detailed effects/parameters (EU-SILC 2022)
Type of locality

Type of locality (place of residence)	Variable of interest (kind of poverty to be explained)					
	ECSTRESS		ARPR		SMSD	
	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)	Parameter estimate	Signif. (p-value)
Urban area (by population):						
500 thous. or more (ref.)						
100-500 thous.	0.11	0.272	0.07	0.572	0.33	0.087
20-100 thous.	**0.27**	**0.004**	0.15	0.176	0.10	0.573
up to 20 thous.	**0.32**	**0.001**	**0.33**	**0.005**	0.30	0.109
Rural area	**0.28**	**0.002**	**0.53**	**<0.001**	0.20	0.255

Main determinants of the poverty (by kind)

Explanatory variable (factor)	Variable of interest (kind of poverty to be explained)					
	ECSTRESS		ARPR		SMSD	
	Wald stat.	p-value	Wald stat.	p-value	Wald stat.	p-value
Socio-economic group	123.7	<0.001	(2) 878.1	<0.001	98.7	<0.001
Household type	(1) 466.9	<0.001	(1) 1167.8	<0.001	(3) 121.5	<0.001
HH head education level	(4) 148.6	<0.001	123.9	<0.001	77.4	<0.001
HH head profession	132.4	<0.001	(3) 411.1	<0.001	(4) 107.5	<0.001
Presence of unemployed	(3) 151.9	<0.001	232.5	<0.001	(2) 137.2	<0.001
Presence of person without independent source of income	17.2	<0.001	(4) 405.1	<0.001	18.2	<0.001
Presence of person with severe disability	(2) 307.8	<0.001	4.5	0.034	(1) 151.9	<0.001

For each of 3 kinds of poverty, four determinants with the highest contribution to the explanation are marked blue (the 1st the is the darkest). All the marked effects are significant at the level 0.001. It occurs also in case of the effects on another kind of poverty (except of the effect of person with severe disability on ARPR, which is, however, significant at the level 0.05)

Concluding remarks – main determinants of particular kinds of poverty

The factors (among those included in the models) with the highest contribution to the explanation of the particular kinds of poverty (measured by Wald statistics) are:

- For **subjective economic stress indicator** (ECSTRESS) : household type, presence of a person with severe disability, presence of an unemployed person and level of education of the head of household
- For the **at-risk-of-poverty rate** (ARPR): type of household, socio-economic group of the household, occupation of head of household, presence of a person with severe disability
- For **severe material and social deprivation** (SMSD): presence of a person with severe disability, presence of an unemployed person, household type, household head occupation

The sets of main determinants of the analysed kinds of poverty are similar but not the same; there are also differences in the order of main determinants (by their importance).

Household type (by composition) is the only factor which is among the four most important determinants of each kind of poverty; it is the main determinant of ECSTRESS and ARPR and the third in case of SMSD.

All explanatory factors included in the model have significant effects (at the level 0.05 at least) with except for evidently weaker relationships in case of the effect of disability on ARPR (only severe disability is significant) and the effect of residence place on SMSD (type of locality turned out to be insignificant – what means that the other factors fully explain the differences observed in the distribution)

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Thank you for your attention

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