ODYSSEE-MURE

Second physical Meeting of the Project "ODYSSEE-MURE EED" Monitoring the EED-Recast"

Session 4 – Energy poverty and energy sufficiency indicators in the ODYSSEE database

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07 October 2026, Dublin, Ireland

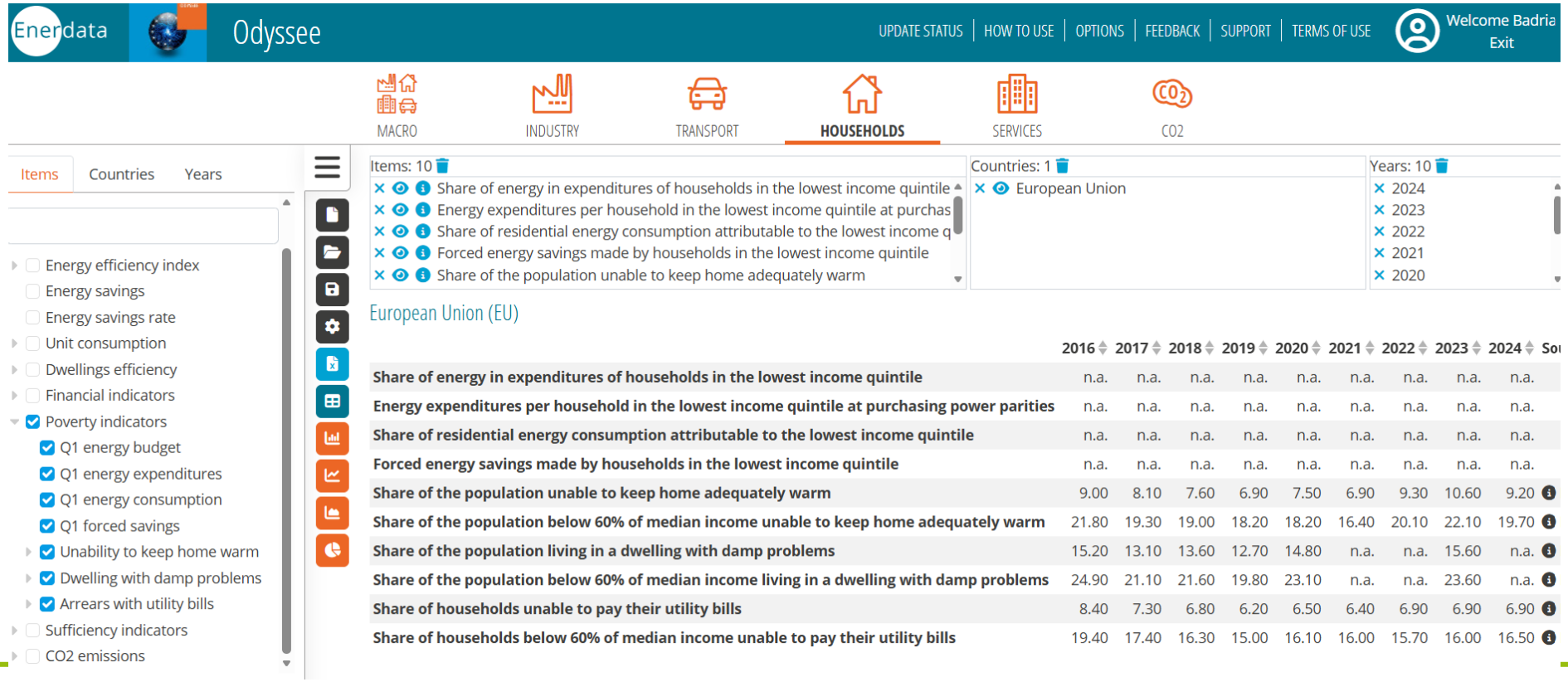
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Agenda

- **Energy poverty**
  - Energy poverty indicators in the Odyssee database
  - Selection of poverty indicators
- Energy sufficiency
  - Various form of energy sufficiency at sector level
  - Selection of sufficiency indicators

Energy poverty indicators in the Odyssee database

- 10 indicators on energy poverty in the household sector in the EU
- Based on Eurostat data, with additional treatment and calculations by Enerdata (focus on the lowest quintiles + analysis).
- Indicators included and uptaded to 2024 in the Odyssee database



	2016	2017	2018	2019	2020	2021	2022	2023	2024	So
Share of energy in expenditures of households in the lowest income quintile	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Energy expenditures per household in the lowest income quintile at purchasing power parities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Share of residential energy consumption attributable to the lowest income quintile	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Forced energy savings made by households in the lowest income quintile	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Share of the population unable to keep home adequately warm	9.00	8.10	7.60	6.90	7.50	6.90	9.30	10.60	9.20	
Share of the population below 60% of median income unable to keep home adequately warm	21.80	19.30	19.00	18.20	18.20	16.40	20.10	22.10	19.70	
Share of the population living in a dwelling with damp problems	15.20	13.10	13.60	12.70	14.80	n.a.	n.a.	15.60	n.a.	
Share of the population below 60% of median income living in a dwelling with damp problems	24.90	21.10	21.60	19.80	23.10	n.a.	n.a.	23.60	n.a.	
Share of households unable to pay their utility bills	8.40	7.30	6.80	6.20	6.50	6.40	6.90	6.90	6.90	
Share of households below 60% of median income unable to pay their utility bills	19.40	17.40	16.30	15.00	16.10	16.00	15.70	16.00	16.50	

- *Energy expenditures in dwellings only*
- *Indicators 1 to 4: Available every 5 years starting from 2005*
- *Indicators 5 to 10 : available 2004 onwards*

Selection of poverty indicators

1. Share of income spent on energy by income quintile
2. Households unable to adequately warm their homes in the wintertime
3. Households living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in windows frames or floor

Selection of poverty indicators

1. **Share of income spent on energy by income quintile**
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Share of income spent on energy by income quintile

- The relative energy expenditure of a quintile is used to analyse the vulnerability of the quintile to energy poverty.
- For each quintile:

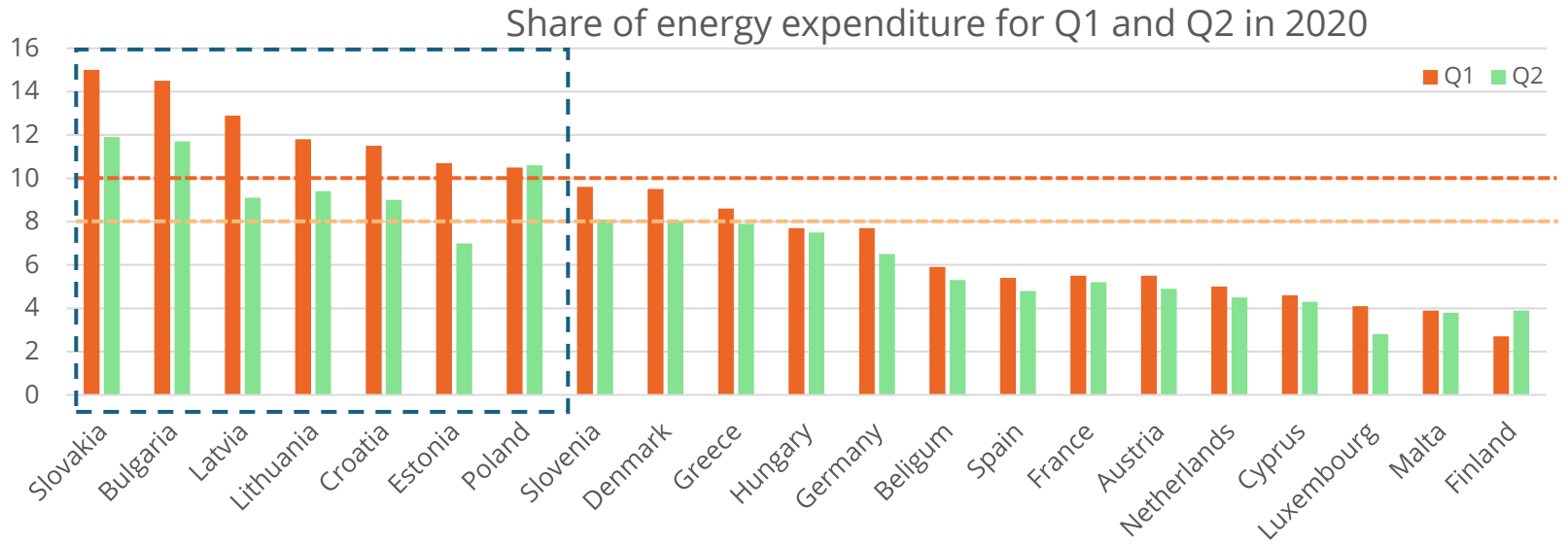
Vulnerability

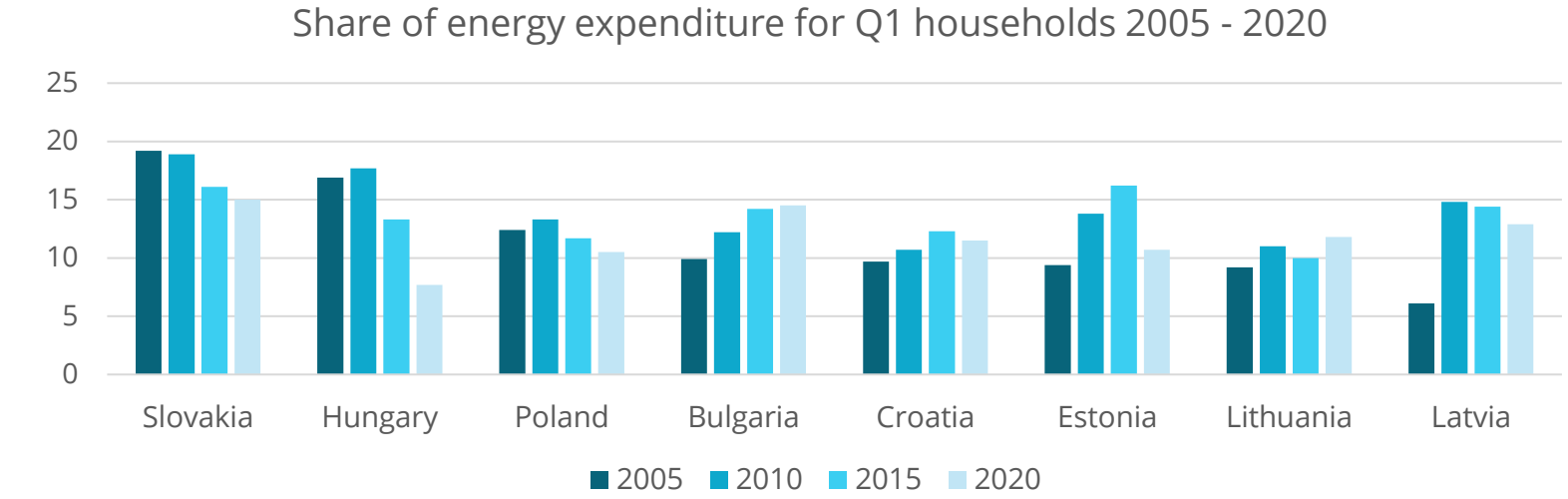
Relative energy expenditure ranges between 8% and 10%

Poverty

Relative energy expenditure is above 10%

Share of income spent on energy by income quintile





- The share of income spent on energy for Q1 varies significantly across the EU, ranging from 3% to 15%.
- Q1 households faced energy poverty in 7 countries and were vulnerable in 3 others, while Q2 households faced energy poverty in 3 countries and vulnerability in 6 others.
- Contrasting trends across countries throughout the period, with a noticeable improvement in one country, and deterioration in another.

Source: ODYSSEE

Selection of poverty indicators

1. Share of income spent on energy by income quintile
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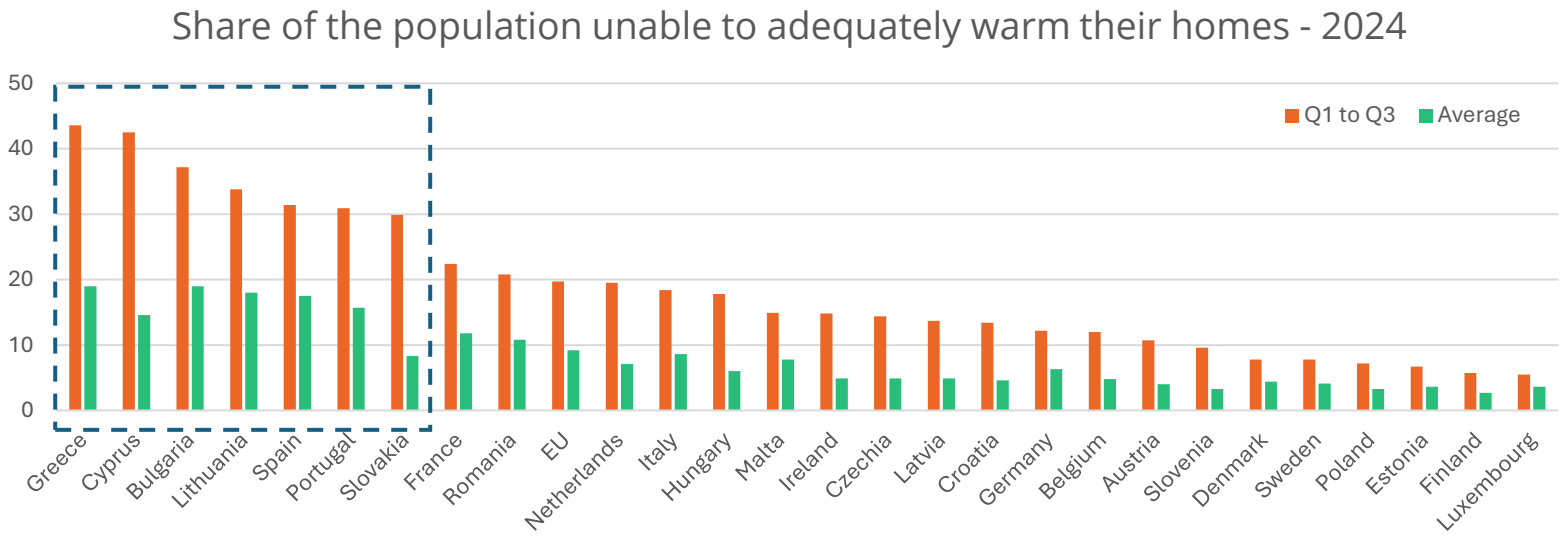
Households unable to adequately warm their homes in the wintertime

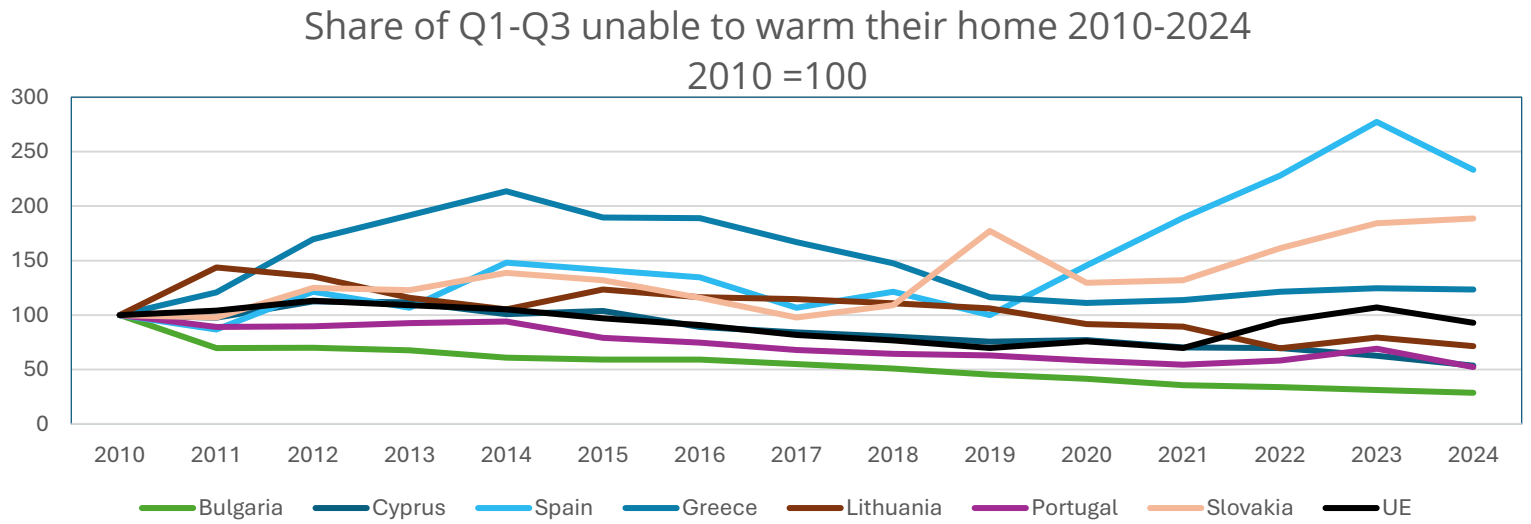
This indicator monitors the share of households that are unable to adequately warm their homes during winter. The indicator is available for the population as a whole and for each income quintile.

Limitations:

Survey-based, it leaves room for interpretation and potential subjectivity in responses regarding the meaning of “adequately warm”.

Households unable to adequately warm their homes in the wintertime





- In all countries, the share is significantly higher among the lowest 3 quintiles than the average (over 2 times higher in 16 countries).
- **In 7 countries**, more than 30% of Q1-Q3 households are unable to warm their homes.
- In 6 countries, around 15% or more of the general population is unable to adequately warm their homes.
- Contrasting trends across countries

Source: ODYSSEE

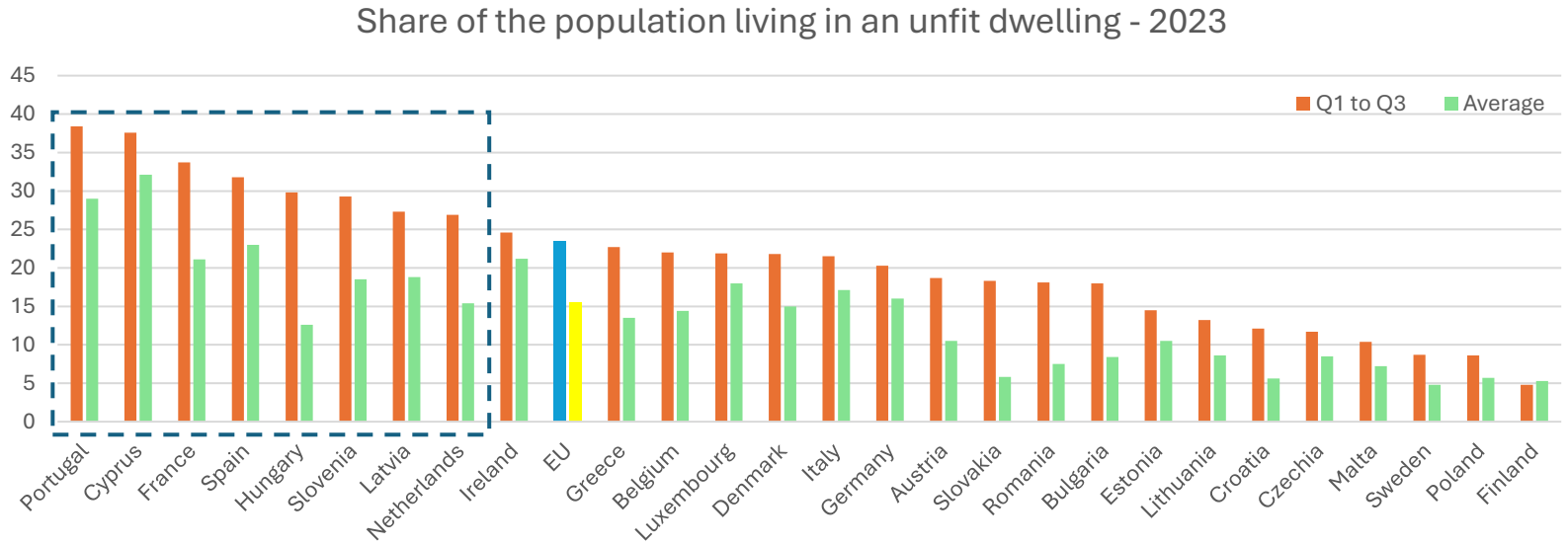
Selection of poverty indicators

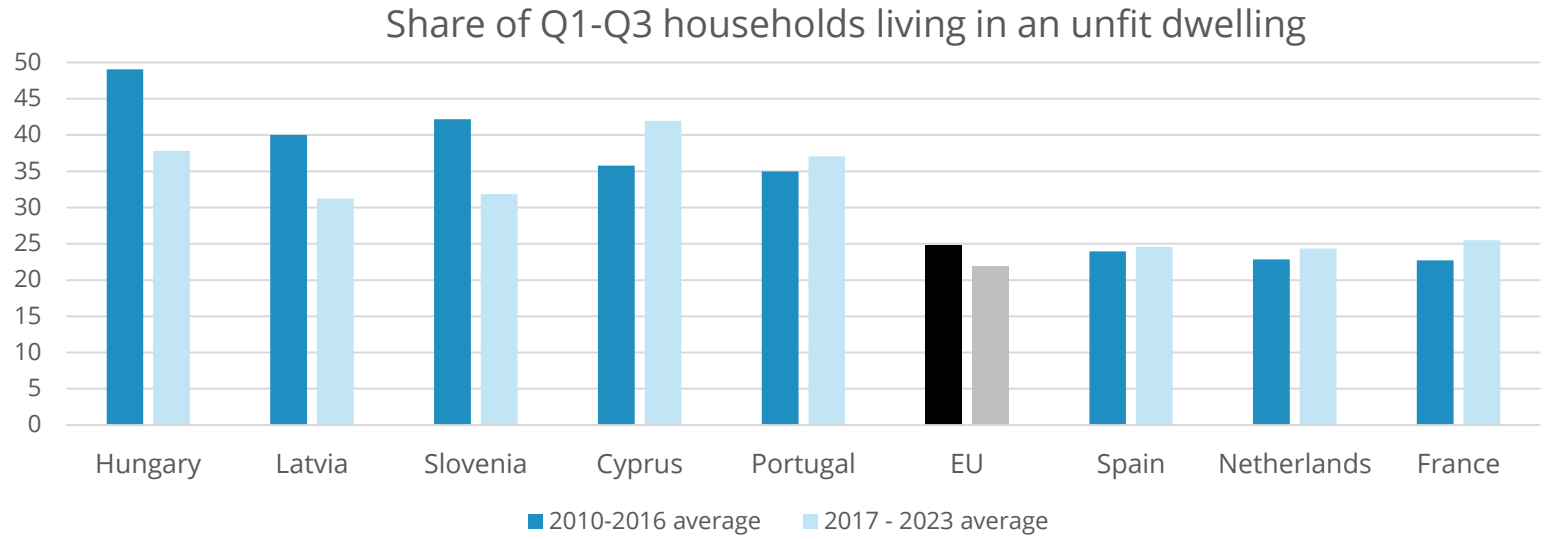
1. Share of income spent on energy by income quintile
2. Households unable to adequately warm their homes in the wintertime
3. **Households living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in windows frames or floor**

Households living in an unfit dwelling

This indicator monitors population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor in the general population and among the three lowest quintiles.

Households living in an unfit dwelling





- In all countries except one, the share of households that are living in an unfit dwelling is higher among the lowest 3 quintiles than in the general population (over 2 times higher in 5 countries).
- **In 8 countries,** approximately 25% of Q1-Q3 households are living in an unfit dwelling.
- In 3 countries and at EU level, the share has decreased over the period. In 5 countries, the situation has deteriorated or remained relatively stable.

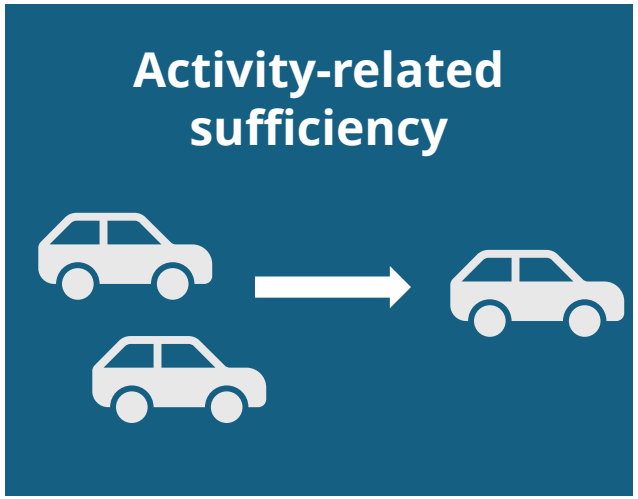
Source: ODYSSEE

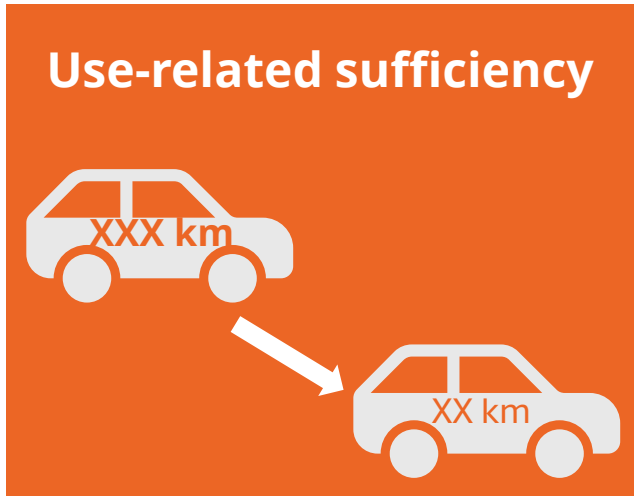
Agenda

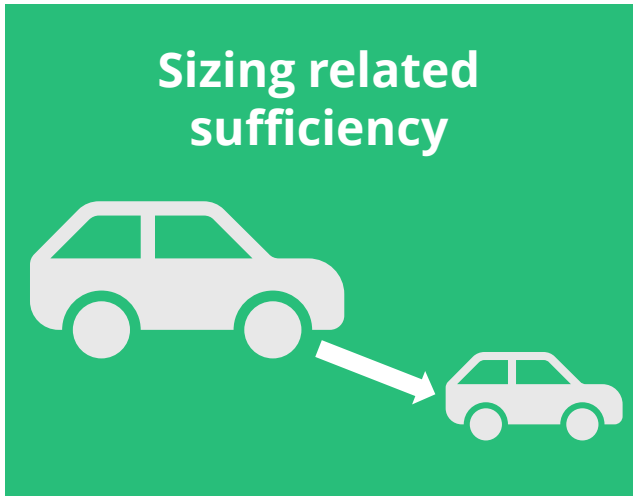
- Energy poverty
  - Energy poverty indicators in the Odyssee database
  - Selection of poverty indicators
- **Energy sufficiency**
  - Various form of energy sufficiency at sector level
  - Selection of sufficiency indicators

Various forms of energy sufficiency at sector level

Energy sufficiency refers to a reduction of final energy consumption in the households and transport sectors, linked to three types of household behaviours:







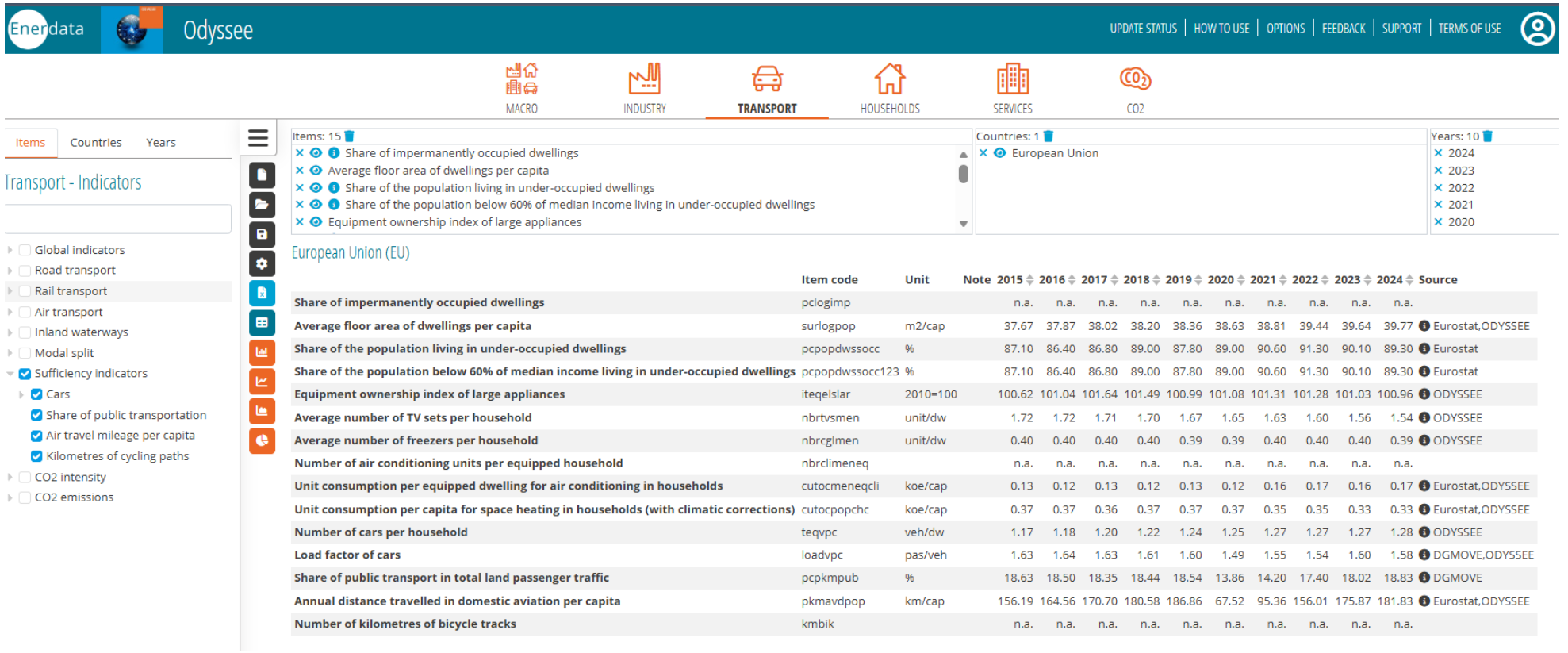
Examples of energy sufficiency actions

Effects	Activity-related sufficiency	Use-related sufficiency	Size related sufficiency
Space heating	Reduction in number of households and m2/dwelling due to sufficiency	Reduction of temperature setpoint	Reduction in the size of dwelling (m2/dwelling)
Electrical Appliances	Decrease in equipment rates related to sufficiency	Reduction in the use of equipment (shorter duration, reduced frequency)	Reduction in the size of equipment
Cars	Decrease in equipment rates related to sufficiency	Reduction in the distance travelled by car	Reduction in the size of cars

Both levels and trends are important to monitor.

Energy sufficiency indicators in the Odyssee database

- 10 indicators on energy sufficiency in the household sector + 5 in the transport sector
- Based on Eurostat data, with additional treatment and calculations by Enerdata
- Indicators included in the Odyssee database and uptaded, most to 2024



	Item code	Unit	Note	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Source
Share of impermanently occupied dwellings	pclogimp			n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Average floor area of dwellings per capita	surlogpop	m2/cap		37.67	37.87	38.02	38.20	38.36	38.63	38.81	39.44	39.64	39.77	Eurostat,ODYSSEE
Share of the population living in under-occupied dwellings	pcpopdwssocc	%		87.10	86.40	86.80	89.00	87.80	89.00	90.60	91.30	90.10	89.30	Eurostat
Share of the population below 60% of median income living in under-occupied dwellings	pcpopdwssocc123	%		87.10	86.40	86.80	89.00	87.80	89.00	90.60	91.30	90.10	89.30	Eurostat
Equipment ownership index of large appliances	iteqelslar	2010=100		100.62	101.04	101.64	101.49	100.99	101.08	101.31	101.28	101.03	100.96	ODYSSEE
Average number of TV sets per household	nbrtvsmen	unit/dw		1.72	1.72	1.71	1.70	1.67	1.65	1.63	1.60	1.56	1.54	ODYSSEE
Average number of freezers per household	nbrcglmen	unit/dw		0.40	0.40	0.40	0.40	0.39	0.39	0.40	0.40	0.40	0.39	ODYSSEE
Number of air conditioning units per equipped household	nbrclimeneq			n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	
Unit consumption per equipped dwelling for air conditioning in households	cutocmeneqcli	koe/cap		0.13	0.12	0.13	0.12	0.13	0.12	0.16	0.17	0.16	0.17	Eurostat,ODYSSEE
Unit consumption per capita for space heating in households (with climatic corrections)	cutocpopchc	koe/cap		0.37	0.37	0.36	0.37	0.37	0.37	0.35	0.35	0.33	0.33	Eurostat,ODYSSEE
Number of cars per household	teqvpc	veh/dw		1.17	1.18	1.20	1.22	1.24	1.25	1.27	1.27	1.27	1.28	ODYSSEE
Load factor of cars	loadvpc	pas/veh		1.63	1.64	1.63	1.61	1.60	1.49	1.55	1.54	1.60	1.58	DGMOVE,ODYSSEE
Share of public transport in total land passenger traffic	pcpkmpub	%		18.63	18.50	18.35	18.44	18.54	13.86	14.20	17.40	18.02	18.83	DGMOVE
Annual distance travelled in domestic aviation per capita	pkmavdpop	km/cap		156.19	164.56	170.70	180.58	186.86	67.52	95.36	156.01	175.87	181.83	Eurostat,ODYSSEE
Number of kilometres of bicycle tracks	kmbik			n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	

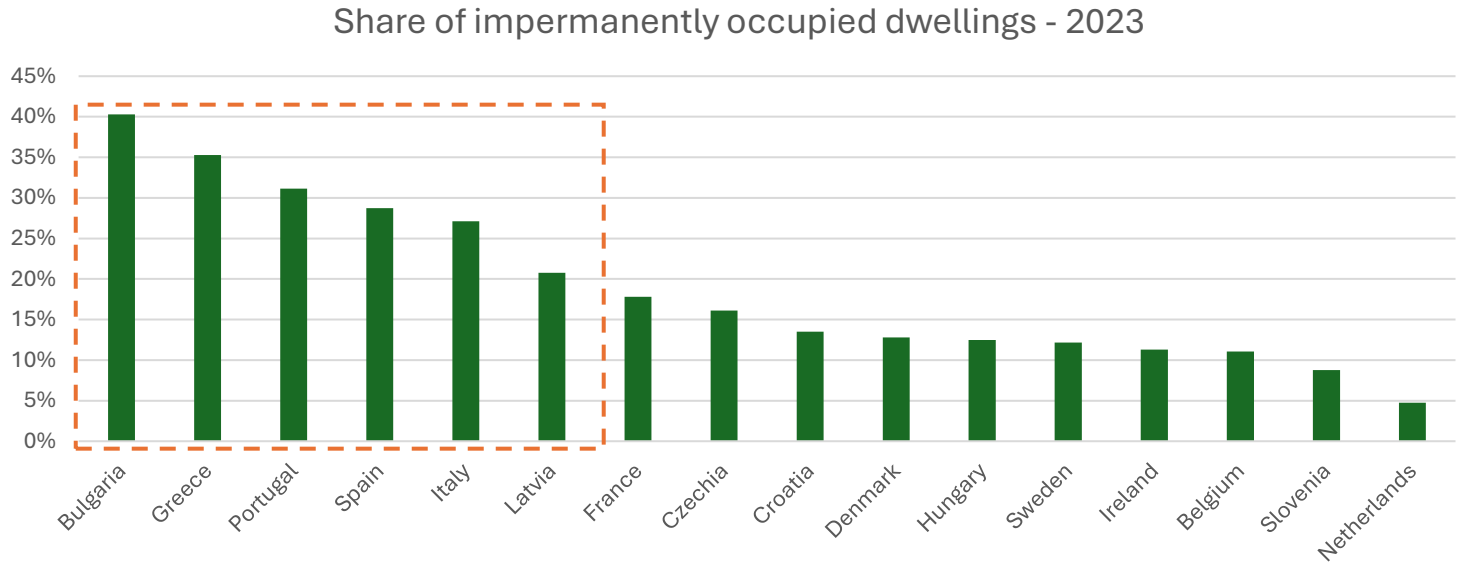
Selection of sufficiency indicators

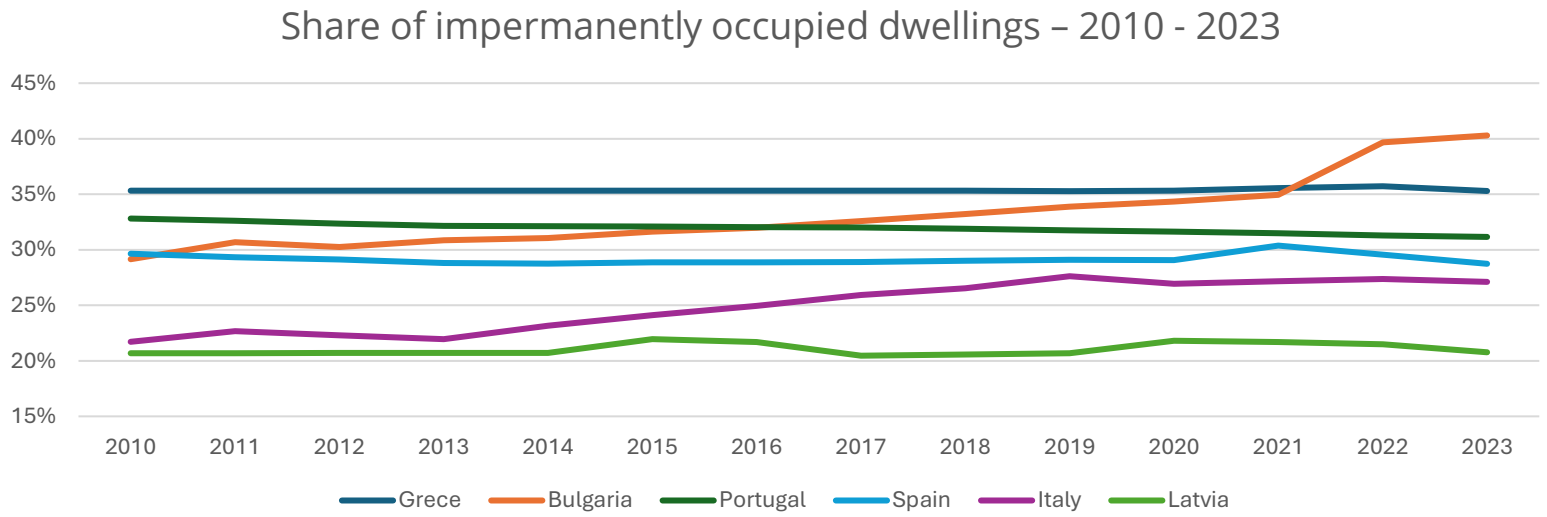
1. Share of impermanently occupied homes (Activity)
2. Number of cars per person (Activity)
3. Average floor area per capita in the stock of dwellings (Size)
4. Distance travelled per person by car (Use)

Selection of sufficiency indicators

1. **Share of impermanently occupied homes (Activity)**
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Share of impermanently occupied homes (Activity)





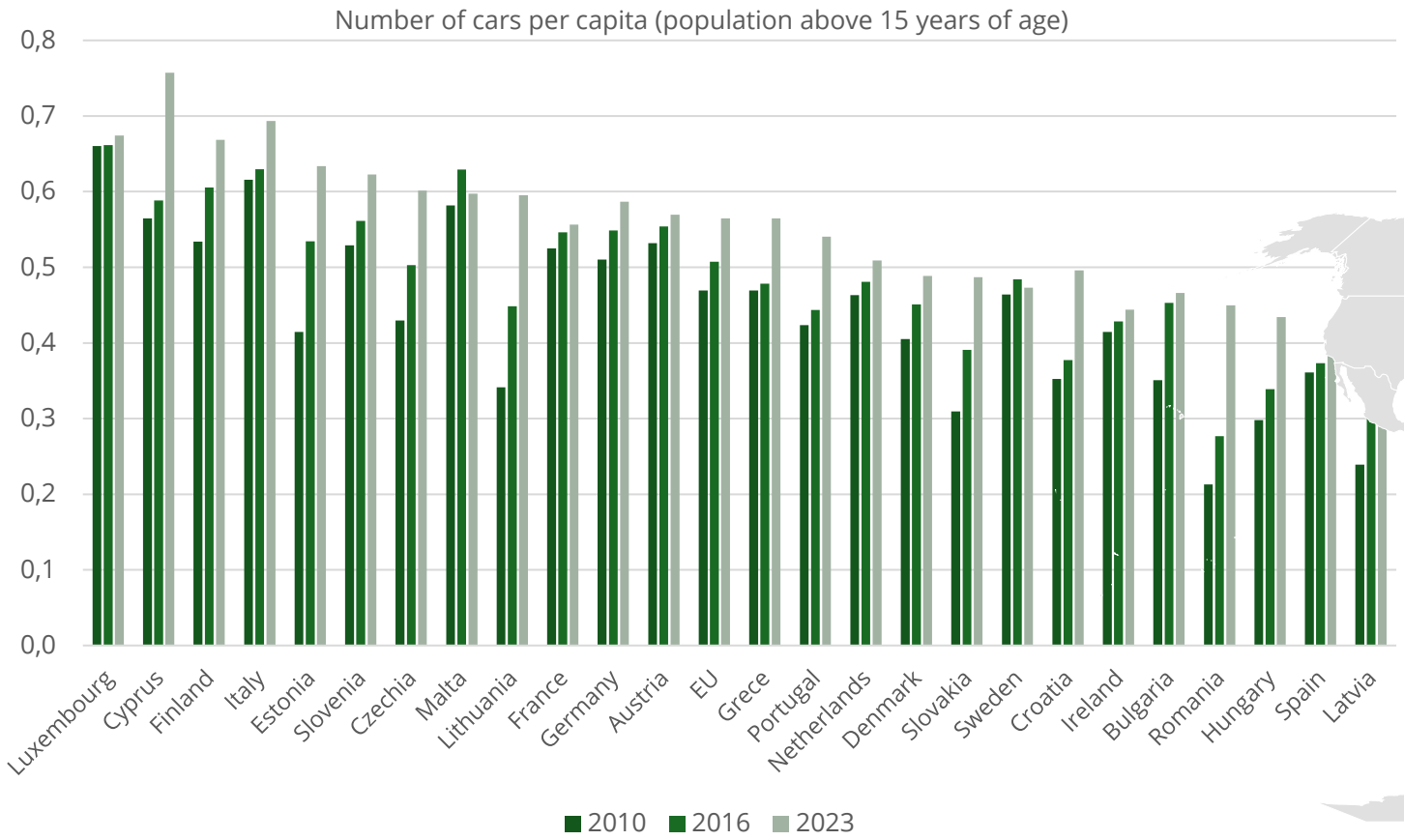
- In 6 countries, 20% or more of the dwelling stock is impermanently occupied.
- The share varies significantly across the EU, ranging from 5% to 40%.
- Contrasting trends across countries with stagnation in some and increasing share in others

Source: ODYSSEE

Selection of sufficiency indicators

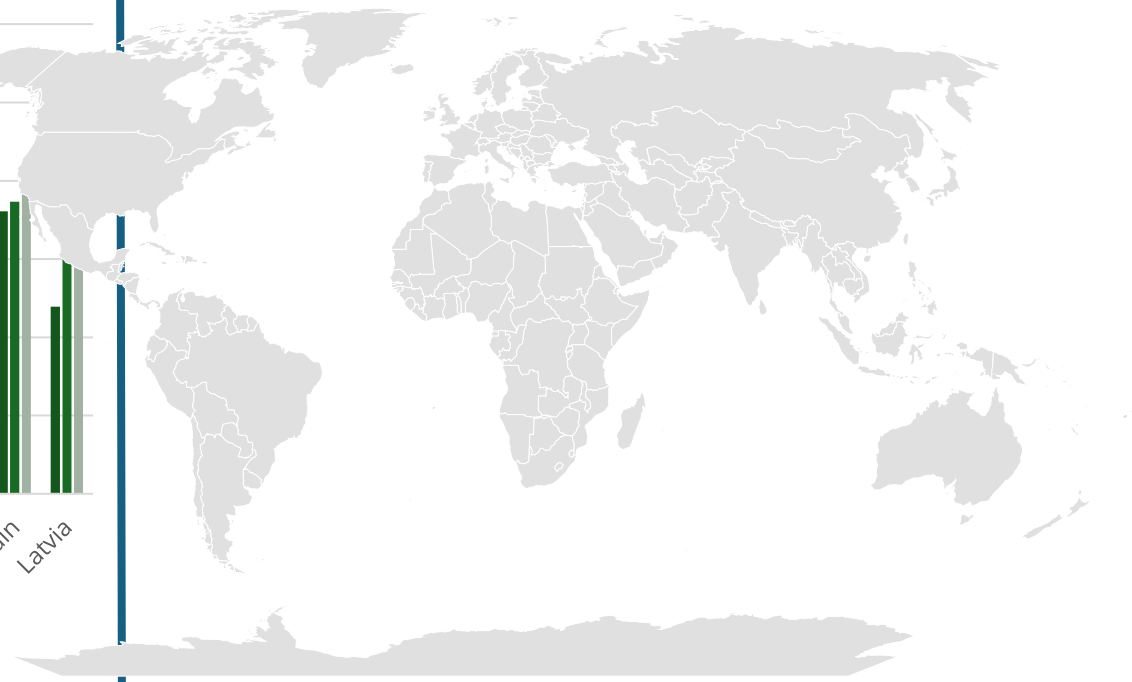
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2. **Number of cars per person (Activity)**
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4. Distance travelled per person by car (Use)

Number of cars per person (Activity)



- Upward trend throughout the period in all EU MS and at EU level, with the highest number currently at 0,75 car per capita, and the lowest at 0,38 per capita.

Number of cars per capita above 15 years of age - Variation 2010 - 2023



- The indicator increased in all EU MS with significant variation across countries ranging from +2% to x2

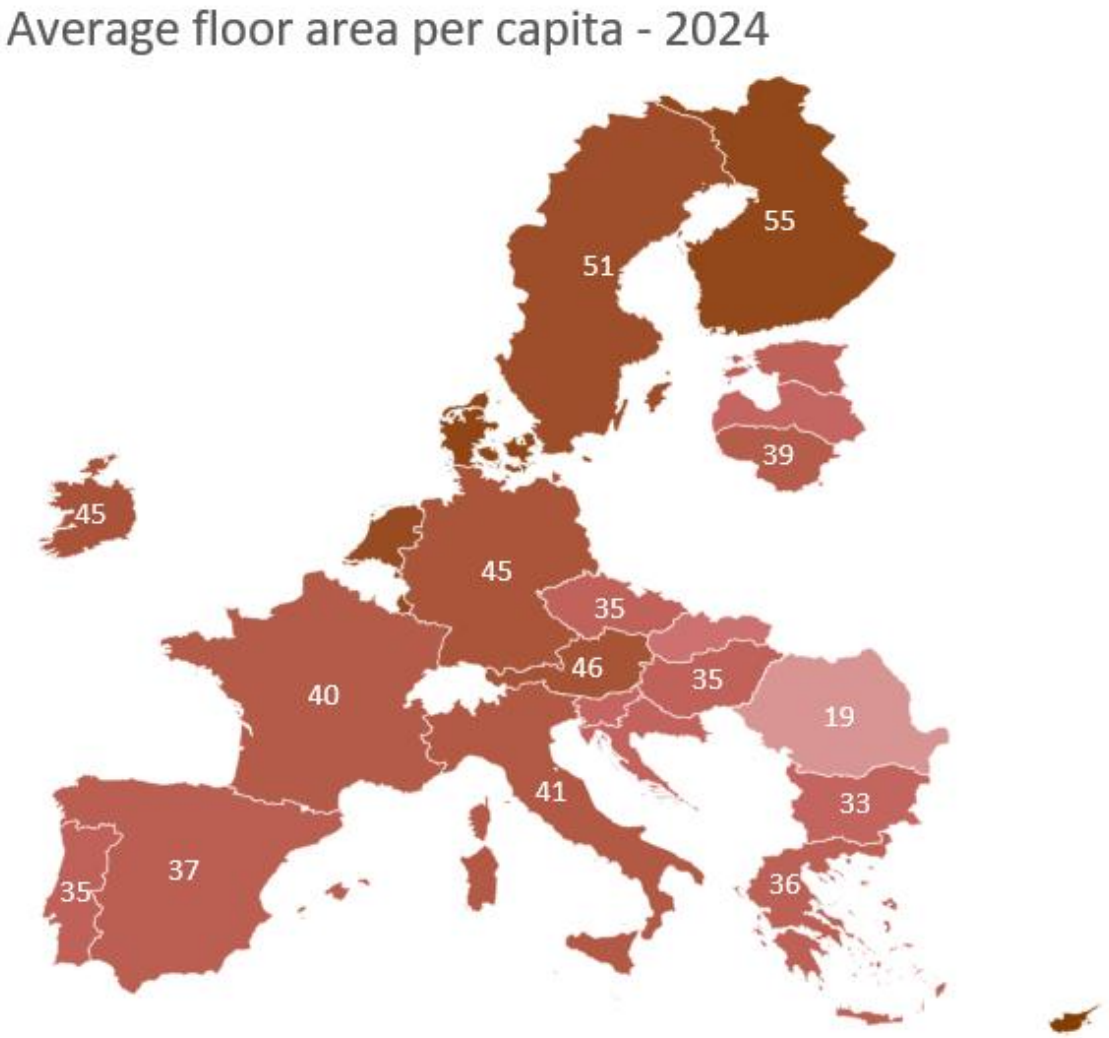
Source: ODYSSEE

Avec Bing

Selection of sufficiency indicators

1. Share of impermanently occupied homes (Activity)
2. Number of cars per person (Activity)
3. **Average floor area per capita in the stock of dwellings (Size)**
4. Distance travelled per person by car (Use)

Average floor area per capita in the stock of dwellings (Size)

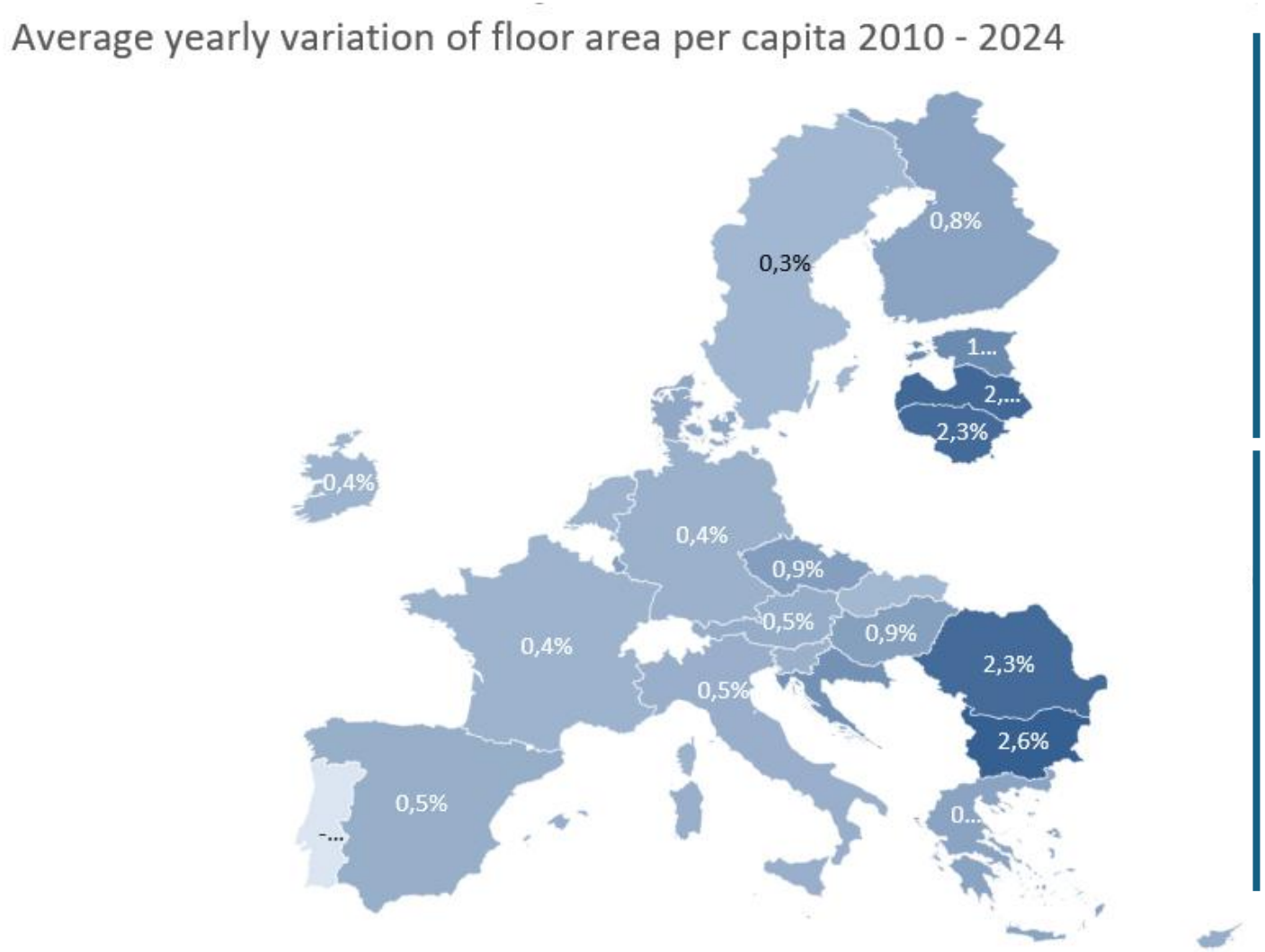


- Significant variation across EU MS, with the average area ranging from 19 to 62 m^2.
- Highest average floor area in northern and island countries, and lowest in eastern Europe countries

- Stronger yearly variation in Eastern European countries and some Baltic countries, reaching 2.6% per year (i.e + 42% between 2010 and 2024)
- Slight decrease in the average floor area in one country

Source: ODYSSEE

Average floor area per capita in the stock of dwellings (Size)



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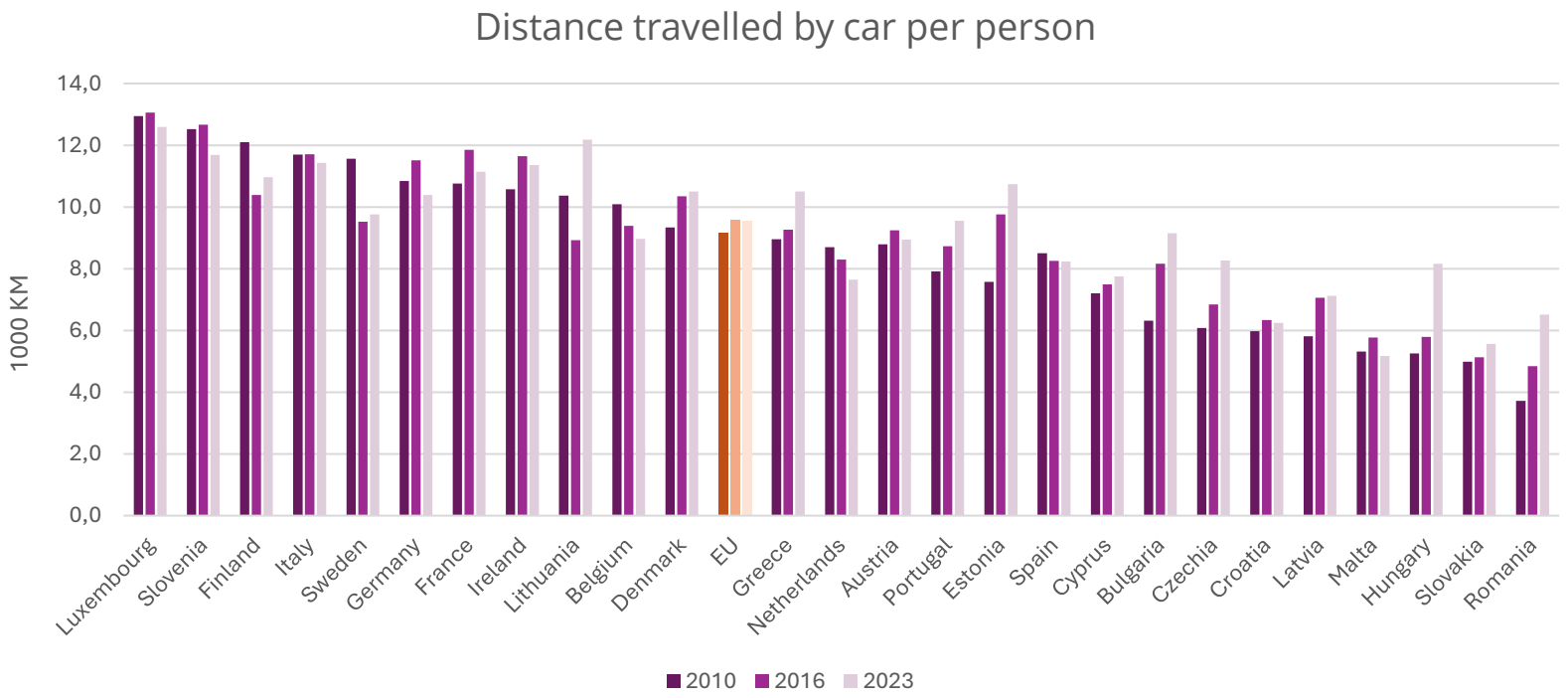
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Source: ODYSSEE

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4. **Distance travelled per person by car (Use)**

Distance travelled per person by car (Use)



- Decrease in the distance travelled by car in 10 countries, that can be explained by improvement in public transportation systems.
- Stagnation at EU level
- Contrasting levels throughout EU MS in 2023, ranging from 5000 km/person to 12600 km/person

Source: ODYSSEE