



# Effects of minimum wage on rates of youth not in employment, education or training (NEET) in Europe

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# **Aim of the study**

**Analyze the effect of minimum wage on NEET rates**

# Why NEETs?

Young people not in Employment, Education, or Training:

$(\text{Unemployed} + \text{Inactive not studying}) / \text{Total population}$

Age class: 15-34 years



no specific studies on the relationship  
with the minimum wage

# What we know from the literature

## Effects of minimum wage on employment rates

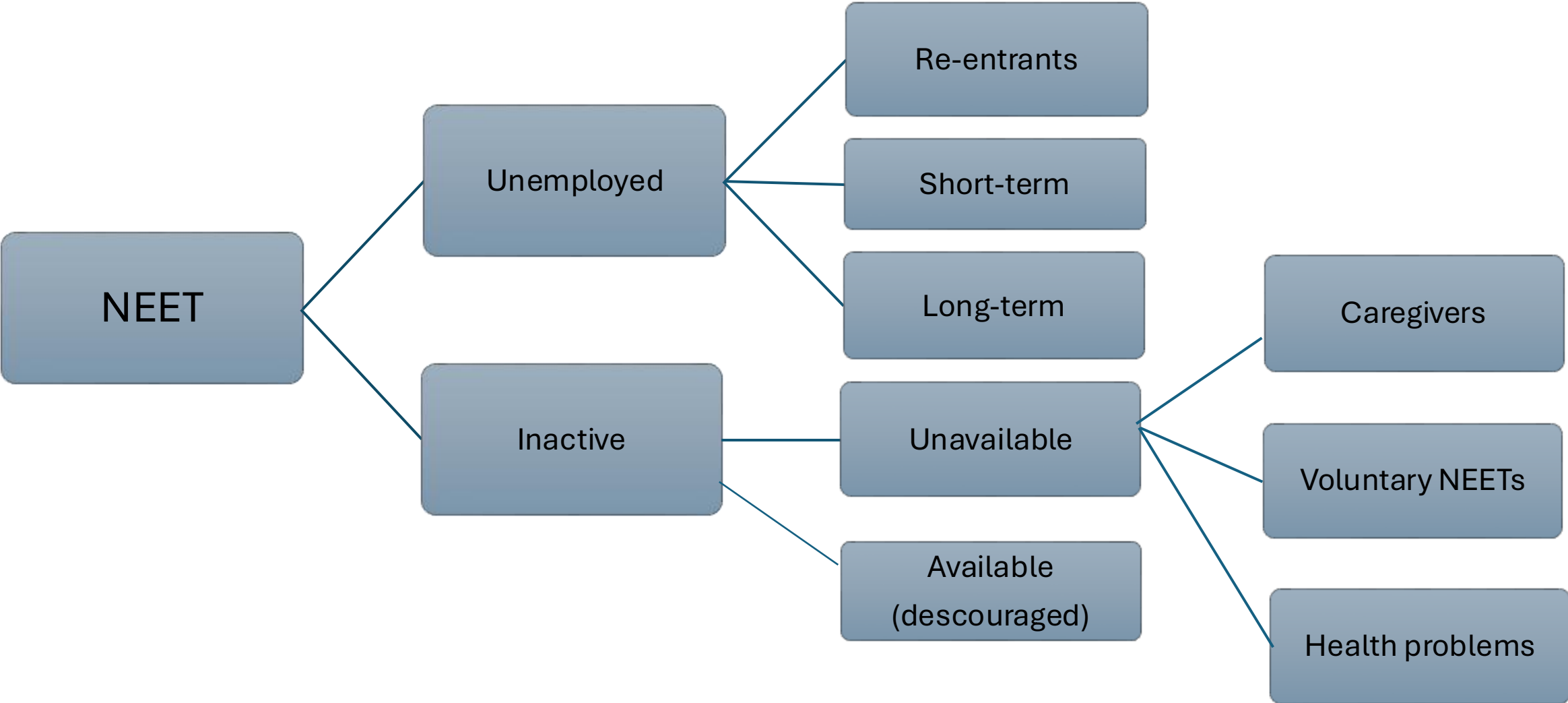
There are different theoretical perspectives

- **Traditional economic theory:** if the wages are set above the equilibrium wage, it can lead to a surplus of labor, which translates in higher unemployment or reduced employment opportunities, especially for low-skilled or inexperienced workers; on the other side, employers, as additional effect may reduce hiring (Friedman, 1962; Kalenkoski, 2016)
- **Modern theories:** based on the *monopsony model*, employers usually have market power which lead them to set wages below the competitive level. In that case, the minimum wage could increase employment because it corrects the underpayment of workers and incentivizes more people to enter the labor force (Manning, 2003; Dube et al., 2016)

**Main empirical findings** suggest that the effect of minimum wage depends on the specific context or particular economic sectors (Card and Krueger, 1994; Godoey and Reich, 2021; Glasner, 2023)

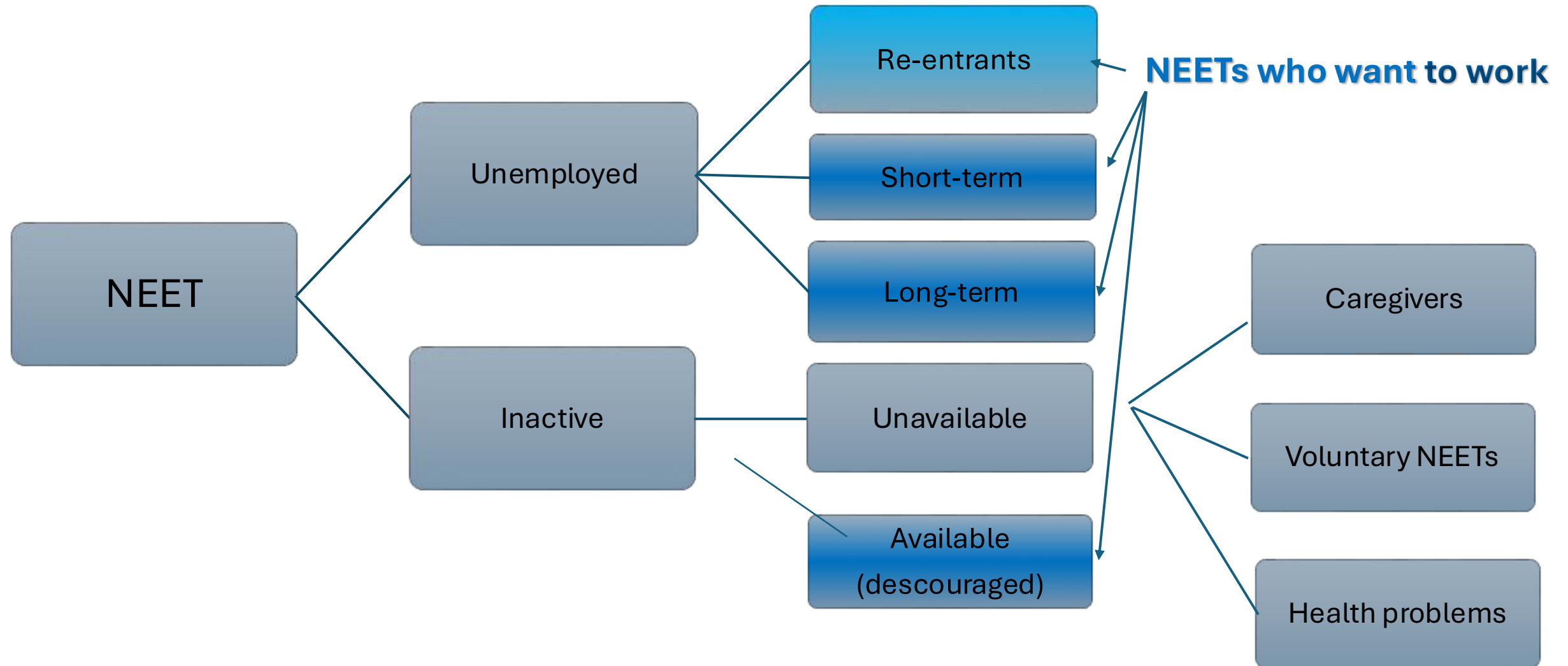
# Different causes of NEET status

- NEETs are not a homogeneous group:



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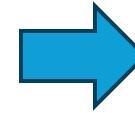


# How minimum wage can act on NEETs?

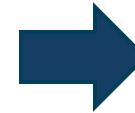
## Effects of minimum wage on employment rates:

There are different theoretical perspectives

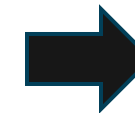
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- **Modern theories:** based on the monopsony model, employers usually have market power which lead them to set wages below the competitive level. In that case, the minimum wage could increase employment because it corrects the underpayment of workers and **incentivizes more people to enter the labor force**
- **Recent tendencies after the COVID-19 pandemic:** especially among the Millennials, phenomena such as **great resignation**, **quit quitting**, and **downshifting** are increasing



NEETs are usually inexperienced, as they are young and they are strongly concentrated among low-skilled



Voluntary NEETs, caregivers can find more convenient to enter the labor market



Low levels of wages can disincentivize young people to enter the labor market



**reduced inactivity, but increase in unemployment**

# Methodological approach

- Panel study for the years 2012-2023 involving all the EU countries more Norway, Switzerland, and Iceland (360 obs in total)
- Analysis of the dependence of the NEET rates on minimum wage levels, controlling for a set of other factors (affecting the NEET rates)
- Considering that the **NEET** condition is the outcome of different situations, the analysis is repeated by substituting the NEET rates with some NEET sub-groups:
  - ❖ Inactive young people (not engaged in studying or training)
    - Caregivers
    - Discouraged
  - ❖ Unemployed young people
    - Youth unemployment rate
    - Long-term youth unemployment rate (>12 months)
  - ❖ NEETs who want to work (seeking employment or not)

# Methodological steps

Dependent variables (%):

age class: 15-34

Total NEETs

Inactive not engaged in education

Caregivers

Unemployed

Long-term unemployed

NEETs who want to work (seeking or not)

Discouraged

Independent variables (%):

Minimum wage (in PPP)

A set of control variables for macroeconomic condition and education system characteristics

# Methodological steps

Dependent variables (%):

age class: 15-34

Total NEETs

Inactive not engaged in education

Caregivers

Unemployed

Long-term unemployed

NEETs who want to work (seeking or not)

Discouraged

- Selection of the best model specification considering the main determinants of the NEET rates with all the covariates *delayed* of one year to consider the effect on the NEET rates
- Identification, according to the Hausman test, of the correct panel model specification (fixed or random effects)
- Estimation of the final model with robust standard errors

# Control variables:

- Real labour productivity per person
  - Per capita GDP in ppp EU-27=100
  - Real GDP growth rate
  - Temporary employees
  - Tax wedge
  - Unemployment benefits
  - People at risk of poverty
- 
- Early school leavers (18-24)
  - Tertiary educated (25-34)
  - VET students as % of all upper secondary education students
  - Early childhood education (3 years)

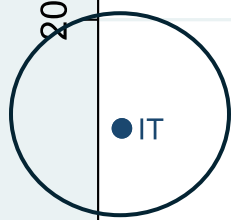
# Preliminary analysis

Year 2023

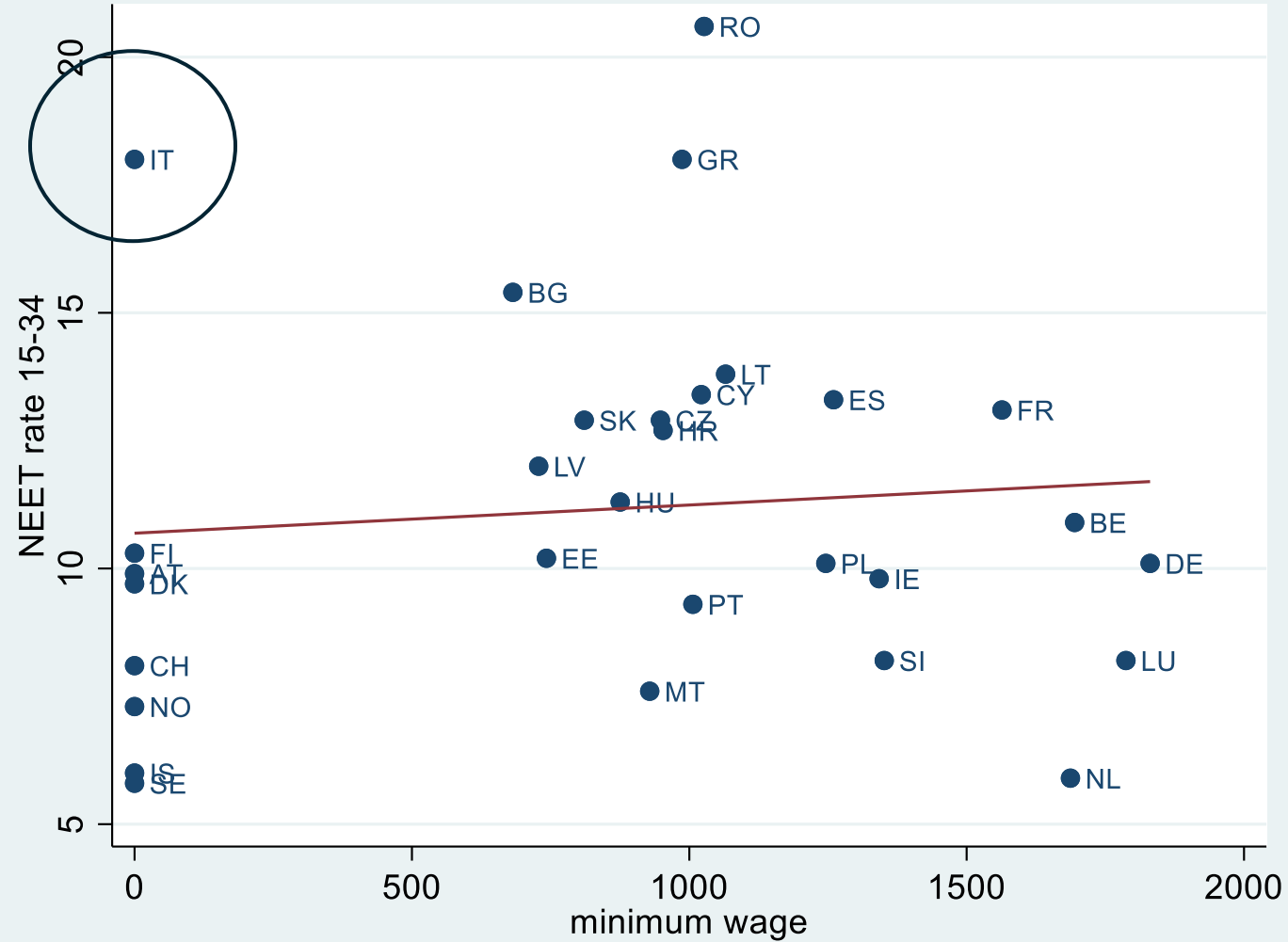


# Preliminary analysis

*No minimum wage  
and the highest  
levels of NEETs*



**Year 2023**



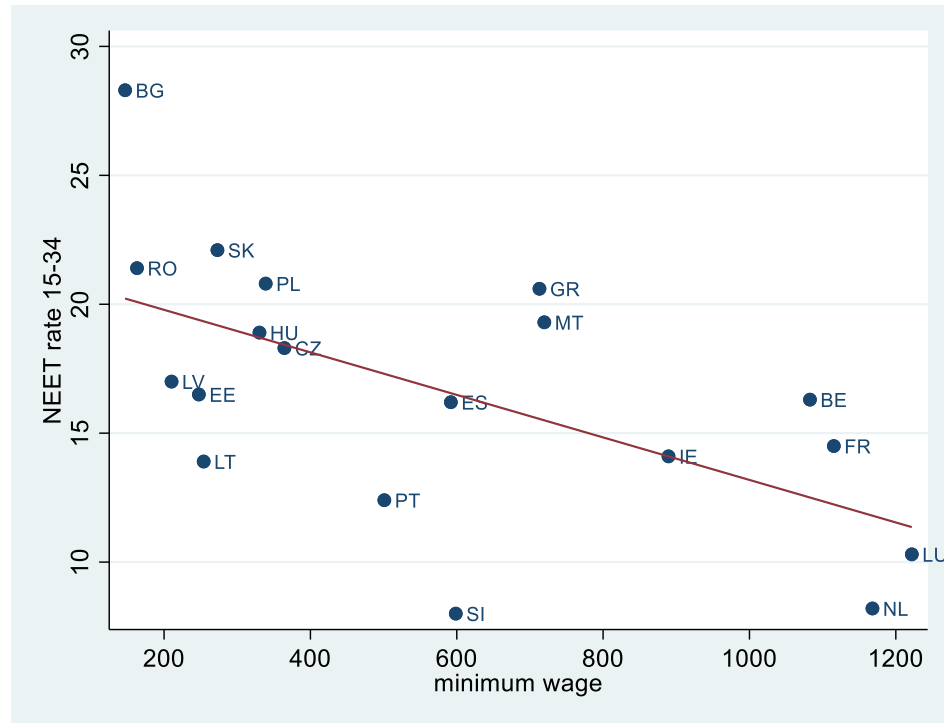
# Focusing only on countries with minimum wage:

Year 2023



# How did it change before and after the economic crisis?

2004



2023



Monthly minimum wages, half-yearly, semesterly, purchasing standard power

# Analysis

**All the countries using a dummy for the minimum wage**

# Controlling for the presence of the minimum wage and its effects

	NEETs	YUR	Long YUR	Inactive NEETs	Care-givers	NEET want work	Descour
Dummy	<b>3.735**</b>	-0.017	2.227	1.131	<b>0.003***</b>	1.906	2.42
Labour product	-0.060*	-0.001***				-0.082***	-4.25E-4***
GDP gr	-0.112***	-0.002***	-0.111***	-0.038***		-0.117***	
GDP			-0.014	-0.020***			
Tempor		0.003**			-5.49e-5		
ESL	0.325***	0.003*	0.398***	0.080*	-1.69E-5**	0.293**	3.97E-4*
Tertiary ed	-0.229***	-0.003***	-0.280***			-0.197***	-2.88e-4**
VET stud	-0.075**						3.97E-5
Unempl benefits		0.022***	0.597**	-0.236			-8.08E-4
At risk poverty		0.005*					
Early child					2.27E-5*		
Interc-	26.976***	0.218***	11.385***	8.863***	0.003***	20.746***	0.056***
Wald chi	101.07***	199.58***	90.99***	21.27***	13.17***	63.13***	30.35***
N	330	240	330	330	240	330	240

# Analysis

**Focusing on countries with the minimum wage**

# Coefficients for the simple regression models with minimum wage as covariate

	NEETs	YUR	Long YUR	Inactive NEETs	Care-givers	NEET want work	Descour
FE	-0.012 <sup>***</sup>	-1.86e-4 <sup>***</sup>	-0.014 <sup>***</sup>	-0.001	3.90e-6 <sup>***</sup>	-0.013 <sup>***</sup>	-2.93E-5 <sup>**</sup>
RE	-0.011 <sup>***</sup>	-1.55e-4 <sup>***</sup>	-0.011 <sup>***</sup>	-0.002	2.41e-6 <sup>***</sup>	-0.011 <sup>***</sup>	-2.04e-5 <sup>***</sup>

# Random effects models' specifications (robust SE)

	NEETs	YUR	Long YUR	Inactive NEETs	Caregivers	NEET want work	Descour
Minimum wage	-0.005**	-5.49E-5**	-0.007***	1.63E-5	2.10E-6***	-0.005***	-8.97E-6***
Labour productivity						-0.046*	-3.78E-4***
GDP growth	-0.132***	-0.003***	-0.090**	-0.045***	-5.57E-5**	-0.125***	
GDP per capita				-0.023***			
Temporary workers					-5.91E-4		
Early School Leavers	0.288**	0.005**		0.075*	-0.003	0.252*	
Tertiary educated	-0.241***	-0.004**	-0.371***			-0.178***	-3.17E-4***
VET students	-0.103***	0.001					
Unemployment benefits			1.583***	-0.401**			
Intercept	30.765***	0.304***	24.317***	10.548***	0.003**	22.843***	0.064***
Wald chi	148.13***	106.13***	41.07***	24.32***	13.15***	113.98***	10.73***
N	228	157	228	228	157	228	157

# Fixed effects models' specifications (robust SE)

	NEETs	YUR	Long YUR	Inactive NEETs	Caregivers	NEET want work	Descour
Min wage	-0.005*	-6.50E-5*	-0.008***	2.63E-4	1.66E-6*	-0.007***	-1.06E-5
Labour productivity						-0.024	-3.60E-4**
GDP growth	-0.127***	-0.002***	-0.080*	-0.047***	-5.23E-5*	-0.126***	
GDP per capita				-0.023***			
Temporary workers					-2.31E-4***		
Early School Leavers	0.323**	0.006**		0.075	-1.54E-4	0.253	
Tertiary educated	-0.243***	-0.005***	-0.409***			-0.206**	-2.93E-4**
VET students	-0.117***	-0.001*					
Unemployment benefits			1.536***	-0.380*			
Intercept	31.196***	0.364***	26.723***	10.334***	0.005**	23.12***	0.063***
F	51.86***	25.29***	10.96***	4.43***	5.57***	27.05***	2.88*
N	228	157	227	228	157	228	157
Hausman test	7.52	40.33***	34.70***	4.97	10.74**	37.55***	0.20

	RE	FE	FE	RE	FE	FE	RE
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	H <sub>0</sub> true	H <sub>1</sub> true
RE estimator	Consistent (more efficient than FE)	Not consistent
FE estimator	Consistent (less efficient than RE)	Consistent

# Synthesizing

	Random Effects		Fixed Effects	
	Coeff. Sig.	P value	Coeff. Sig.	P value
NEETs	-	<b>0.04</b>	-	0.09
Youth unemployment rate	-	0.04	-	<b>0.10</b>
Long-term youth unemployment rate	-	0.00	-	<b>0.00</b>
Inactive NEETs	+	<b>0.99</b>	+	0.85
Caregivers	+	0.01	+	<b>0.09</b>
NEETs who want to work	-	0.00	-	<b>0.01</b>
Discouraged (20-64)	-	<b>0.01</b>	-	0.16

# Synthesizing

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Inactive NEETs	+	<b>0.99</b>	+	0.85
Caregivers	+	<b>0.01</b>	+	<b>0.09</b>
NEETs who want to work	-	0.00	-	<b>0.01</b>
Discouraged	-	<b>0.01</b>	-	0.16

# Conclusions

- In the analysis involving **all** the countries, the minimum wage appears to increase the NEET rates, but
  - Except for Italy, countries without the minimum wage show a **Universalistic** (Denmark, Sweden, Finland + Noeway) or a **Continental** (Austria + Switzerland) **transition regime**
  - Their lower NEET rates depend on **other factors** (efficient/vocational education systems, developed institutions helping young people during the STWT)
  - It is not convincing to compare countries with and without the minimum wage

# Conclusions

- Focusing on countries with minimum wage:
  - Looking at the **total NEET rate**, the minimum wage significantly reduces it
  - Considering specific **NEET sub-groups**, the minimum wage significantly reduces all of them, except **inactive** and its sub-components (**caregivers** and **discouraged**)
  - The effect of the minimum wage is the opposite for **discouraged** (reduction) and **caregivers** (increase), probably because it increases the income of the caregivers' partners

# Conclusions

Considering recent phenomena such as great resignation, quit quitting, and downshifting, the lack of adequate minimum wages would lead to increased inactivity and brain drain among young people, which, in Italy, is already a dramatic reality!

# References

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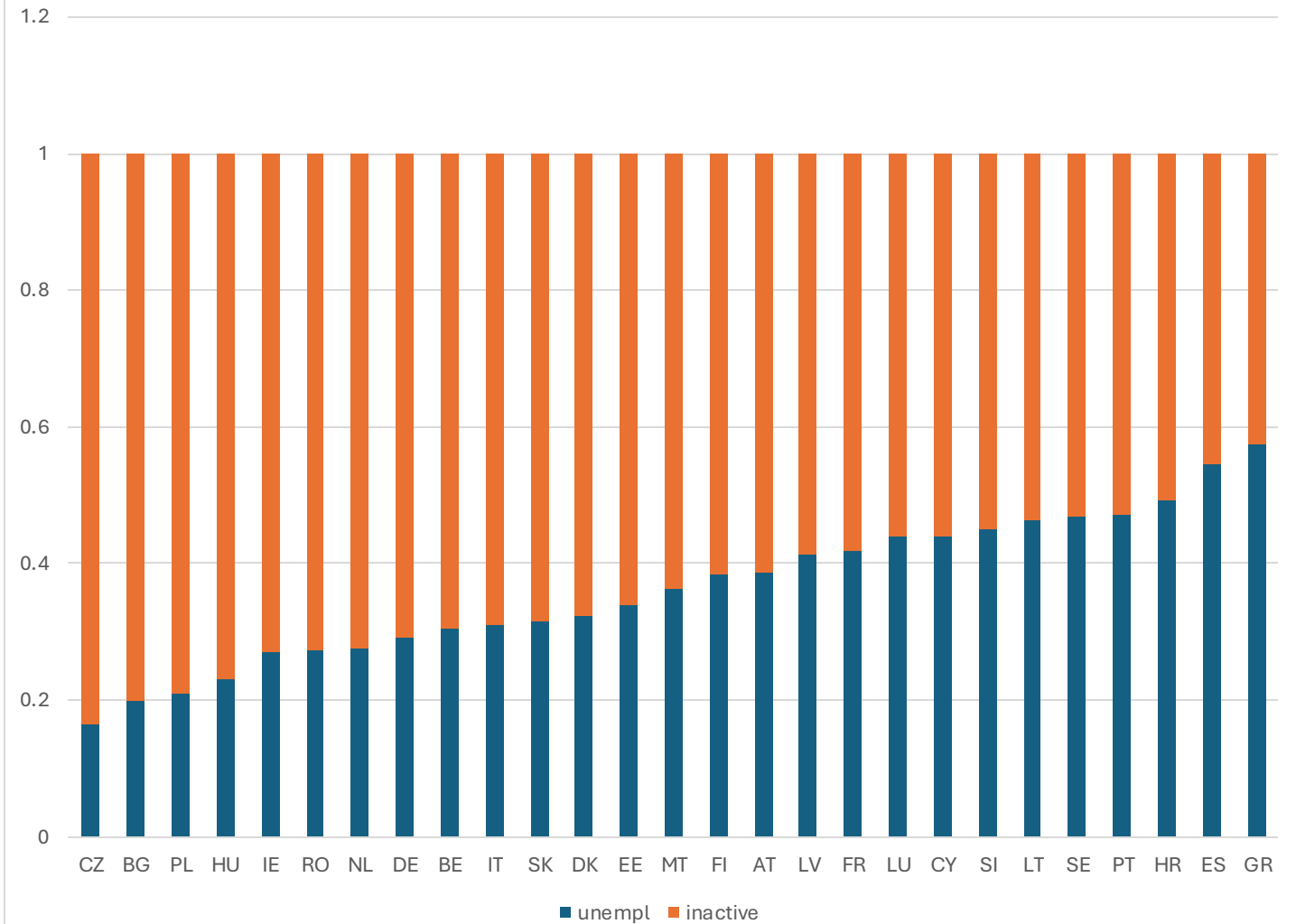


**THANK YOU!**

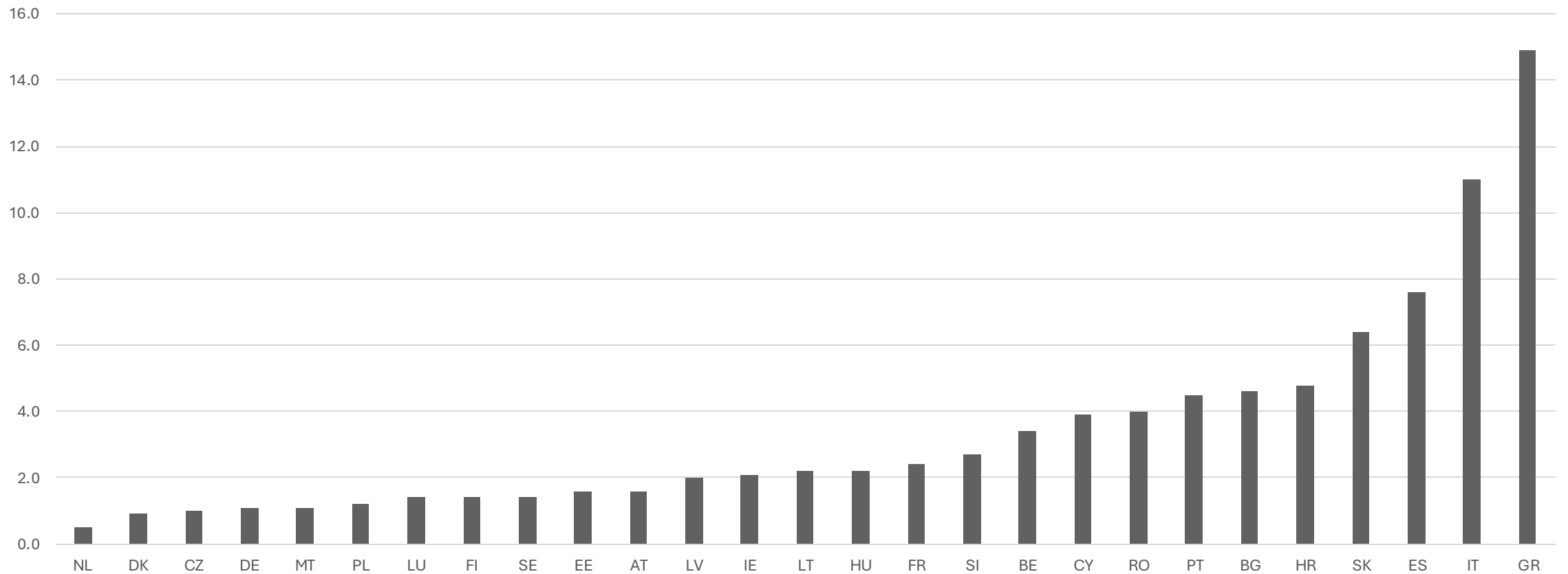


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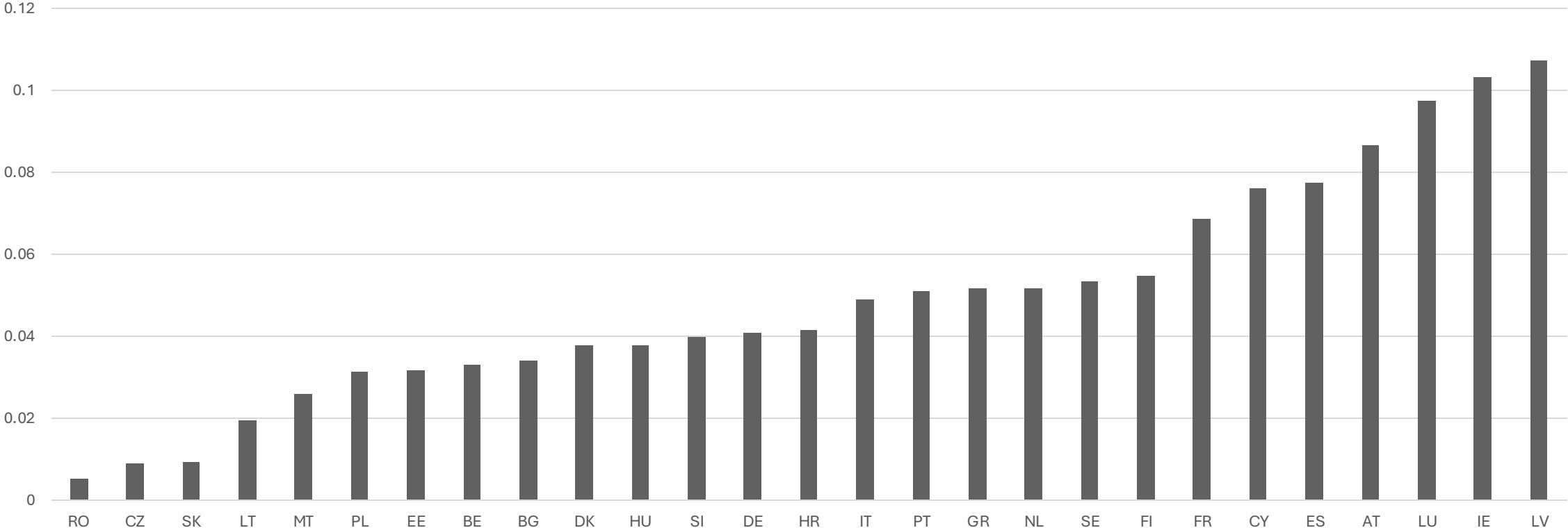
# Composition of NEETs



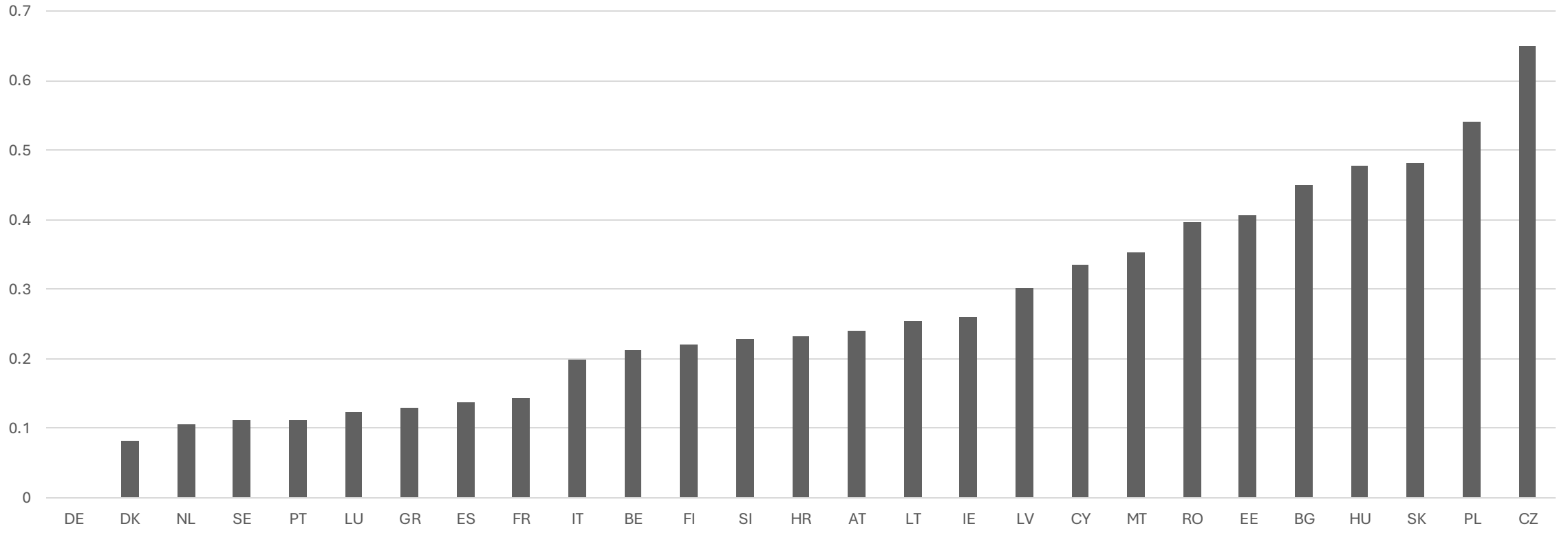
Long-term unemployment rate in 2021 - age group 15-29



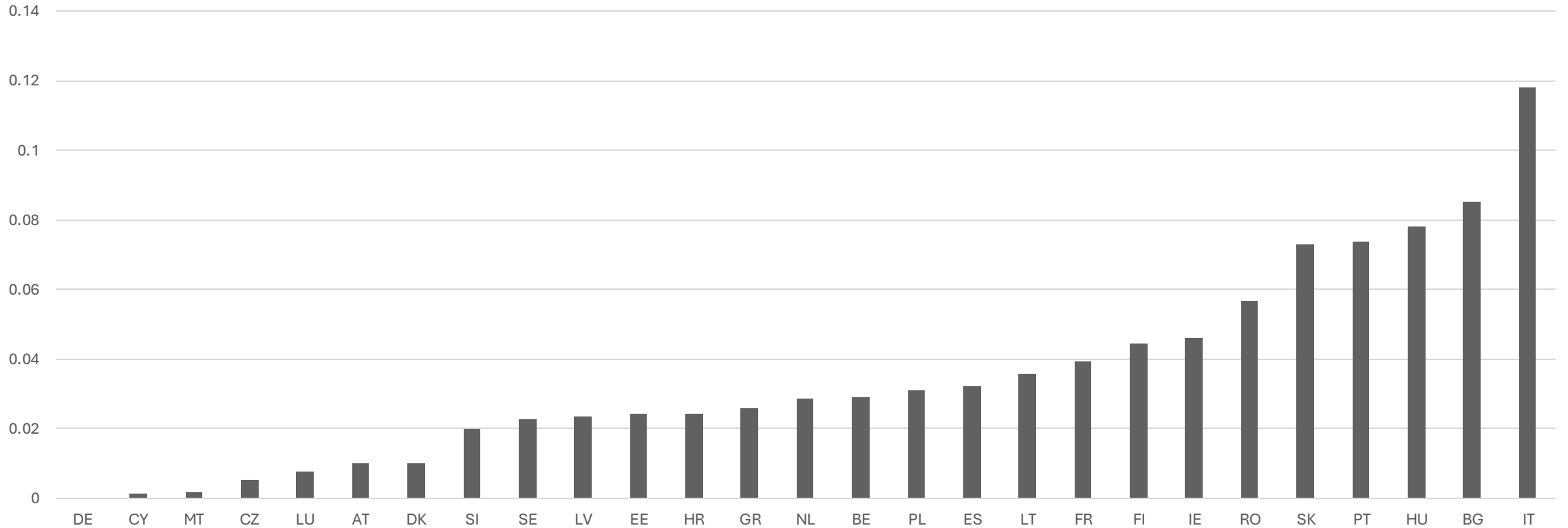
# Re-entrants



### Unavailable due to care of children, elderly or for other family responsibilities



## Discouragment



# Disability

