Educational differences in health in 26 European countries: methodological issues and first results

Aïda Solé Auró y Emmanuelle Cambois

Workshop sobre Evaluación de Políticas Públicas para la Dependencia
Barcelona July 3-4, 2014

Why should we measure SES differentials in HLY across EU?

2012 European year for active aging:

Active aging to give the baby-boom generations and tomorrow's older adults the opportunity to:

1. Stay in the workforce and share their experience
2. Keep playing an active role in society
3. Live as healthy and fulfilling lives as possible

"Increasing by two years the *healthy life years* of the EU by 2020"

Monitoring inequalities in mortality and health
BETWEEN and WITHIN EU countries

Why should we measure SES differentials in HLY across EU?

What do we already know?

Large educational and occupational differentials in LIFE EXPECTANCY in all countries

- The gaps do not tend to decrease, and depends on the cause of death

Large educational and occupational differentials in HEALTH EXPECTANCY

- The shorter the LE, the longer the LE with disability
- Even larger differentials than for LIFE EXPECTANCY

By education: Bossuyt et al. 2004; Bronnum-Hansen et al. 2004; Bronnum-Hansen, Baadsgaard 2008; Lievre, Alley, and Crimmins 2008; Matthews et al. 2009; Matthews, Jagger, and Hancock 2006; Minicuci and Noale 2005; Pérès et al. 2005; Van Oyen et al. 2005 and 2011; Bronnum-Hansen et al., 2013.
By occupational status : Bronnum-Hansen 2000; Melzer et al. 2000; White et al, 2010; Cambois et al, 2001 & 2011.

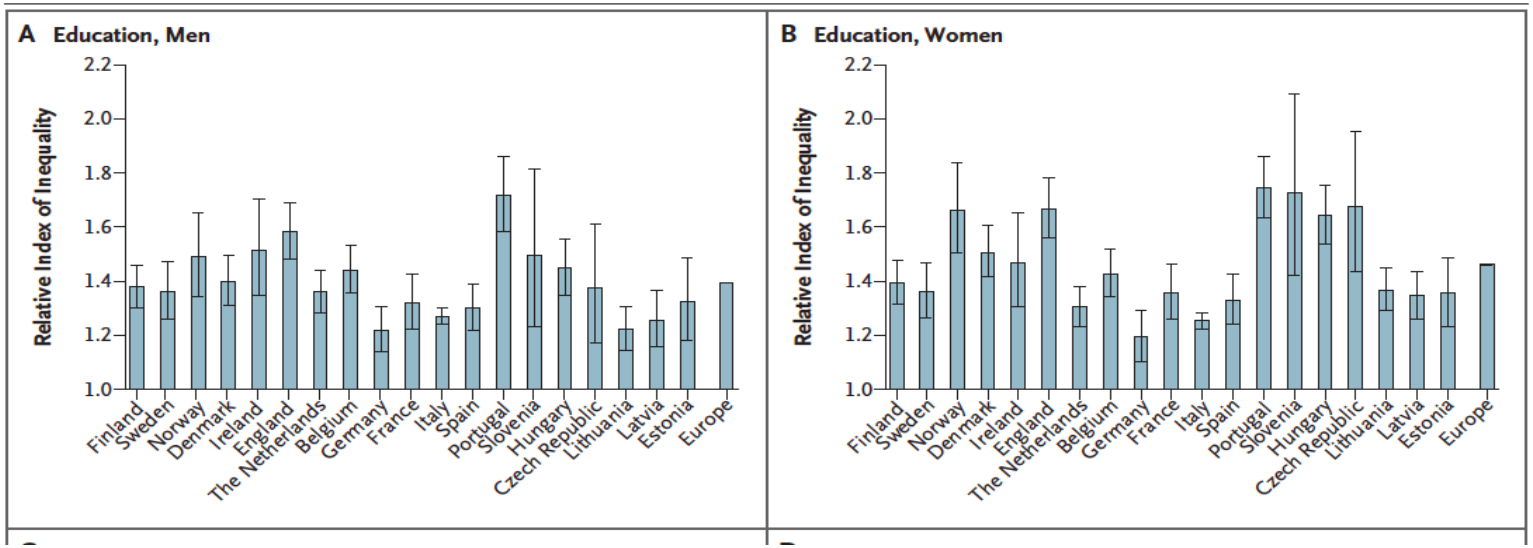
Can we learn from each other? Can we monitor trends?

- Data available regarding health & disability available from EU surveys
- No mortality data by SES produced routinely at the EU level
- EU initiatives to produce comparable data (Mackenbach, Kunst, etc., from mid-1990's)

Exploring Ed. differentials in health/disability

Evidence of large differentials in health according to the SES at European level

Relative Index of Inequalities in self-perceived health



Mackenbach et al. Socioeconomic Inequalities in Health in 22 European Countries. 2008. New Engl J of Med 358;23

- Large variation in the size of the high/low educated gap in poor health
- Country/Regime effect: Scandinavian and Anglo-Saxon report better health
- ... but smaller gaps in Bismarckian/Anglo-Saxon regimes than in Scandinavian
- and larger gaps in Eastern and Southern countries

Exploring Ed. differentials in health/disability

Evidence of large differentials in health according to the SES at European level

The magnitude of the health gap vary widely

Education & health of individuals:

(selection effect in childhood, health knowledge skills and access to care, economic return of education and life & work conditions, practices)

- **Health advantage of the high-educated: how much?**
- **Health disadvantage of the low-educated: how much?**

Country context/welfare policy-related: Northern-Southern-Western-Eastern-Baltic

(Mackenbach et al. 2008; Eikeimo et al., 2008; Avendano et al. 2009; Huijts et al, 2009...)

- To what extent policies improve care access and/or knowledge and/or child&adult life conditions and/or influence practices...
- ... reduce/exacerbate health disadvantages of the low-educated and/or health advantages of the high-educated

Exploring Ed. differentials in health/disability

Additional contributor to the varying SES magnitude: the level of selection/discrimination related to education

- Eastern countries with a largely accessible educational system: Poor health level & small proportion in the lowest level of education?
- Southern countries with high proportion of low educated / selected people in high education?
- Northern countries have more egalitarian systems but selected people in low education = smaller/larger inequalities?

Objectives

Looking not only at the variation of the size of the gaps but

- variation of the health disadvantage of the low educated
- variation of the health advantage of the high educated

Identify country specific association between low/high education & health

- Which country deviates from the average heath-education group patterns?
- Are deviations found for low-educated AND / OR high-educated?
- Is country pattern stable across age-groups / generations?
- Welfare regime or country-specific effect?

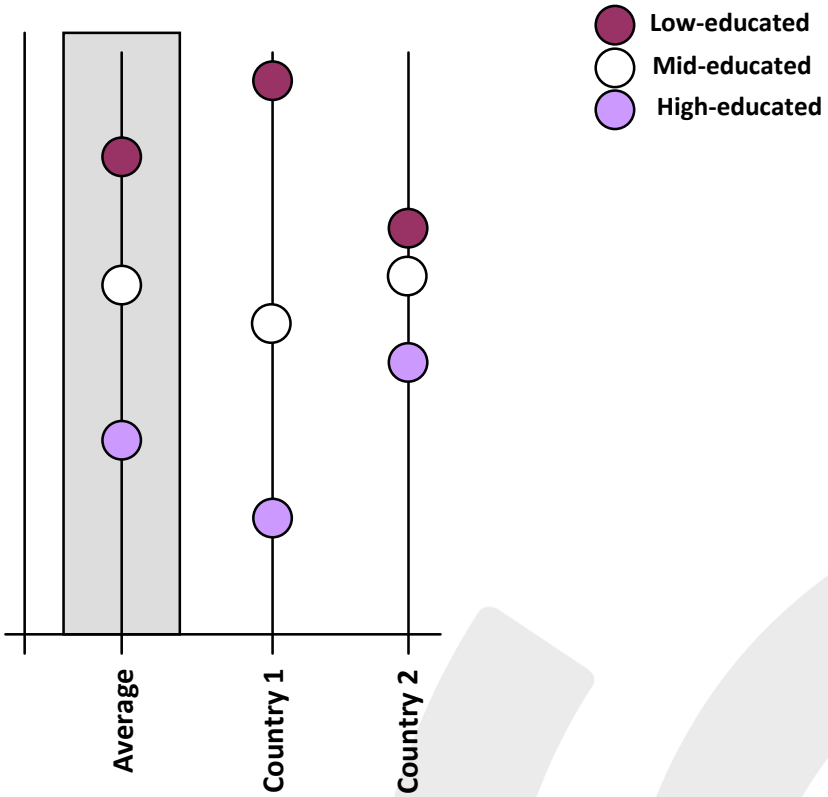
Data and Measures

2009 EU-SILC (European Study on Income and Living Conditions)

- 25 EU countries + Norway
- We consider 3 educational groups:
  - International Classification (ISCED): 0-2 | 3-4 | 5-6
  - Data quality (representativeness of the sample)
  - We exclude individuals aged 80+ and three countries LU, IS, MT
  - We need to pay special attention to IE, ES, CZ, UK, SE, NL, IT, DE and SK
  - Study population
  - in the 30-79 age groups
- Disability indicator **: GALI "Global Activity Limitation Index"**
  - "limitations in activities people usually do for > 6 months due to health problems"

Measuring a country specific association between education & disability

- Differences between high, low and middle educated?



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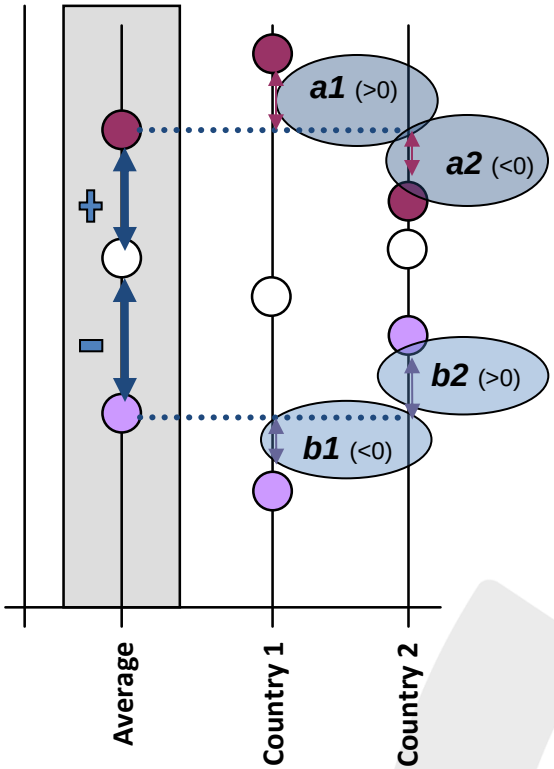


➲ **Logistic regressions to asses country specific patterns**

Health advantage/disadvantage of the educ. groups?

(1) Compare to the middle-educated:

EU excess-risk of the low-educated (positive coeff in model)

EU lower-risk of the high-educated (negative coeff in model)

(2) How much the risk for low-educated in country 1, 2... deviates from the average excess-risk

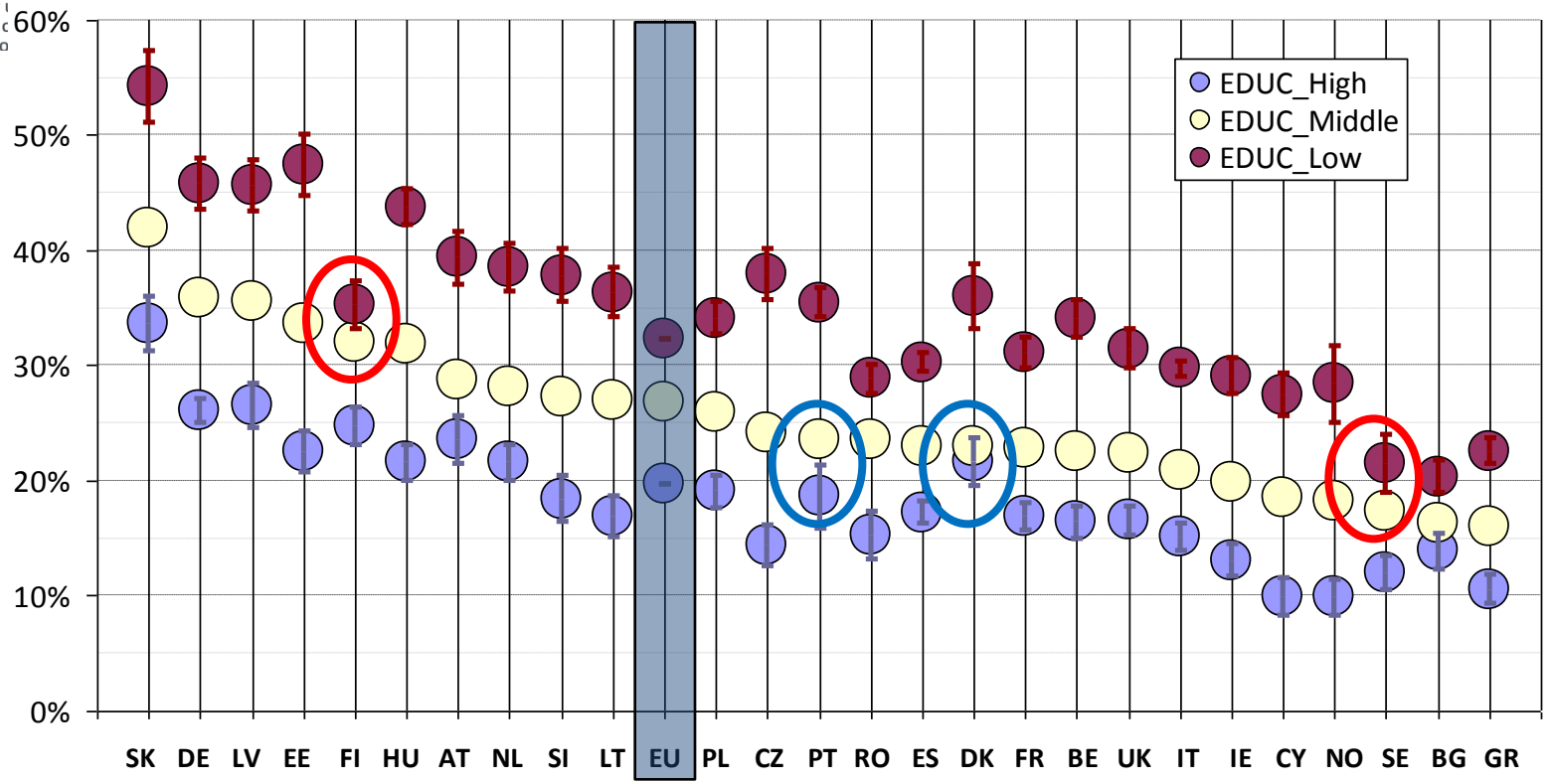
- increase (>0) or decrease (<0) the average positive coeff?

How much the risk for high-educated in country 1, 2... deviates from the average lower-risk

- decrease (<0) or increase (>0) the average negative coeff?

Results

Prevalence of activity limitation in the 30-79 years old in 25 EU countries and Norway in low, high and middle educated groups



- Large variation in the level of activity limitation and in the gap btw education groups
- Variations in the situation regarding low- and high-educated
  - ✓ Low educ close to middle educ (large advantage for the higher educ)
  - ✓ High educ close to middle educ (large disadvantage for the lower educ)

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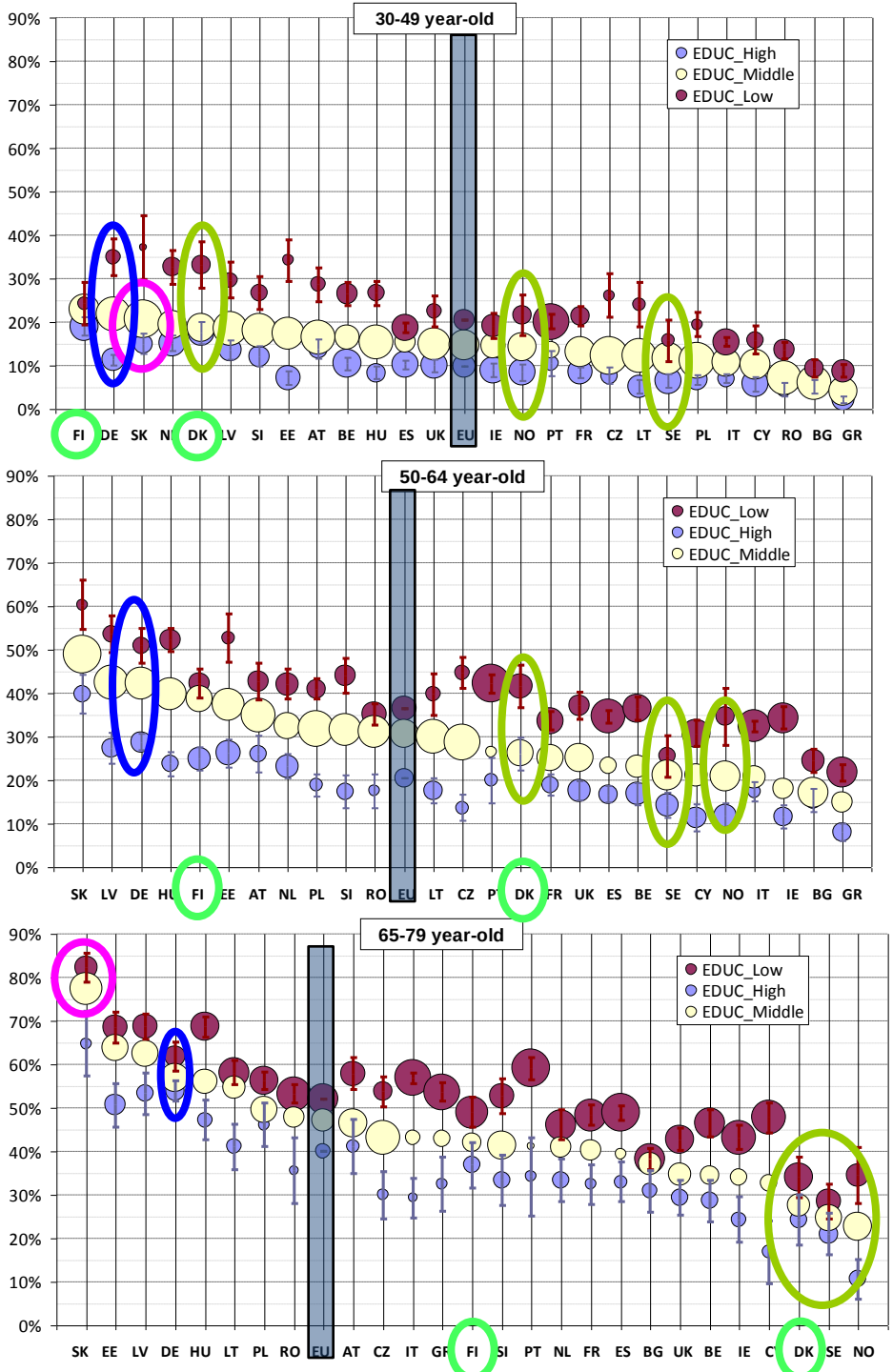
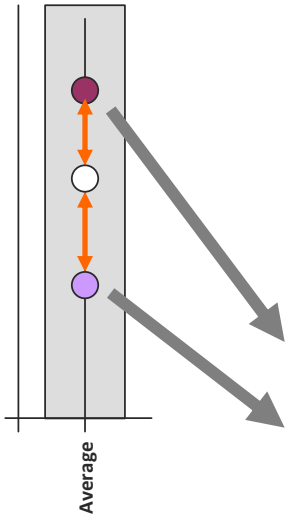
… and across age groups

- Changing gradient for the middle-educ
- Changing advantage/disadvantage compared to middle-educated
  (partly linked to changing % of the groups)
- Varying patterns within regions



(1) Estimation of the European average association between education & activity limitation

Logistic regression of activity limitation in 25 EU countries and Norway coefficients for low and high educated groups compared to middle (26 country pooled data)

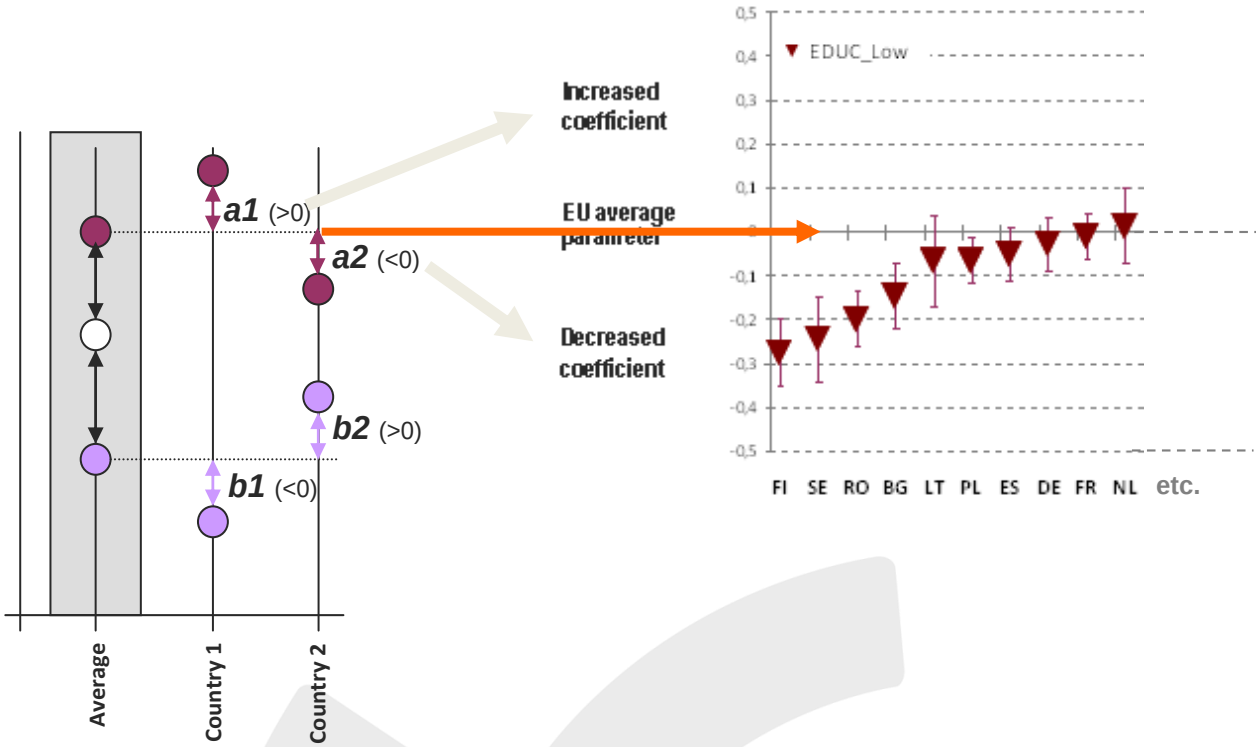


	Category	Model 1 30-79	Model 2 30-49	Model 3 50-64	Model 4 65-79
Age	Add. Year	0.05***	0.04***	0.05***	0.06***
Sex (ref. Male)	Female	0.12***	0.13***	0.09***	0.15***
Low Education (vs. middle)	0-2	0.42***	0.52***	0.44***	0.31***
High Education (vs. middle)	5-6	-0.43***	-0.52***	-0.50***	-0.26***

- Activity limitation positively associated with age and being women
- Activity limitation significantly associated with education
  - ✓ high-educated group benefits a decreased risk of reporting activity limitation compared to middle educated
  - ✓ low-educated group experiences an increased risk of reporting activity limitation
- The coefficients appear smaller in the oldest age group

(2) Estimation of country specific patterns: more vs less health advantaged or disadvantaged?

Logistic regression of activity limitation in 25 EU countries and Norway.
additional coefficients of the interaction education x country (on top of EU coefficient)



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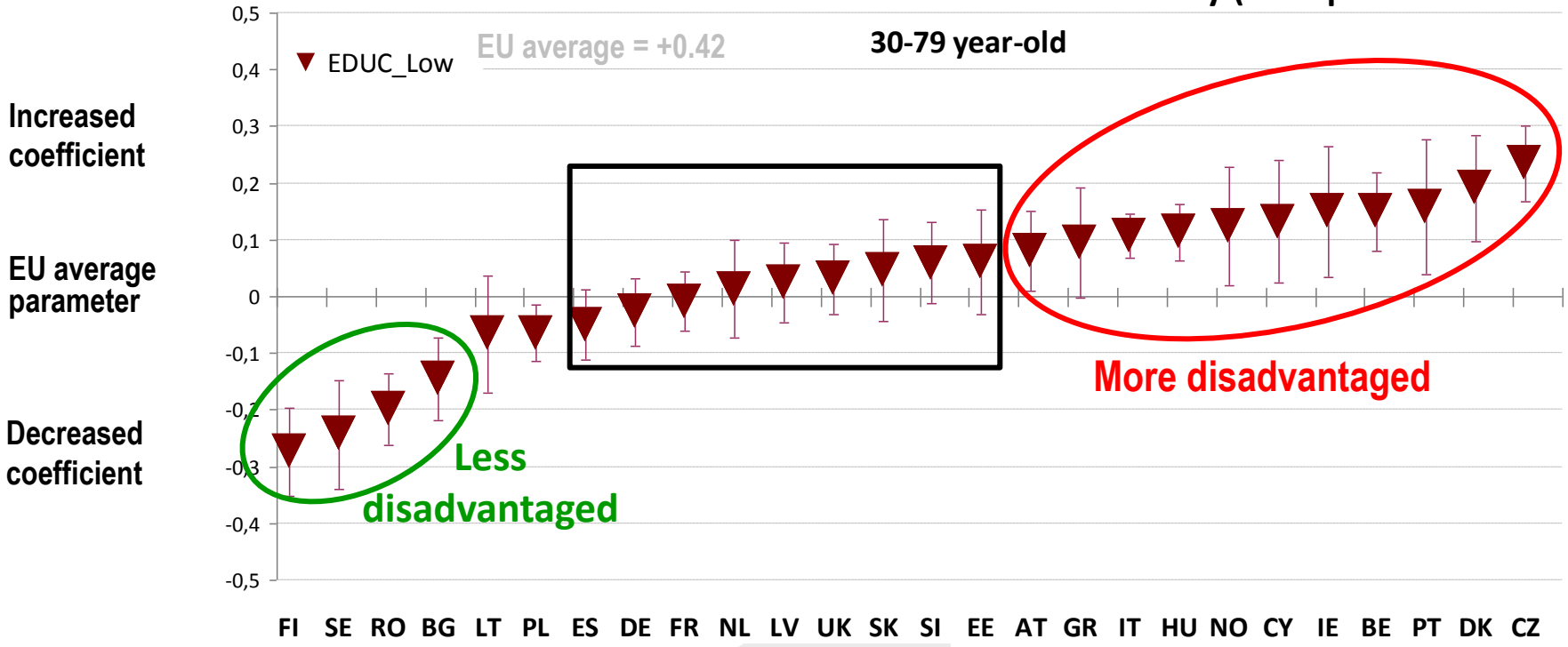

- Less disadvantaged in some countries ➔ two Scandinavian (FI, SE)
- No significant additional country-effect towards the *LEd*
- More disadvantaged in some others ➔ Eastern, Southern + DK and NO

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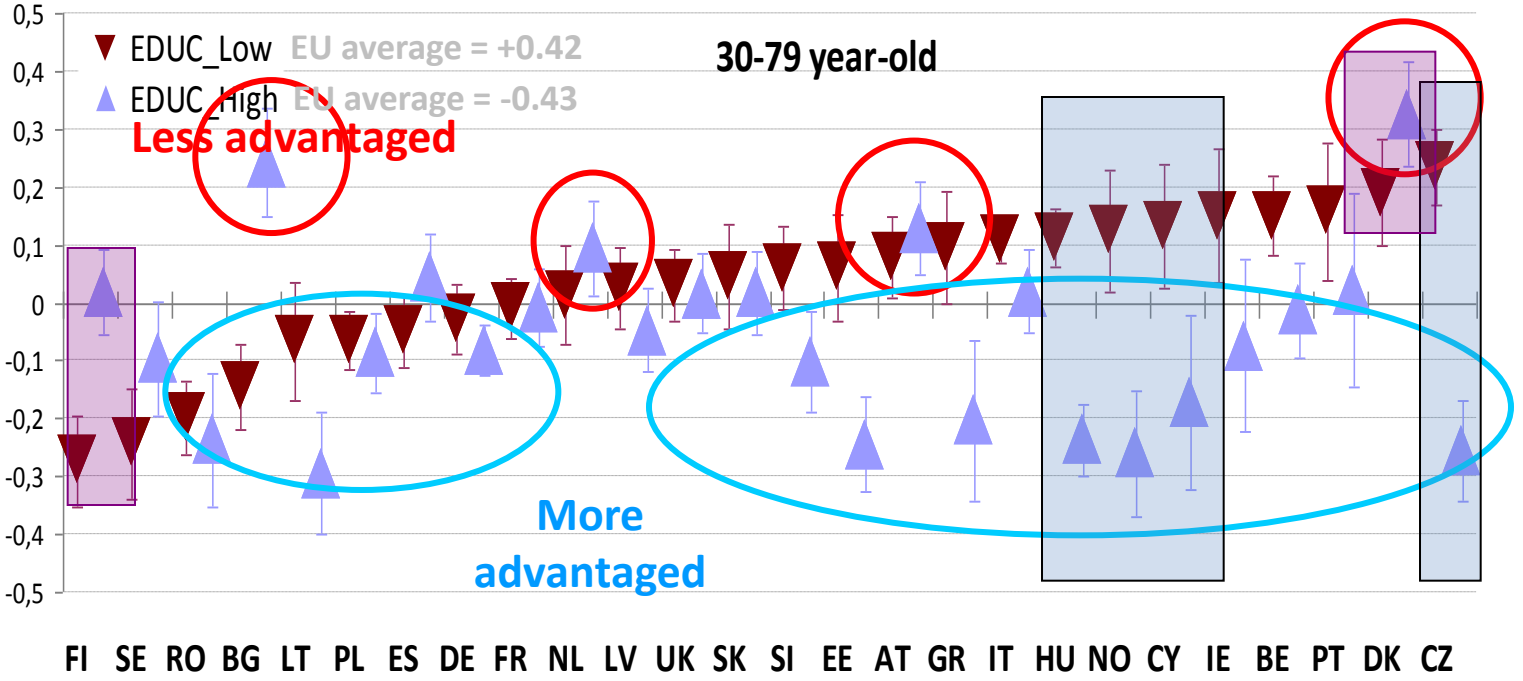


- More advantaged for a large number of countries
- Less advantaged in BG, NL, AT and DK
- Large gaps in CZ, HU, NO, CY
- Gaps with different constructs: FI & DK

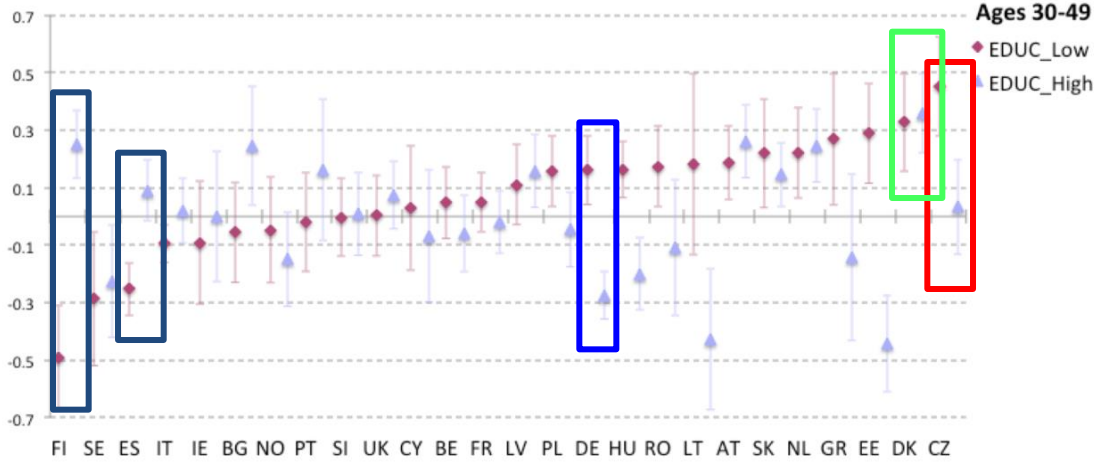
… and across age groups

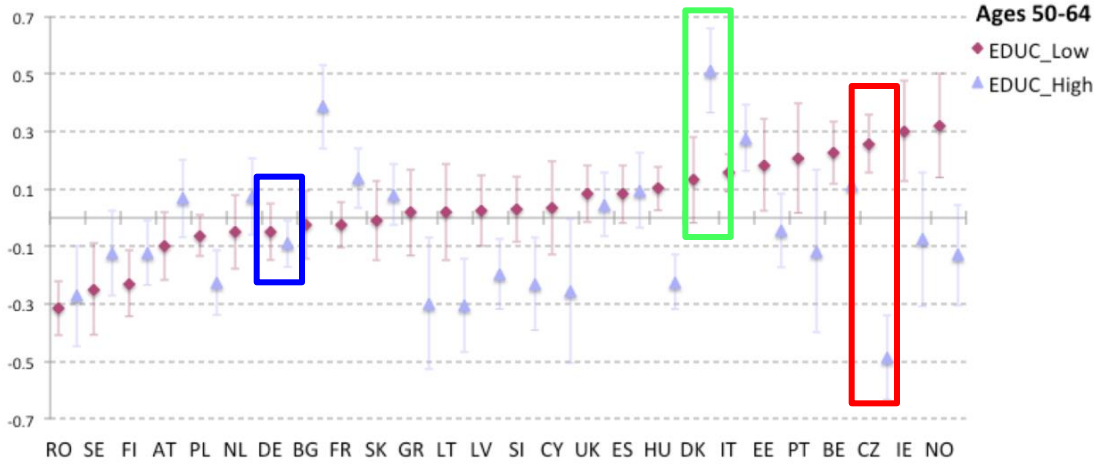
→ **Czech Republic** (large health gaps)
- *LEd*: more disadvantaged across ages
- *HEd* : more advantaged across ages

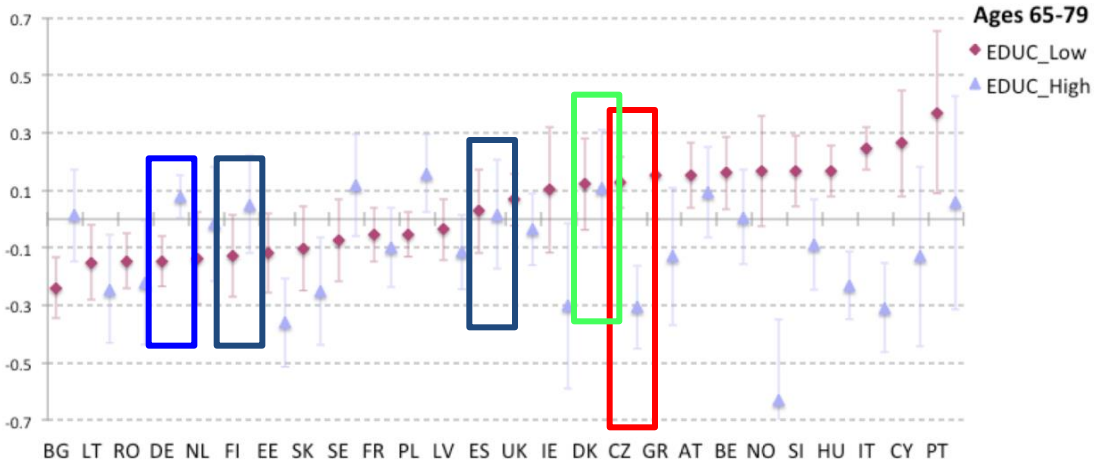
→ **Germany**
- Same large disadvantage in the youger age group
- no significant effect in middle ages
- reverse pattern in older age group

→ **Finland or Spain**
- *LEd :* less disadvantaged in the younger ages
- *HEd*: less advantaged in younger age groups

→ **Denmark**
- *Both educ groups* are more disadvantaged







Discussion

➲ Country-specific effects on high & low-educated, but distinction within regimes

➲ **Scandinavian countries ➔ Small health gaps in Sweden and large in Denmark/Norway:**

***LEd* are** less disadvantaged (FI, SE)

➔Protection system? Composition of the groups?

***Both LEd* & *HEd* group** are more disadvantaged in DK in the younger age group

➔Composition of the groups? Health behaviors (smoking)?

➲ Changing patterns across age groups (country history, economic development over time and generations, education, public policies,…)

➔Larger inequalities in the younger age group in Germany

➔Smaller inequalities in the younger age group in Spain

Discussion

Data limitations

- Varying response rates across countries ➔Sweden: small sample/low response rate
- Under-representation of some education groups (because of health?)
- Sample size: not possible to perform separate analysis by sex
- Does not account for people living in institutions (although small % age <80)
- GALI may be reported differently across Europe / residual variation in wording
- What does high/low education mean across EU countries?

Discussion

Future lines

- Accounting for educational group composition (economic return of education)
- Accounting for possible variation due to policy schemes (health/unemployment...)
- Controlling for **national-indicators**

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Muchas gracias por vuestra atención

Objectives

An individual effect of education may provide: selection, health skills, or socioeconomic return of education

Highlight whether an *extra-effect* of education exist in each country

- → Do countries protect in the same way the low/high educated groups?
- → Assessing whether these extra-effects are similar for each edu level: *Are the high-educated more protected in one country than in another country?*
- → Assessing whether these extra-effects are related to welfare policy