

# Graduates and 'Graduate Jobs' In Europe: A Picture of Growth and Diversification

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# Is this the global graduate labour market?



# The high skills supply and demand race: recent years and future prospects.

- Optimists:
  - sustained high earnings premiums reflect implicit high growth in demand for graduate skills; strong contributions to economic growth
- Pessimists:
  - loose link between technology and skills
  - high-skills demand determined more by employer strategies than the supply of high skills
  - "digital Taylorism"
  - some high-skills demand needn't be fulfilled graduates
  - increased signalling, rising underutilisation of skills
  - stable earnings premiums not decisive

# A “complementary” approach

- Examine direct evidence of the trend supply *and* demand for graduate labour;
- *And* examine earnings premium evidence; especially a focus on heterogeneity in the labour market with dispersion in the premiums
- Value of a comparable international picture: common origins but institutional specificities

# Outline\*

1. Growth of graduate labour supply
2. Growth of "graduate jobs"
3. Graduate underemployment
4. Graduate wage trends and dispersions
5. Future speculation.

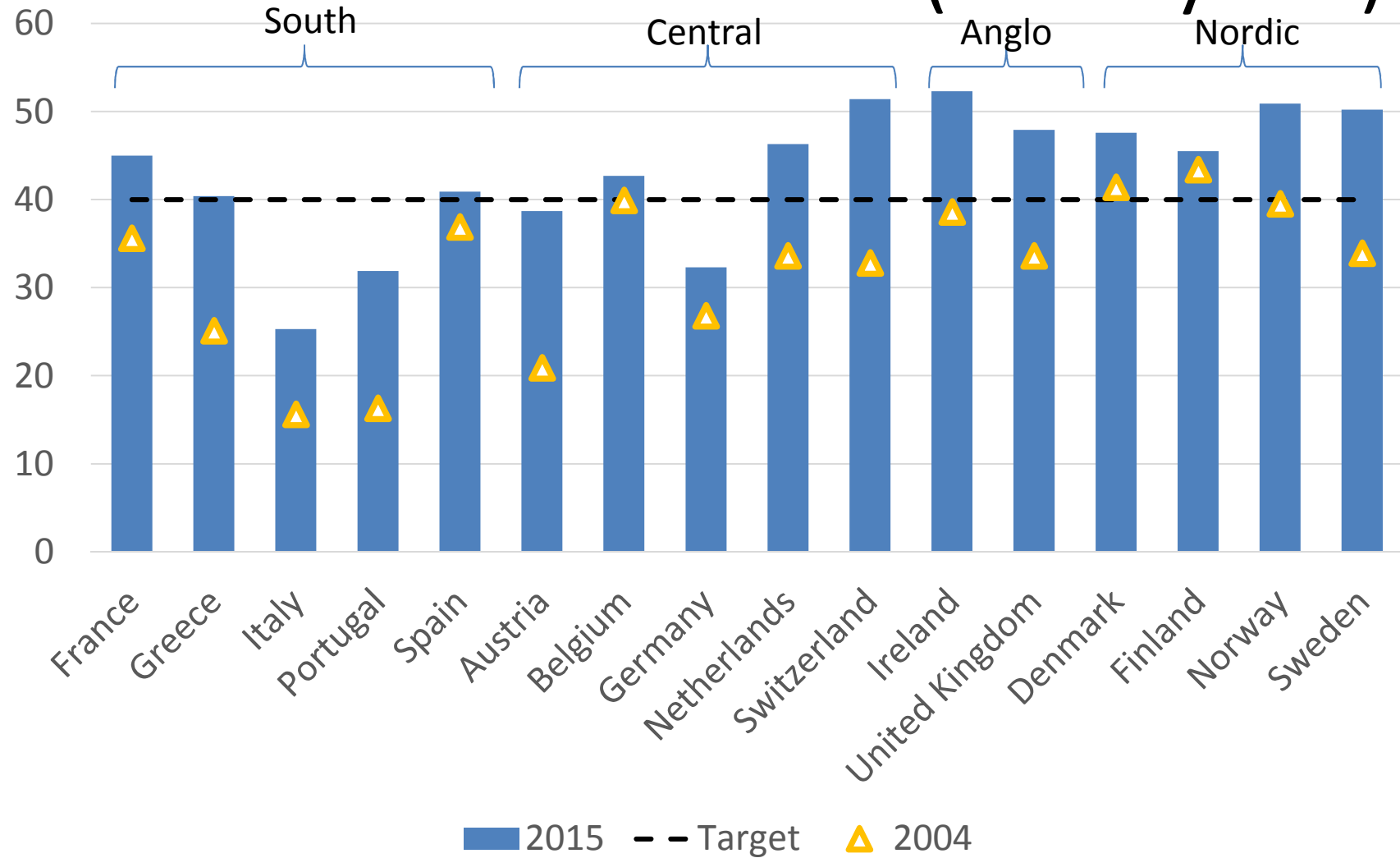
\*Joint work with Dr. Golo Henseke (UCL)

# Data

- European Statistics on Income and Living Conditions (EU-SILC), 2004-2014
- European Union Labour Force Survey (EU-LFS), 2003-2013
- OECD PIAAC Survey of Adult Skills
- Recent published studies, national/international

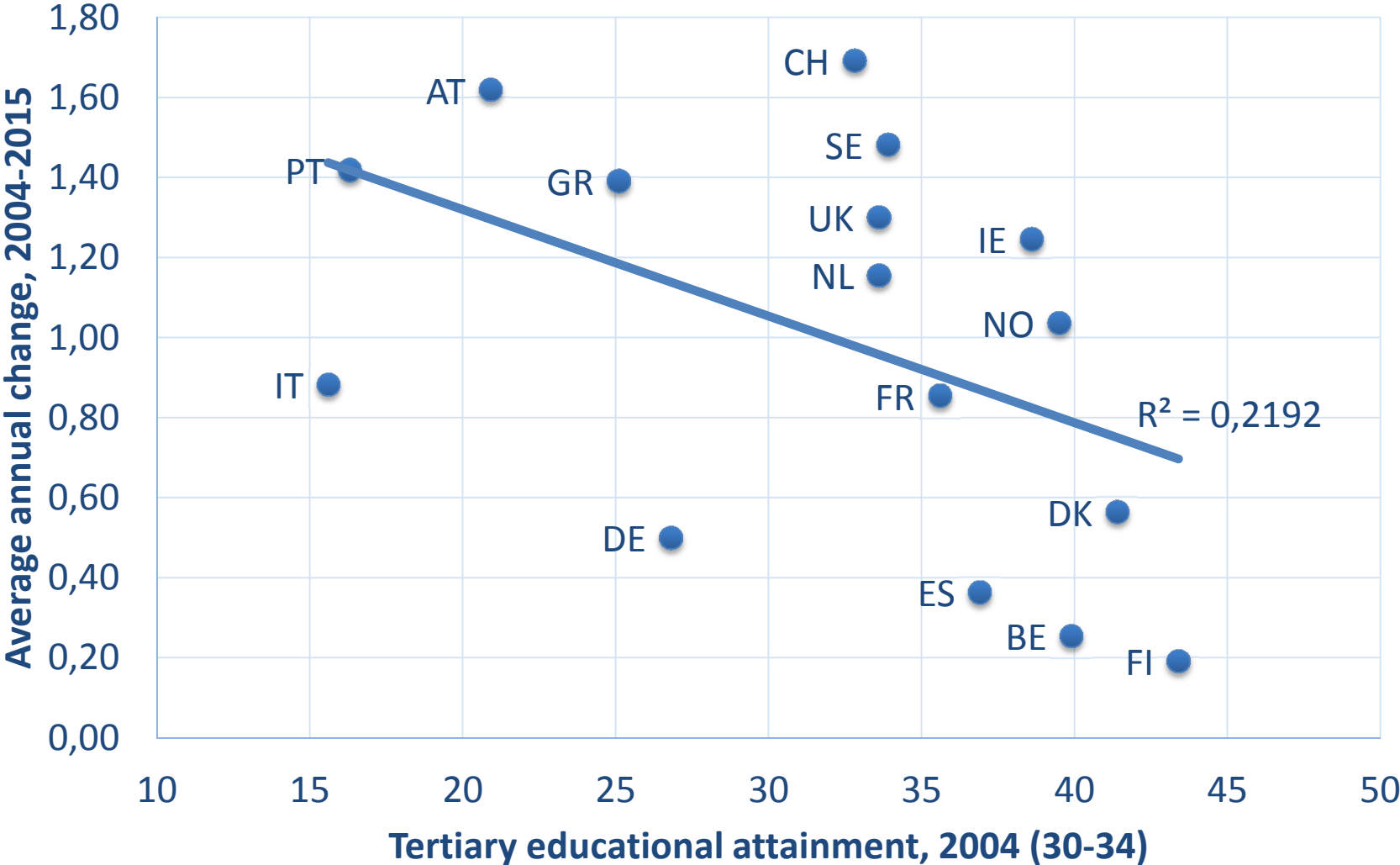
# Growth of Graduate Labour Supply

# Level of tertiary educational attainment 2004 & 2015 (30-34 years)

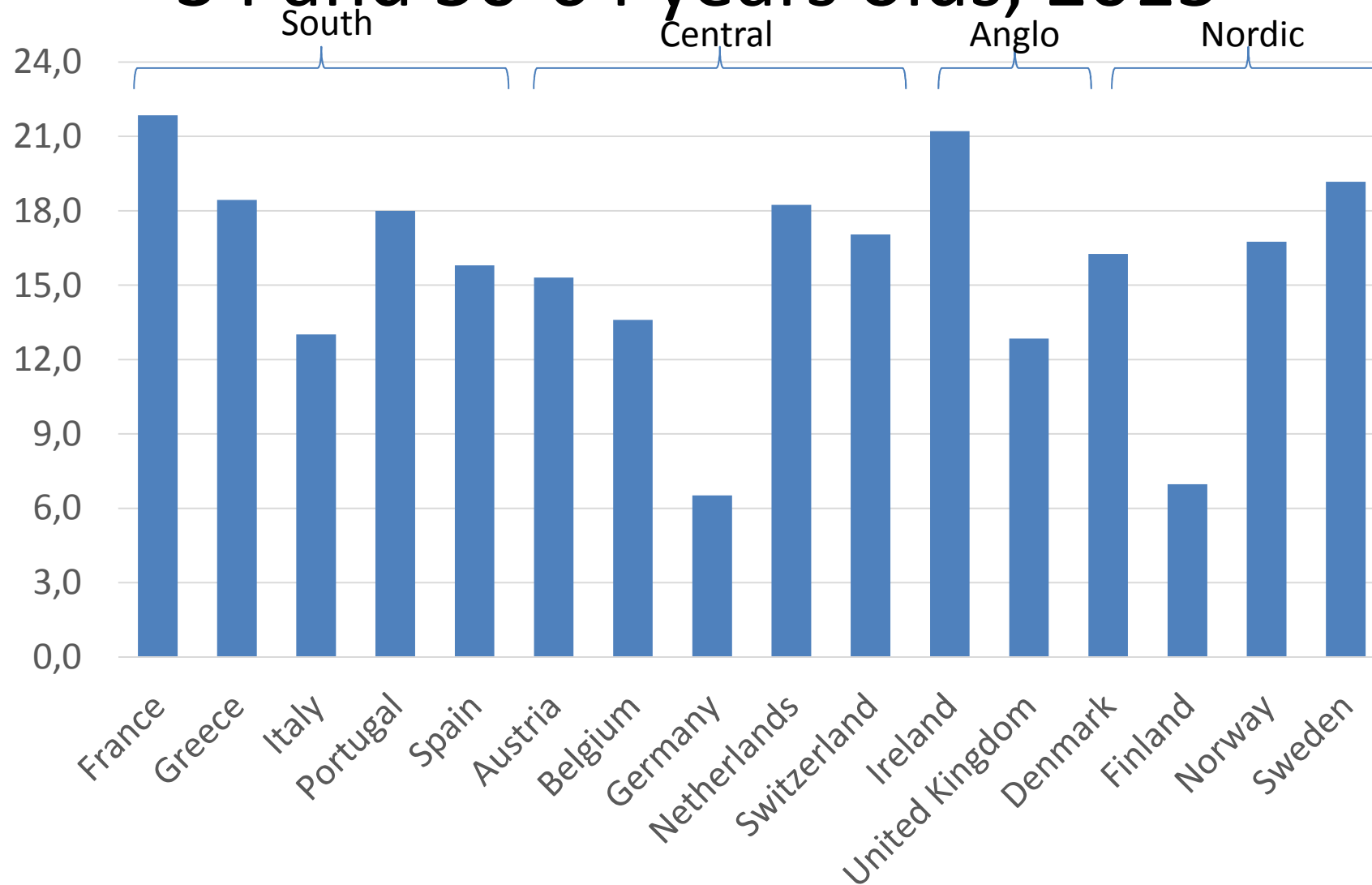




# Convergence or divergence across countries?



# Gap in tertiary education between 30-34 and 50-64 years olds, 2015



## In brief:

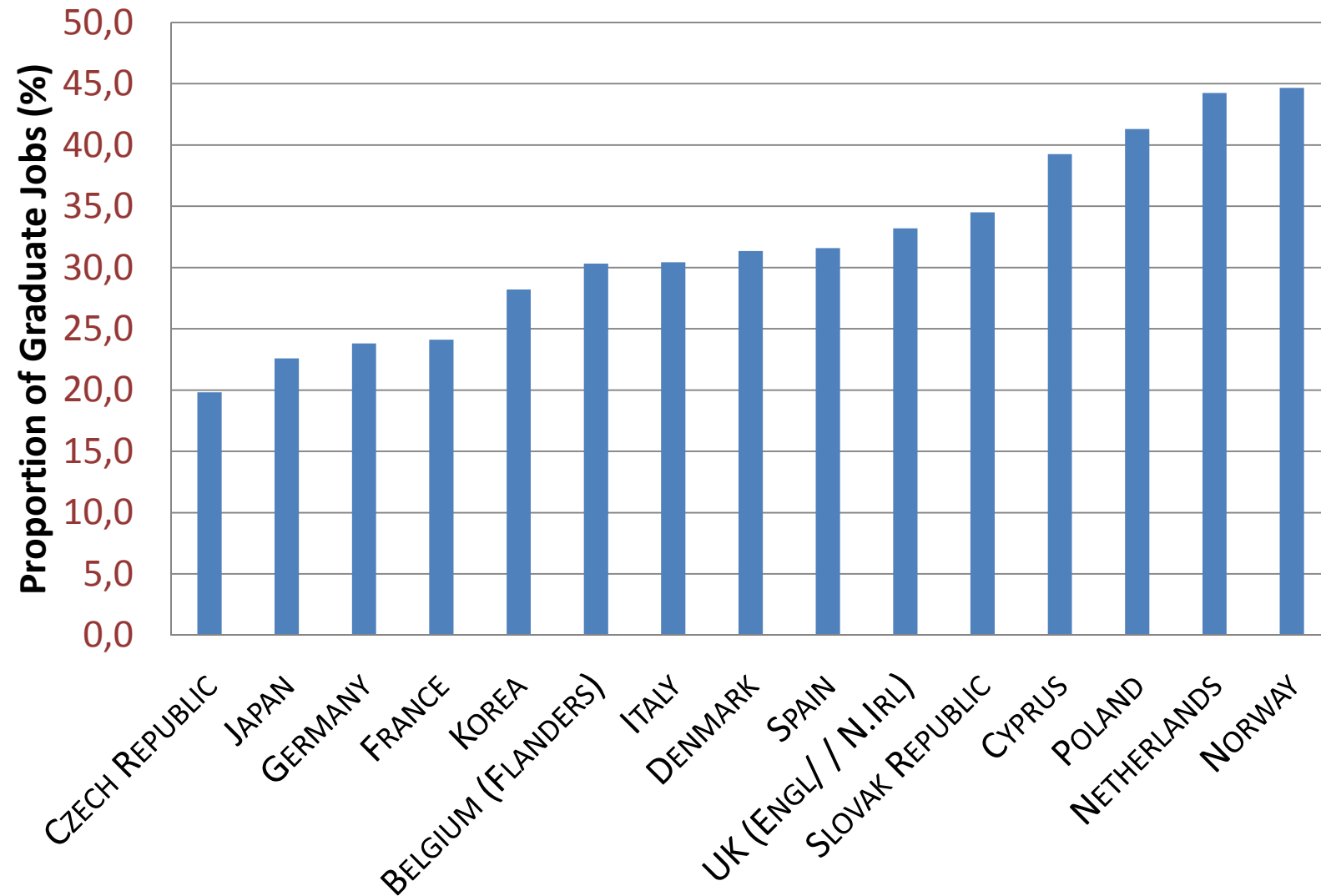
- Tertiary-educated graduates have become more prevalent everywhere, but at a widely varying pace
- Only weak evidence of convergence
- They will go on growing everywhere for some time to come

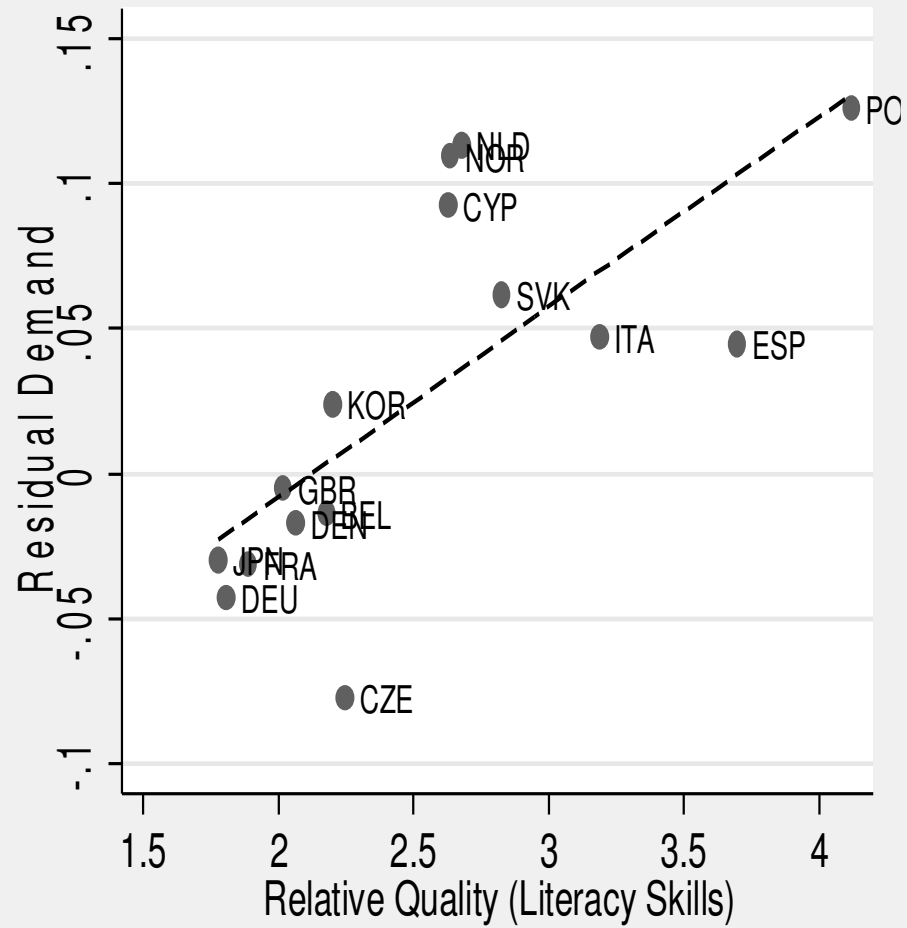
## Growth of Graduate Jobs

- "where a substantial portion of the skills used are normally acquired in the course of higher education, including many of the activities surrounding it, and of its aftermath—the years after higher education when skills are acquired in work through graduates' acquired faculty for learning them"

- How do graduate jobs differ across countries?
- Is there a similar pattern of change in graduate jobs across countries?

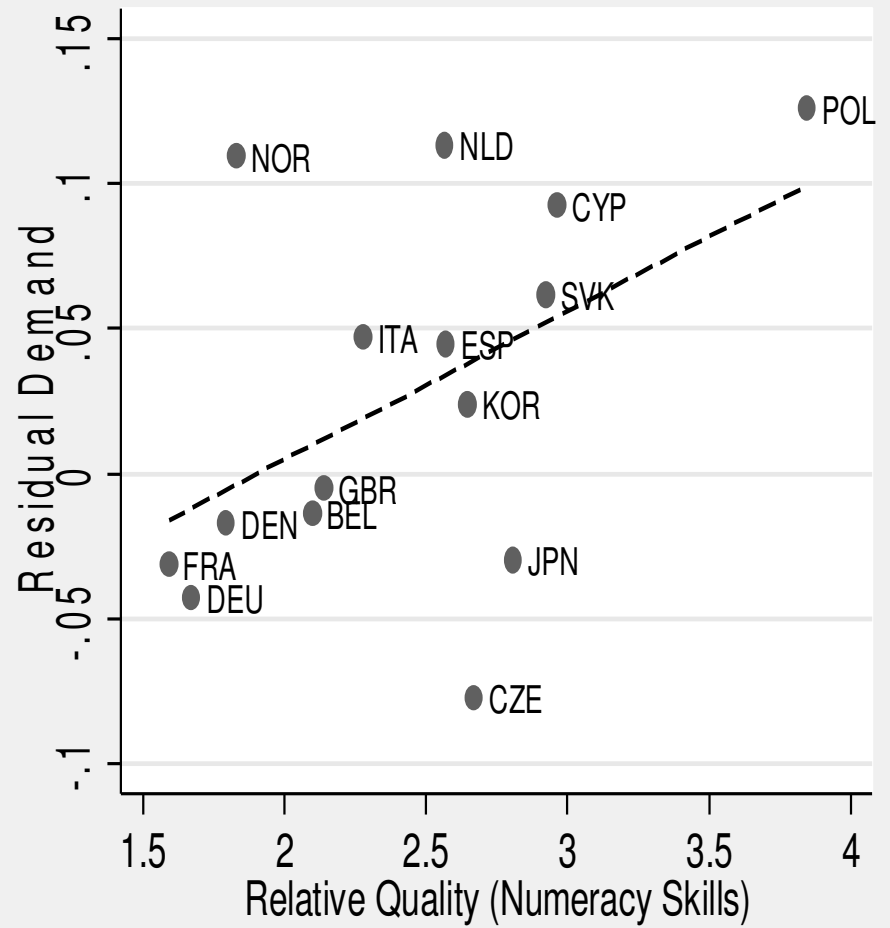
# Proportion of graduate jobs across countries





● Relative Quality    - - - - - Fitted Values

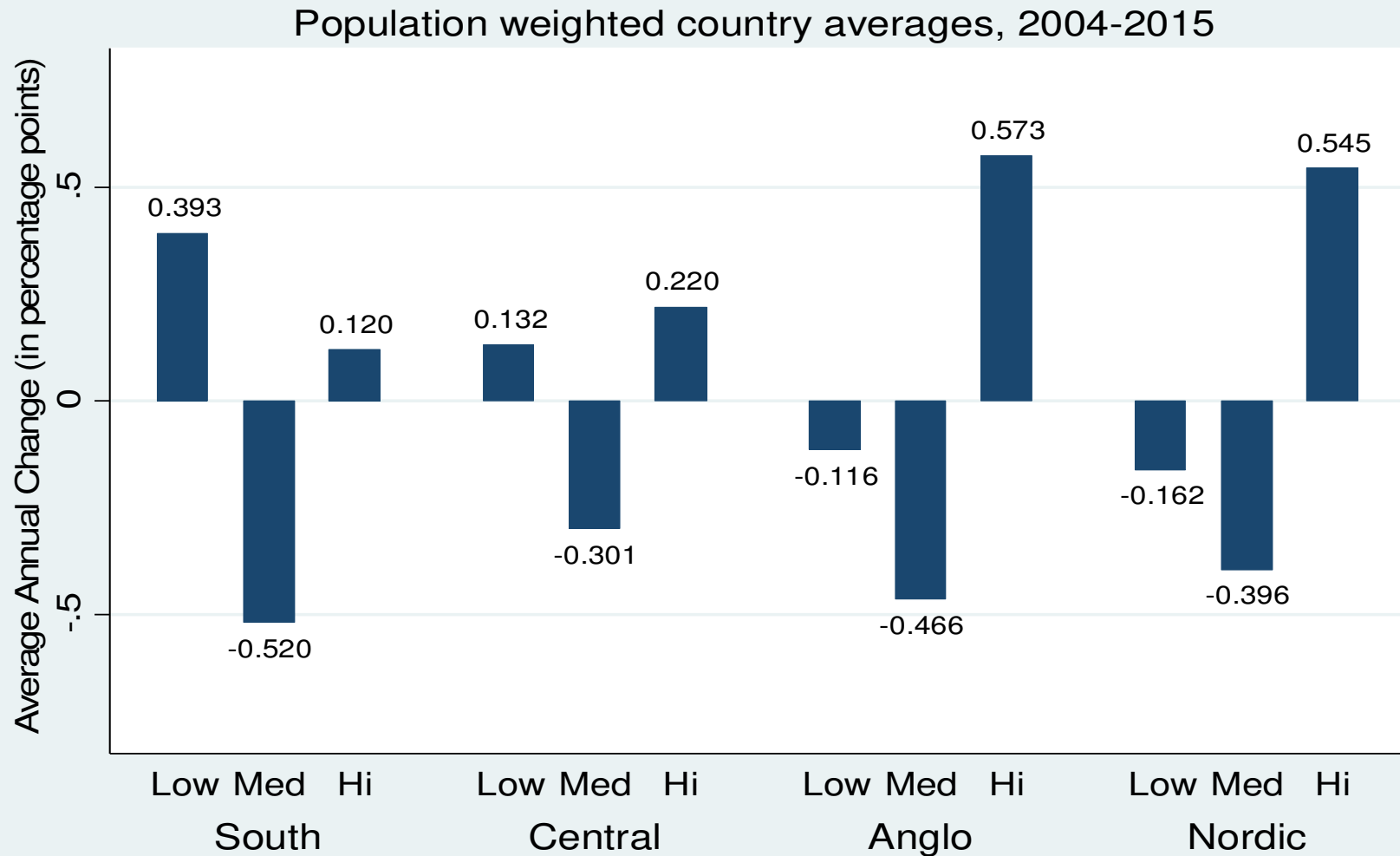
R-sq.= 0.506



● Relative Quality    - - - - - Fitted Values

R-sq.= 0.233

# Patterns of job polarisation





# A “great reversal”?

- Earnings premium for college-only stopped growing in 2010
- Generalised reduced demand for advanced cognitive skills (even within high-skilled occupations), since ~2000 (Beaudry et al. 2016)
- robot world and chronic macro-uncertainty

## In brief:

- Prevalence of graduate jobs varies a lot
- Variation correlates with the relative 'quality' of graduates
- They have grown more prevalent everywhere, but much more, in Anglo and Nordic countries, than elsewhere
- Some occupations can switch between graduate and non-graduate
- But future growth is very uncertain

# Trends in Underemployment

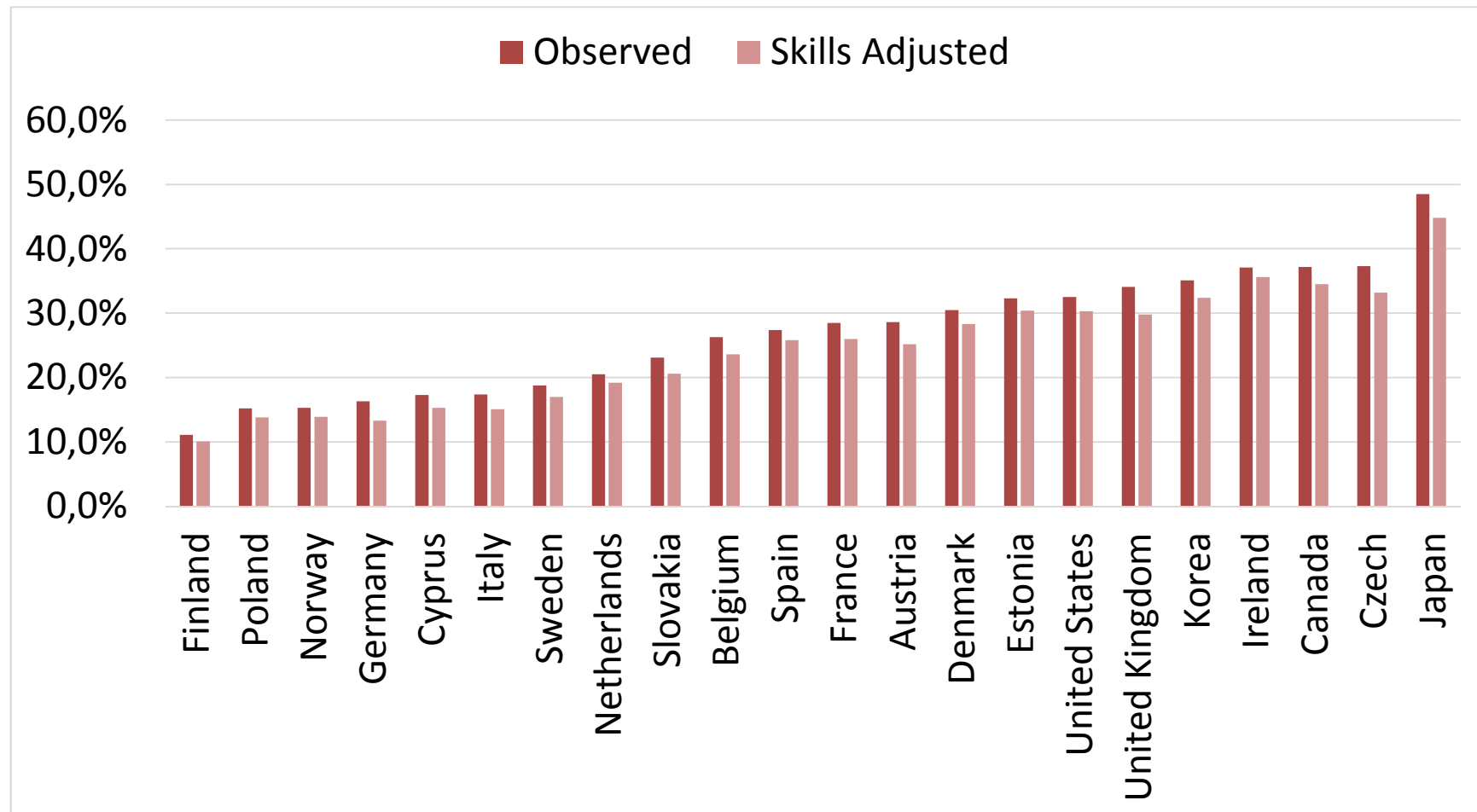
# Graduate underemployment.

Graduate + Non-graduate-job

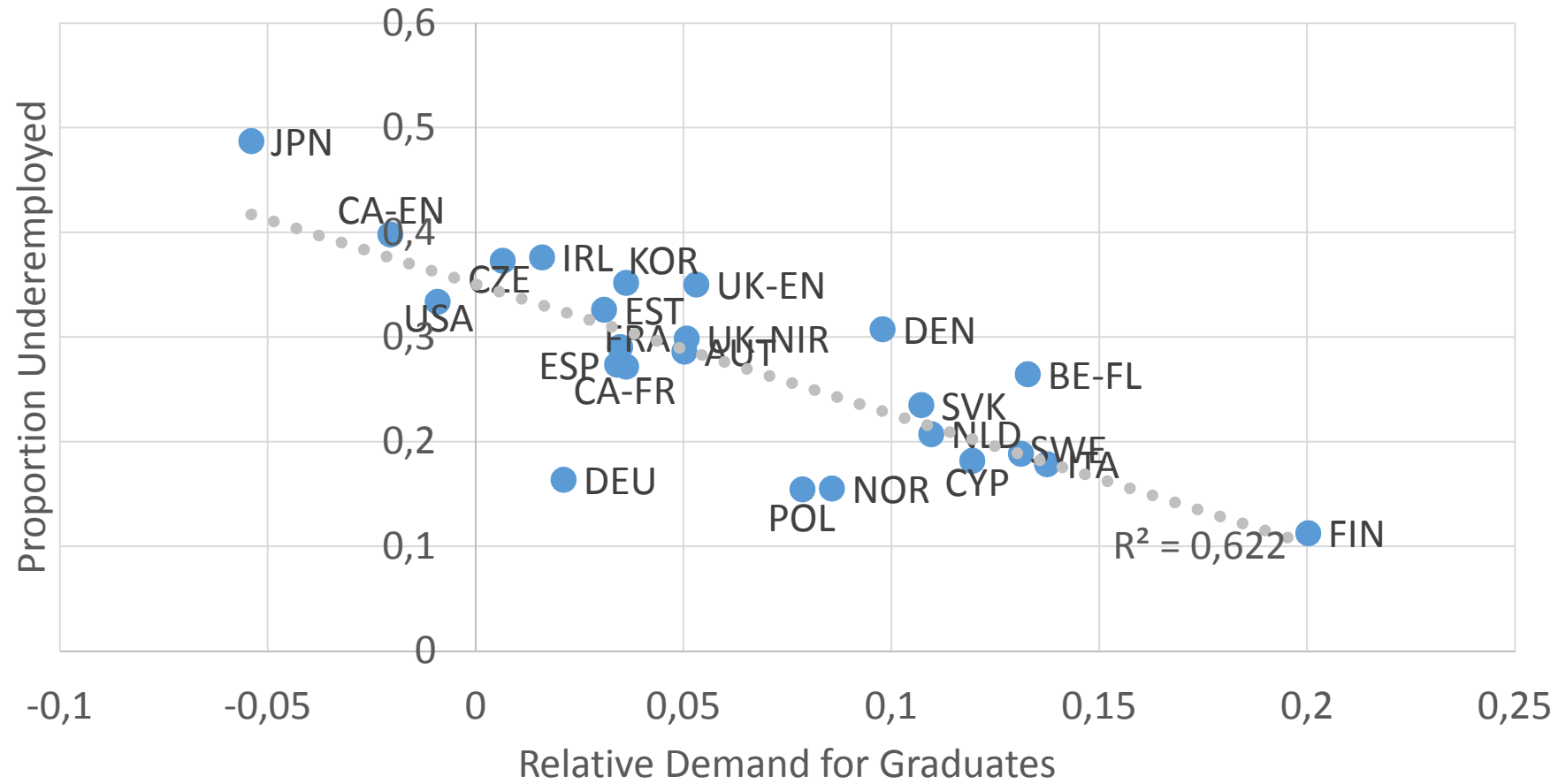
# Graduate underemployment.

- do graduates of different countries experience underemployment to a similar extent?
- is there a similar pattern of change?

# Underemployed graduates, observed and skills adjusted



# Relative demand and underemployment



Among graduates:

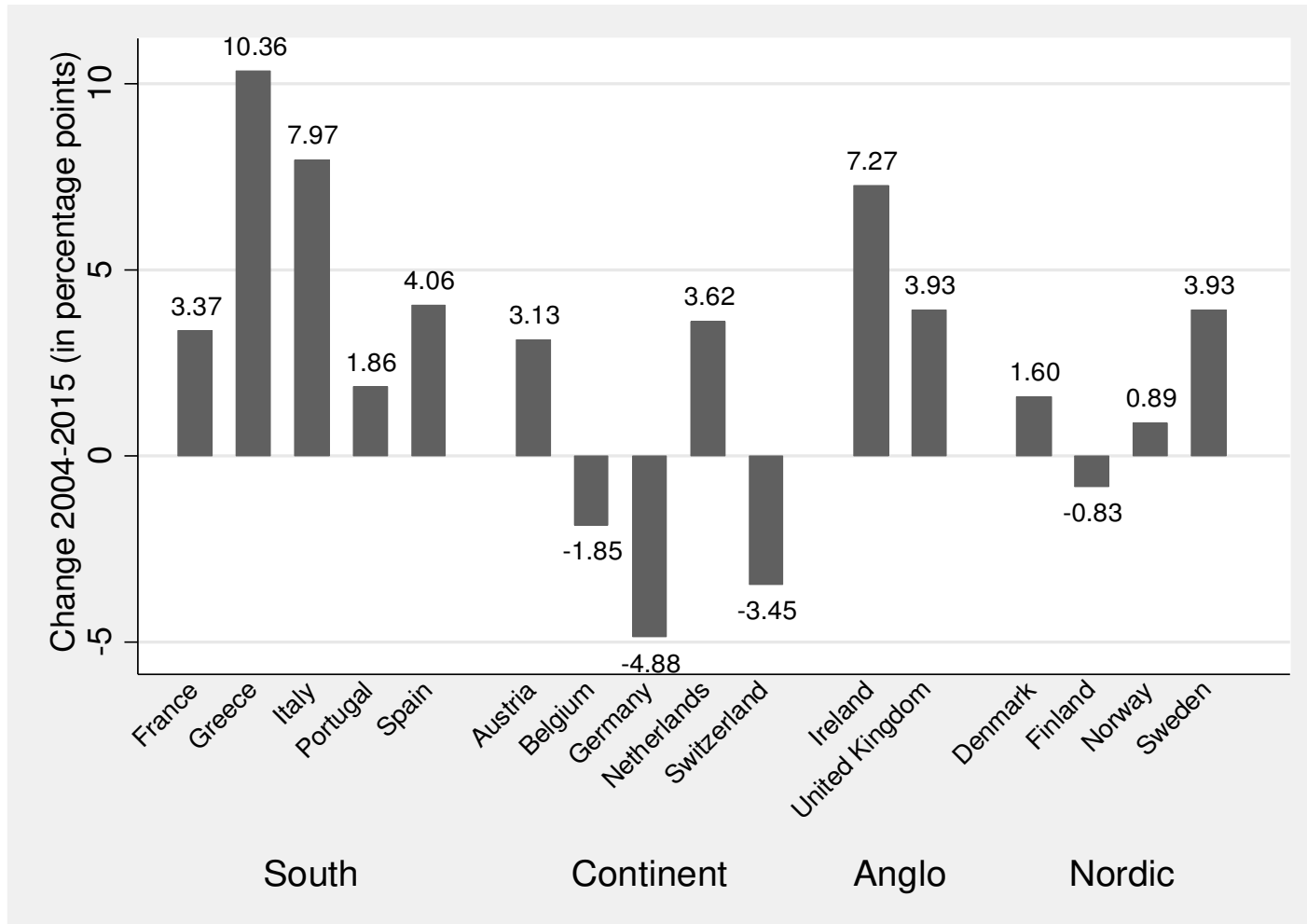
- UK: slow rise 1986 to 2006, then fall to 2012

Among all workers:

- Germany: steep rise 17% to 34% between 1991/2 to 1998/9
- Poland: increasing from 8% in 1988 to 19% in 1994. Main increase among the young.
- Sweden: overeducation rising between 1974 and 2000



# Change in the proportion of employed graduates in medium-skilled or low-skilled jobs 2004-2015



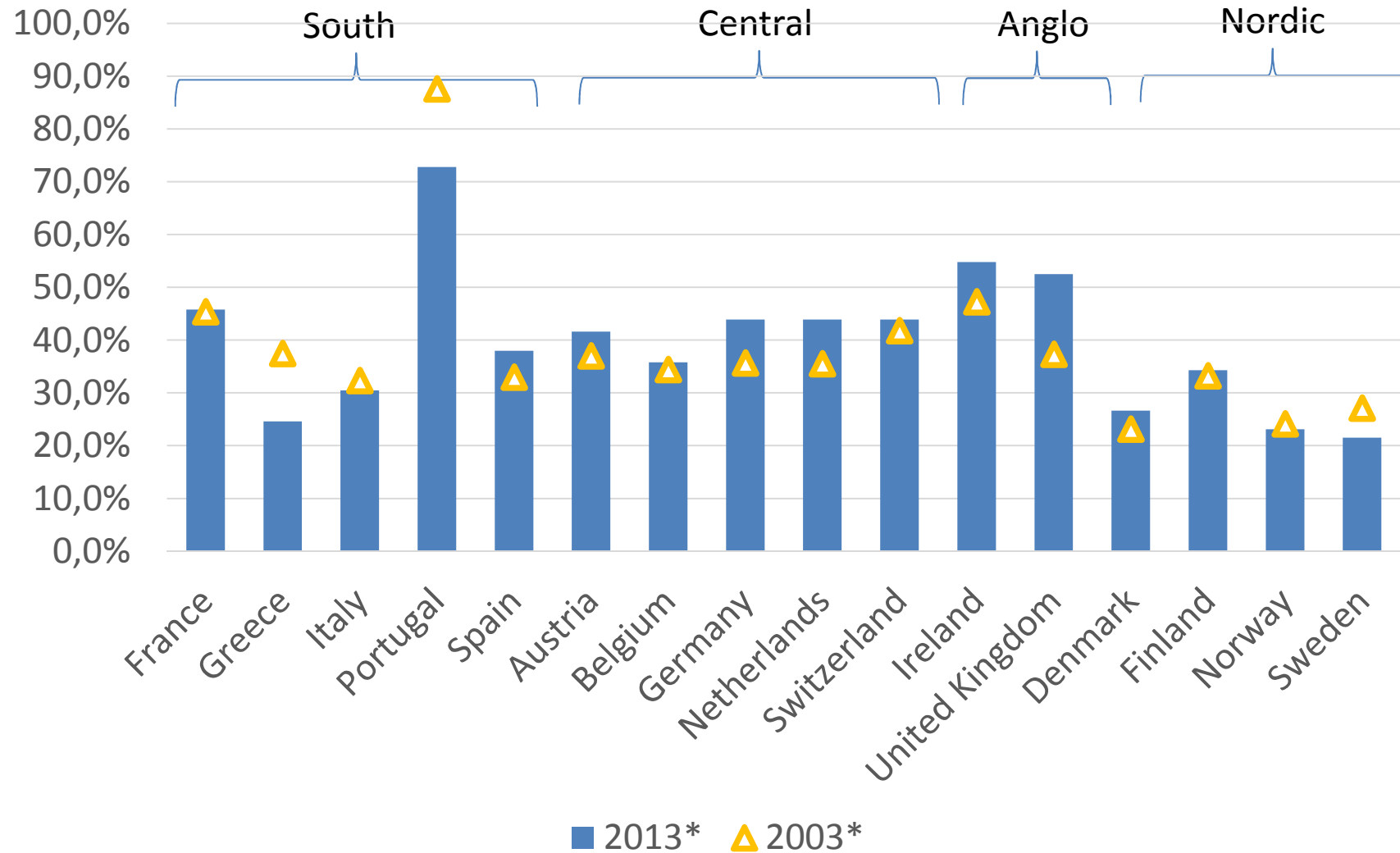
## In brief:

- Graduate underemployment varies considerably across countries
- Its prevalence is correlated with a low proportion of graduate jobs relative to the supply of graduates
- Graduate underemployment is increasing in the majority of countries, but not all

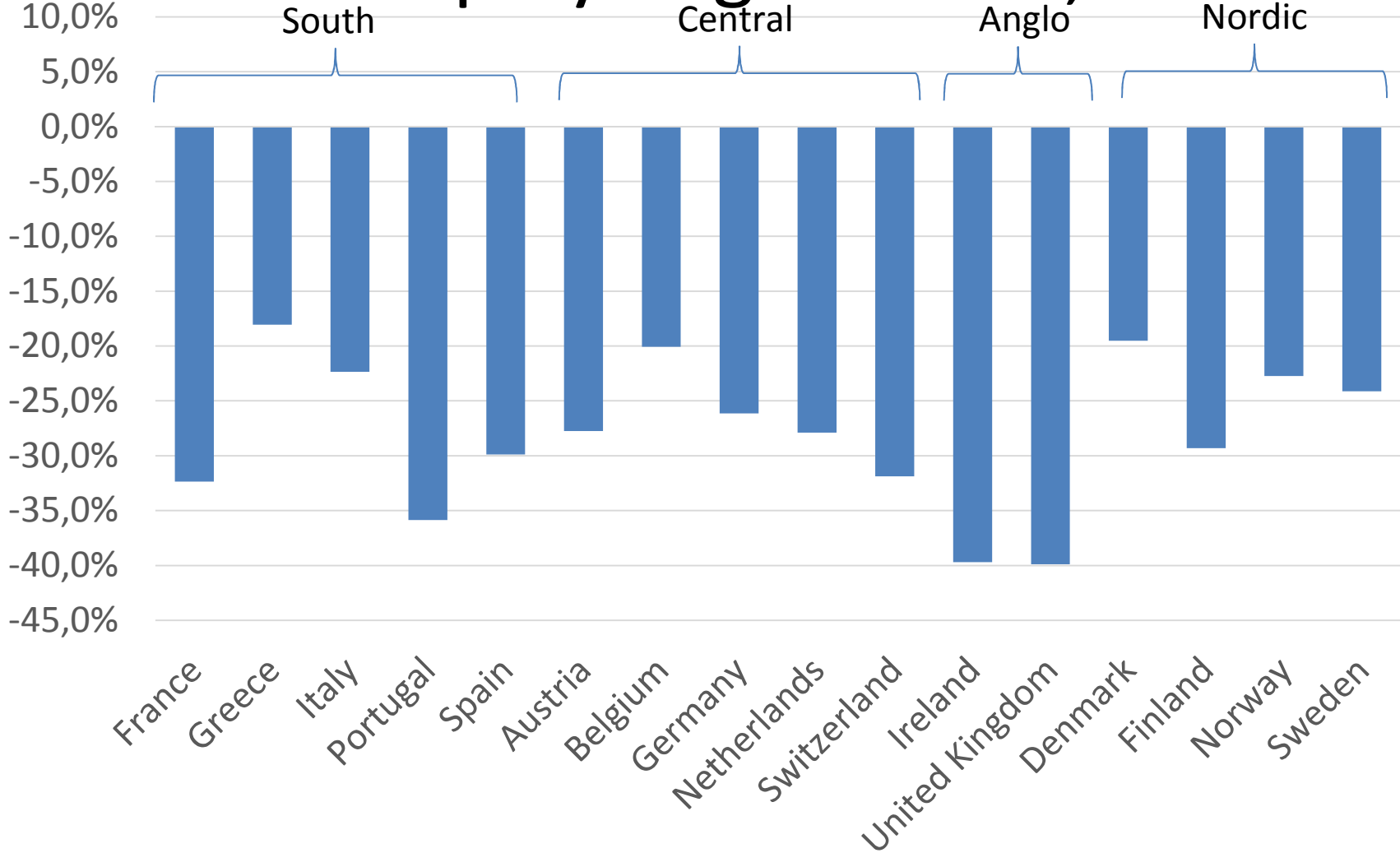
# Graduate Wage Trends & Dispersions

- Average earnings premium holding up everywhere?
- Premium dispersion: is it growing?

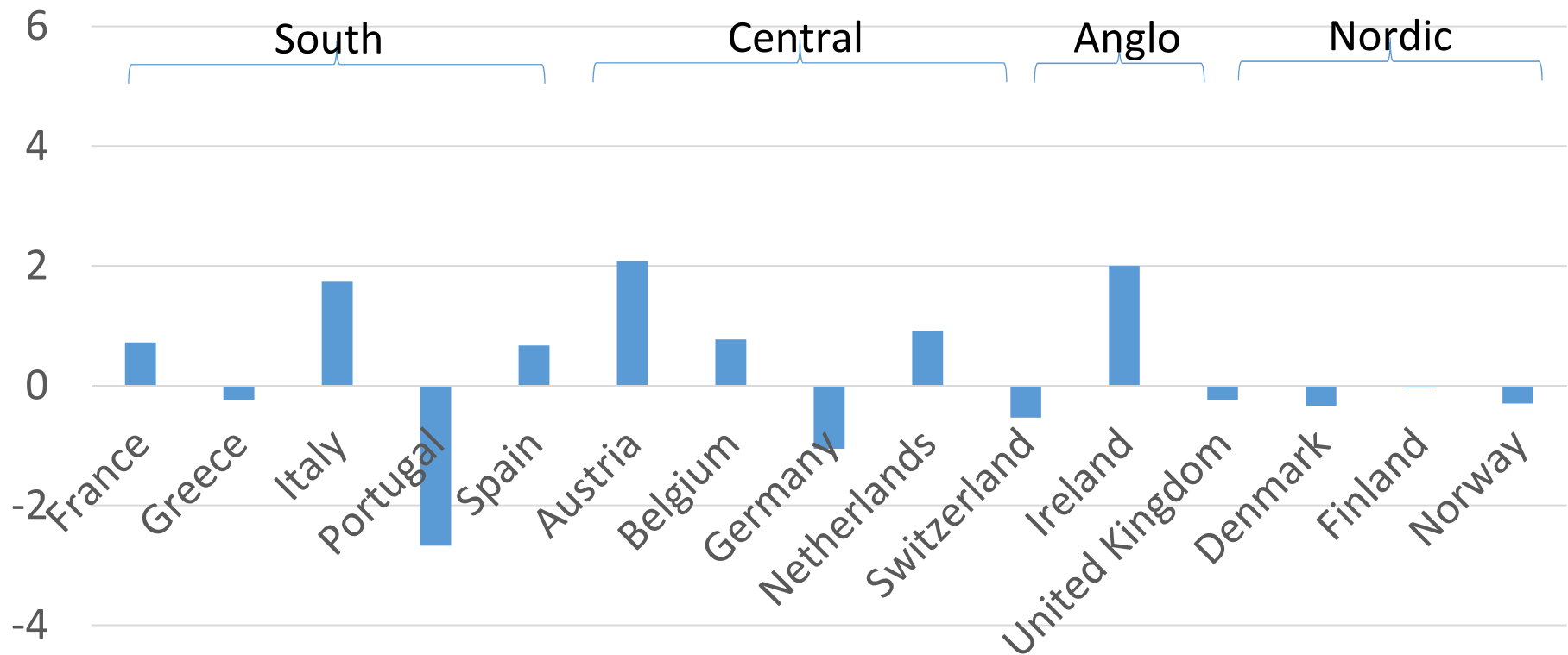
# Wage differential between tertiary and (upper-) secondary education, 2003 and 2013



# Wage gap between matched and underemployed graduates, 2013



# Growing heterogeneity? Annual % change in the graduate underemployment wage penalty 2003-2013



# In brief:

Over 2003-2014:

- Graduate earnings premium stationary in Europe
- The wage penalty for graduate underemployment is ubiquitous
- But the wage penalty for underemployment grew substantially in only a few countries: Italy, Austria and Ireland



# What now: Graduate Employment Clouds?

- Ongoing rise in supply of graduates
  - young-old achievement gap ubiquitous
- Demand uncertainty:
  - maturity of existing ICT?
  - new-wave automation ... or skills-intensive innovation?
  - Brexit-induced uncertainties
- Will we see: rising underemployment; increasing dispersion of wage premia?

Green, F. and G. Henseke (2016a) "[Should governments of OECD countries worry about graduate underemployment?](http://discovery.ucl.ac.uk/1522165/)" Oxford Review of Economic Policy. (Open access at: <http://discovery.ucl.ac.uk/1522165/> ).

Green, F. and G. Henseke (2016b). "[The Changing Graduate Labour Market: Analysis Using a New Indicator of Graduate Jobs](http://discovery.ucl.ac.uk/1505789/)". IZA Journal of Labor Policy, 5:14. ( Open access at <http://discovery.ucl.ac.uk/1505789/> ) ).

Henseke, G. and F. Green (2017) "[Cross-national Deployment of “Graduate Jobs”: Analysis Using a New Indicator Based on High Skills Use](http://discovery.ucl.ac.uk/1542476/)". Research In Labor Economics. (Open access at: <http://discovery.ucl.ac.uk/1542476/> )

Green, F. (2013). *Skills and Skilled Work. An Economic and Social Analysis.* Oxford, Oxford University Press. <http://discovery.ucl.ac.uk/1490672/>

# Appendix: Three steps to classifying occupations as graduate jobs

- Ingredients:
  - data with job tasks and educational requirements of job (e.g. SAS);
  - an Occupation coding system: ISCO08
- Step 1: Calculate the effect of each high-skilled task on the propensity for a job to require a level 4 qualification.
- Step 2: For each person, compute a score, which is the estimate of the probability that he/she will be in a graduate job, given the observed high-skilled tasks of the job, then compute the mean score for each occupation
- Step 3: Split occupations into two clusters using statistical methods.

# Step 1

- We calculate the effect of each of several high-skilled tasks on the propensity for a job to require a tertiary qualification.
- For each person, we then compute the GSR score, which is the estimate of the probability that he/she will be in a graduate job, given the observed high-skilled tasks of the job.
- e.g. high-level numeracy, complex problem solving, presenting, influencing, job autonomy  
+ more

## Step 2

We compute the average GSR (predicted score) in each "minor group" (3-digit) of occupations

## Step 3

Use a statistical "cluster analysis" to determine two clusters of graduate and non-graduate jobs.

# Annual change in real gross earnings of graduates in high-skills employment, 2003-2013

