

Patterns of Overeducation in Europe: The Role of Field of Study

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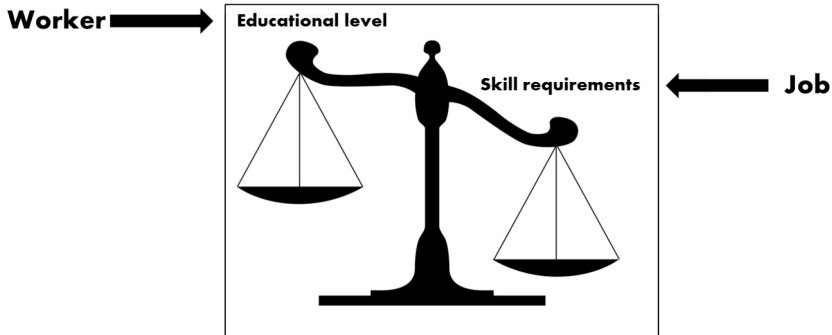
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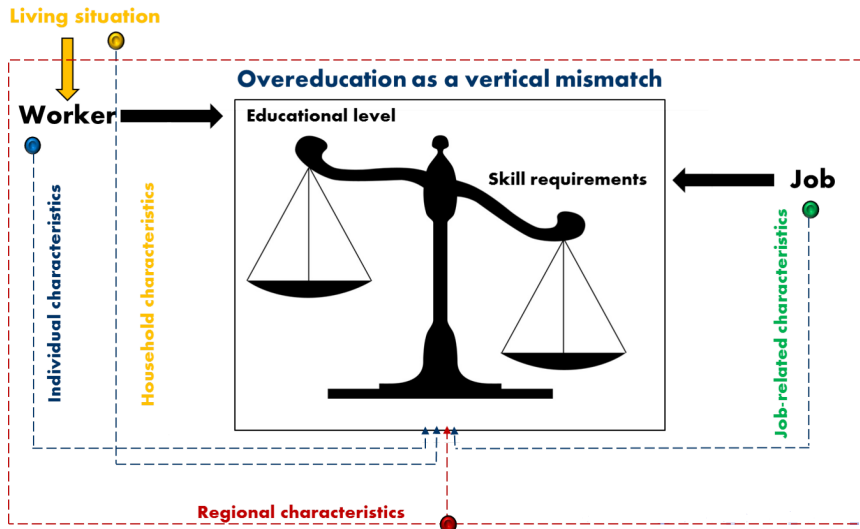
Overview

- 1 Introduction
- 2 Motivation
- 3 Data and measurement
- 4 Results
- 5 Concluding remarks

Overeducation as a vertical mismatch



Potential channels



The occurrence of overeducation is more likely among

- ... workers with less job experience
- ... workers with fixed-term (instead of permanent) contracts
- ... workers with shorter job tenure
- ... workers receiving less training on-the-job
- ... workers with a higher level of education
- ... immigrants

Insufficiently explored issues

- Impact of regional characteristics
- Household background
- Role of field of study
- Gender-specificity of certain determinants

The role of field of study

- Existing empirical results (e.g. Green & McIntosh, 2004; Ortiz & Kucel, 2008; Capsada-Munsech, 2015) indicate a relatively high risk for graduates from Social Sciences and Humanities and a low risk for graduates from Engineering and Natural Sciences
- Potential explanations: Linkages between occupational closure, job competition and overeducation
- However, risk distribution of fields could be gender-specific for several reasons: Occupational preferences, field-specific discrimination (stereotypes), educational sorting at a more disaggregated level

Hypothesis No.1

Graduates from comparatively job-specific job programmes are c.p. less exposed to the risk of overeducation

Hypothesis No.2

In fields where women are particularly under- or overrepresented, gender differences in field-specific risks are noticeable

Our contributions

- Investigating the association of field background with overeducation risk for highly educated workers (ISCED 6+) in a comprehensive framework
- Considering gender-specific effects by means of interaction terms
- Undertaking country comparisons within Europe

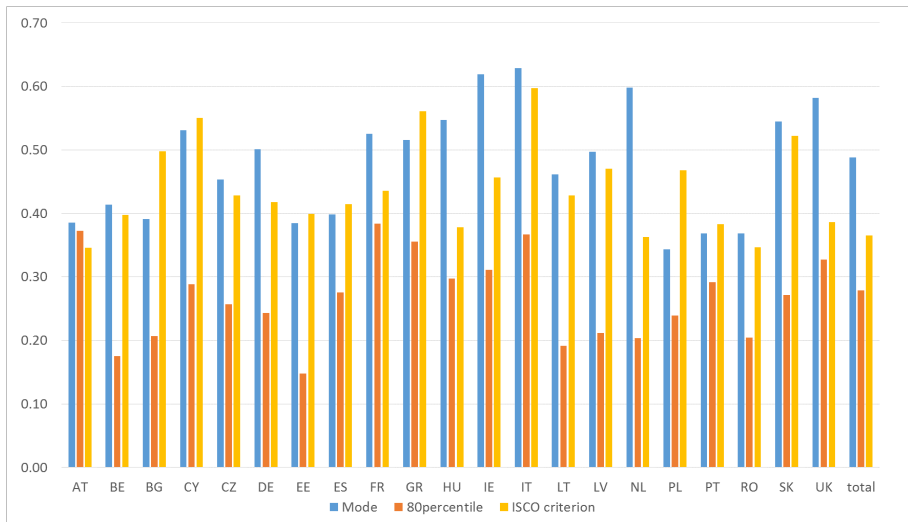
Measurement of overeducation

- Measurement methods in the literature
 - Expert assessments
 - Self-assessments (worker surveys)
 - Assessments based on statistical distributions
- Chosen method: Realized Matches based on the distributions of educational attainment in the same occupational group (ISCO-08 at 2-digit)
 - Binary measurement (overeducated: yes/no)
 - Benchmark criterion: 80th percentile as threshold (following Ortiz & Kucel, 2008)
 - Alternative criterion 1: Mode as threshold (Kiker et al., 2007)
 - Alternative criterion 2: Overeducated = Job outside occupational groups 1-3 (ISCO-08)

- European Labor Force Survey (EU-LFS) 2016
- 21 EU-countries
- Respondents aged 20 to 34 years
- Workers with tertiary education (ISCED-2011 level 6 and higher)
- Explanatory variables
 - Field of study (11 field categories according to ISCED-2013-F)
 - Further individual characteristics (age, nationality, sex)
 - Job-related characteristics (firm size, temporary contract, job tenure, working hours)
 - Sector (NACE Rev.2) and country dummies
 - Employment selection (inverse mills ratio)

- Probit model to estimate the conditional likelihood of overeducation
- Heckman selection correction to account for correlation between overeducation and employment probability
- Information on household background as identification variables (presence of children, elderlies, unemployed, inactive persons)
- Estimations for the aggregate sample and at country level (21 countries)
- Total No. of observations: 34,627

Descriptive results



Results cross-country regression : Field of study

Overeducation measure: 80 th percentile	<u>Cross-country sample</u>			
	Base term		Interaction with sex (Female=1)	
	ME	se	ME	se
Sex	-0.004	0.060		
Field of study				
General programmes	-0.041	0.114	0.094	0.139
Education	-0.055*	0.033	-0.013	0.037
Arts and Humanities	-0.045	0.032	0.066*	0.037
Business and Law	-0.017	0.024	0.037	0.029
Natural Sciences	0.097***	0.032	-0.073*	0.041
ICT	-0.097***	0.029	0.008	0.053
Engineering	-0.052**	0.024	0.039	0.032
Agriculture	0.019	0.042	-0.001	0.054
Health and Welfare	-0.102***	0.034	0.026	0.038
Services	0.069**	0.031	-0.087**	0.040
Observations	34,627			

Reference category: Social Sciences, Journalism and Information.

*: Statistical significance at 10%-level; **: Statistical significance at 5%-level; ***: Statistical significance at 1%-level;

Results country regressions: Field of study

Number of countries for which ..

Field of study	Base term			Interaction term (female: sex=1)		
	positive; significant	negative; significant	insignificant	positive; significant	negative; significant	insignificant
General programmes	0	0	21	0	0	21
Education	5	8	8	7	6	8
Arts and Humanities	0	5	16	6	0	15
Business and Law	3	2	16	4	4	13
Natural Sciences	5	1	15	1	5	15
ICT	1	7	13	2	0	19
Engineering	3	6	12	5	3	13
Agriculture	3	1	17	3	2	16
Health and Welfare	1	6	14	4	4	13
Services	4	1	16	1	1	19

Summary results: Field of study

- At cross-country level, (male and female) graduates from Engineering, ICT and Health/Welfare are subject to a significantly lower overeducation risk than the reference Social Sciences
- This is largely confirmed at country level, even though some exceptions seem worth investigating
- Gender-specific effects at cross-country level are limited and concern Arts/Humanities, Natural Sciences and Services
- At country level, gender interactions are quite diverse, yet results for Arts/Humanities and Natural Sciences are essentially confirmed

Results cross-country regression: Control variables

Overeducation measure: 80 th percentile	<u>Cross-country sample</u>			
	Base term		Interaction with sex (Female=1)	
	<i>ME</i>	<i>se</i>	<i>ME</i>	<i>se</i>
Inverse mills ratio	0.053***	0.018		
<u>Individual variables</u>				
Sex	-0.004	0.060		
<i>Age group (ref: 20-24)</i>				
25-29 years	-0.053	0.051	0.018	0.057
30-34 years	-0.017	0.050	-0.033	0.056
Foreigner	0.152***	0.014		
<u>Job variables</u>				
<i>Fim size (ref: < 10)</i>				
11-19 persons	-0.055***	0.015		
20-49 persons	-0.056***	0.013		
50 and more persons	-0.036***	0.012		
Temporary contract	0.059***	0.011		
Working hours (in 10h)	-0.046***	0.005		
Tenure (in 10y)	-0.108***	0.033		
Tenure squared (in 10y)	0.047*	0.025		
Observations		34,627		

*: Statistical significance at 10%-level; **: Statistical significance at 5%-level; ***: Statistical significance at 1%-level; Dummies for nationality and industry (sections NACE Rev.2) included.

- Alternative measure No.1: Mode as threshold
 - No change in sign and significance of field-of-study effects for male graduates compared to benchmark
 - Concerning gender heterogeneity, interaction terms for Natural Sciences and Services turn insignificant, but become significant for Engineering and General Programmes
- Alternative measure No.2: ISCO criterion
 - No change in signs of field-of-study effects for male graduates, significance slightly reduced in case of Engineering and Health/Welfare
 - Interactions with sex insignificant apart from General Programmes and Services

- The estimations based on EU-LFS 2016 largely confirm the hypothesis that job-specificity of study programmes plays an important role in shaping cross-field differences in overeducation
- Evidence for gender-specific effects is more mixed and sensitive to the measurement method chosen
- Results at country level indicate considerable Intraeuropean variation concerning ...
 - ... the relative exposure of certain fields
 - ... gender differences in this exposure
 - ... level effects across all fields (country dummies)
- Results justify more detailed country-level analyses, but also an investigation of institutional influences (structure of educational systems, labour markets, cultural norms etc.) in a cross-country setup



Q. Capsada-Munsech (2015)

The role of social origin and field of study on graduates overeducation: the case of Italy

Higher Education 69(5), 779 – 807.



F. Green & S.McIntosh (2004)

Is there a genuine under-utilization of skills amongst the over-qualified?

Applied Economics 39(4), 427 – 439.



L. Ortiz & A. Kucel (2008)

Do fields of study matter for over-education? The cases of Spain and Germany

International Journal of Comparative Sociology 49(4-5), 305 – 327.