

# Graduate Jobs

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Workshop at Warwick Institute for Employment  
Research, 9/11/2016



# The changing graduate labour market

- Recent period has seen BOTH:
  - Ongoing rapid expansion of HE, with expansion of graduate share
  - Ongoing changing high-skills demand
- But: great uncertainty in outlook for graduates
- "Graduate job" as one lens for examining change
- Other uses: HR analysis incl. careers IAG, TEF etc.

# Concept

- "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"
- Two properties to note:
  - Imprecise
  - Some skills from HE *not* used in graduate jobs
  - Some graduate skills likely to be acquired outside HE

# A new indicator of graduate jobs: SOC(HE)\_GH

- “Jobs” are classified into a cluster of graduate and non-graduate occupations based on worker-reported tasks and associated high-skill requirements
- Aim is to classify “minor groups” (at 3-digit level)

# Data: skills and employment surveys

Date	Survey	Sample Size
1986	Social Change & Economic Life Initiative	4047
1992	Employment in Britain Survey	3855
1997	Skills Survey	2467
2001	Skills Survey	4470
2006	Skills Survey	7787
2012	Skills and Employment Survey	3200

# Skills indices

Dependent: self-reported education requirements to do job (1=tertiary education or equivalent, 0=otherwise)

Independent:

1. *High-level cognitive tasks*: Literacy, numeracy, problem solving, task complexity, advanced or complex computer use, specialist knowledge
2. *High-level orchestration tasks*: professional communication, managerial responsibility, self-planning
3. *Learning*: long training required to do job
4. Average degree requirements in similar jobs (i.e. other jobs in the same minor group)

# Method: Step 1

- Step 1: We estimate the association of high-skilled tasks and learning requirement with the propensity for a job to require tertiary level qualification.
- We do this using a ‘probit model’, drawing on more than 17,000 observations taken from successive SES surveys.
- For each person, we then derive an index of ‘Graduate Skills Requirements’ as the sum over the independent variables, each weighted by its estimated probit coefficient.

# Method: Step 2

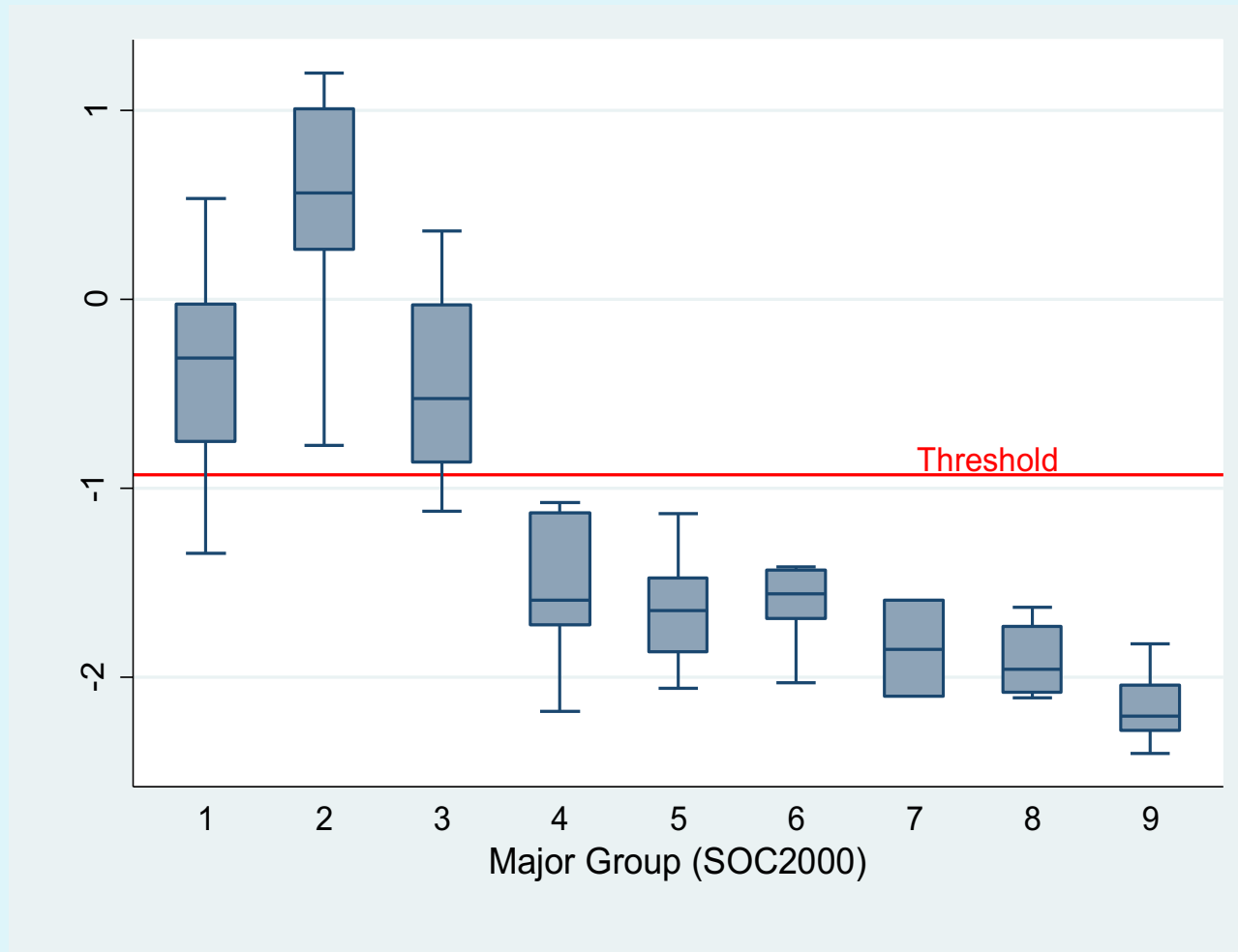
- We compute the average predicted score in each "minor group" (3-digit)



# Method: Step 3

- We ran a statistical “cluster analysis” to determine two clusters, and optimal threshold.
- It groups each case (minor group) in one or other cluster: graduate or non-graduate

# GRADUATE SKILLS REQUIREMENTS INDEX BY MAJOR GROUPS



# What's the difference?

- Most groups in SOC major groups 1-3
- Some clear exceptions:
  - Managers and Directors in Retail and Wholesale
  - Sports and Fitness Occupations
  - Managers and Proprietors in Hospitality and Leisure Services

# Example of a new graduate job



Farm manager of the year finalist 2008

# Most frequent occupations among underemployed graduates 25-60 years old, 2012

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Occupation (main job)	%
4159 Other administrative occupations nec	4.7
4122 Book-keepers, payroll managers and wages clerks	4.3
6145 Care workers and home carers	3.8
6125 Teaching assistants	3.8
7111 Sales and retail assistants	3.5
1190 Managers and directors in retail and wholesale	3.4
6141 Nursing auxiliaries and assistants	2.6
4112 Civil service admin officers and assistants	2.4
4215 Personal assistants and other secretaries	2.1

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# Validation of SOC(HE)\_GH

- close to concept
- plausible distribution by occupation group
- Criterion validity. Graduate jobs should:
  - pay more wages
  - make better use of graduates' skills
  - be well-matched with graduates
- Compared with other indicators, SOC(HE)\_GH is best or equal best on all counts

# Validation example: Earnings

	SOC(HE)2010 _GH	SOC2010 1-3	Gottschalk/ Hansen	SOC(HE)2010 _EP
<b>Employees and Self-Employed – SES 2012</b>				
<b>Graduate Job</b>	0.486***	0.451***	0.438***	0.436***
	(0.041)	(0.041)	(0.043)	(0.041)
<b>R2 (N=1,034)</b>	0.276	0.242	0.244	0.259
<b>Employees and Self-Employed in Major Groups 1, 3, and 4 – SES 2012</b>				
<b>Graduate Job</b>	0.397***	0.285***	0.362***	0.339***
	(0.071)	(0.064)	(0.065)	(0.076)
<b>R2 (N=414)</b>	0.204	0.149	0.203	0.193

# Validation example: Skills underutilisation

	SOC(HE)2010 _GH	SOC2010 1-3	Gottschalk/ Hansen	SOC(HE)2010 _EP
<b>Employees and Self-Employed – SES 2012</b>				
<b>Graduate Job</b>	0.200***	0.200***	0.182***	0.109***
	(0.032)	(0.034)	(0.033)	(0.029)
<b>R2 (N=1,238)</b>	0.096	0.091	0.084	0.055
<b>Employees and Self-Employed in Major Groups 1, 3, and 4 – SES 2012</b>				
<b>Graduate Job</b>	0.184***	0.201***	0.099**	-0.020
	(0.055)	(0.066)	(0.046)	(0.045)
<b>R2 (N=538)</b>	0.057	0.052	0.028	0.014

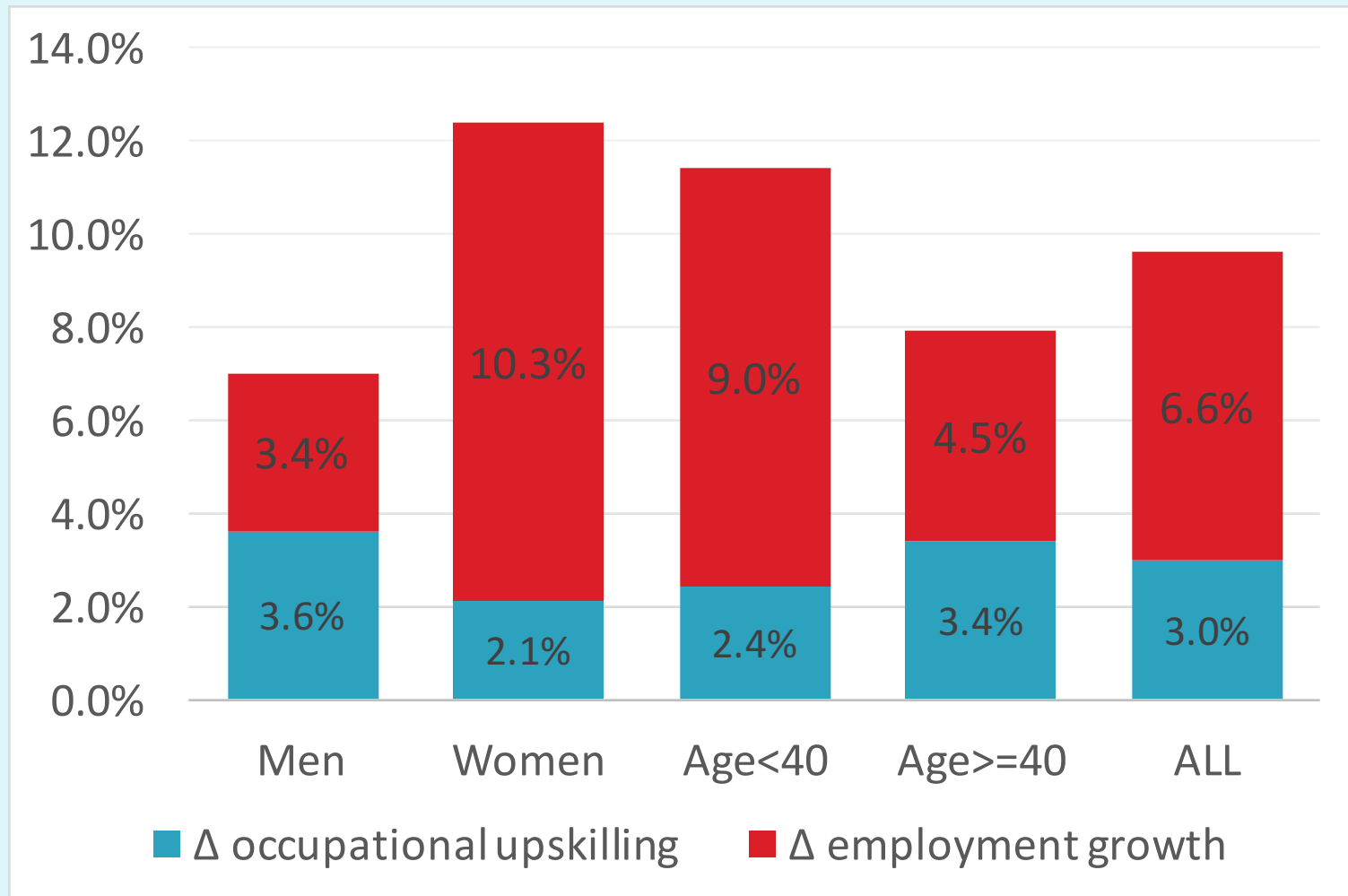


# Validation example: Aggregate matching

	SOC(HE) 2010_GH	Major Groups 1-3	Gottschalk/ Hansen	SOC(HE) 2010_EP
SES 2012				
Non- Graduates	80.6%	76.3%	66.6%	83.4%
Graduates	69.4%	73.5%	70.6%	61.4%
ALL	75.8%	75.1%	68.3%	73.9%

- Strengths
  - close to concept
  - derived from worker-based informants
  - transparent & replicable
  - good predictor
  - can analyse change over time and comparisons
- Weaknesses
  - number of observations
  - capture of occupation-specific knowledge
  - lingering credentialism
  - like all classifications: simplistic

# Decomposing the Growing Share of Graduate Jobs between 1997/2001 and 2006/2012



# The match: so far so good

- Match with graduate jobs, 97/01 to 06/12:

- Graduates as % of employment:

30%            42%

- Graduate jobs as % of employment:

32%            41%

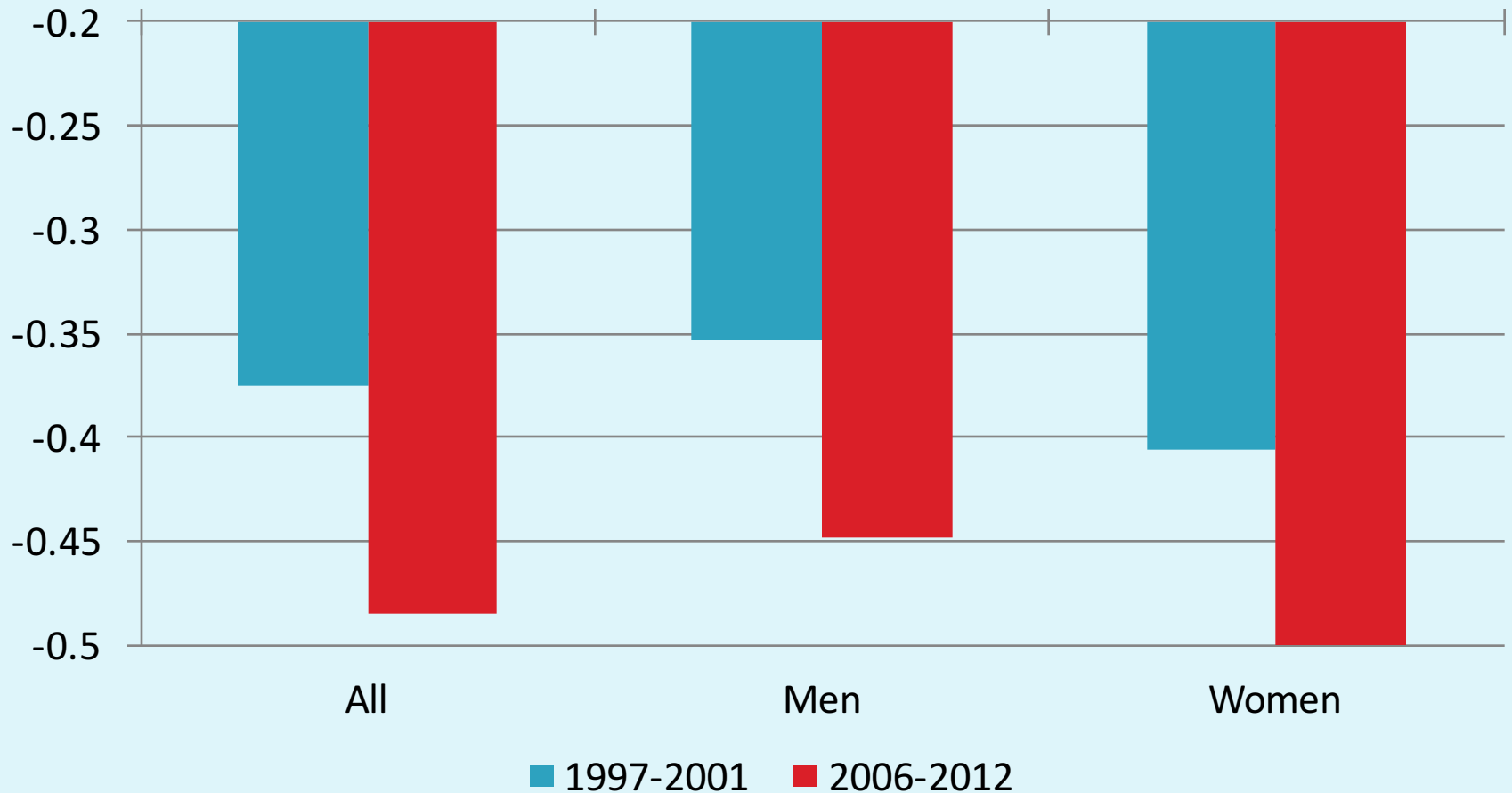
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Median "returns" (=wage gap) held steady

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But there is growing differentiation: by grade, subject, hierarchy.

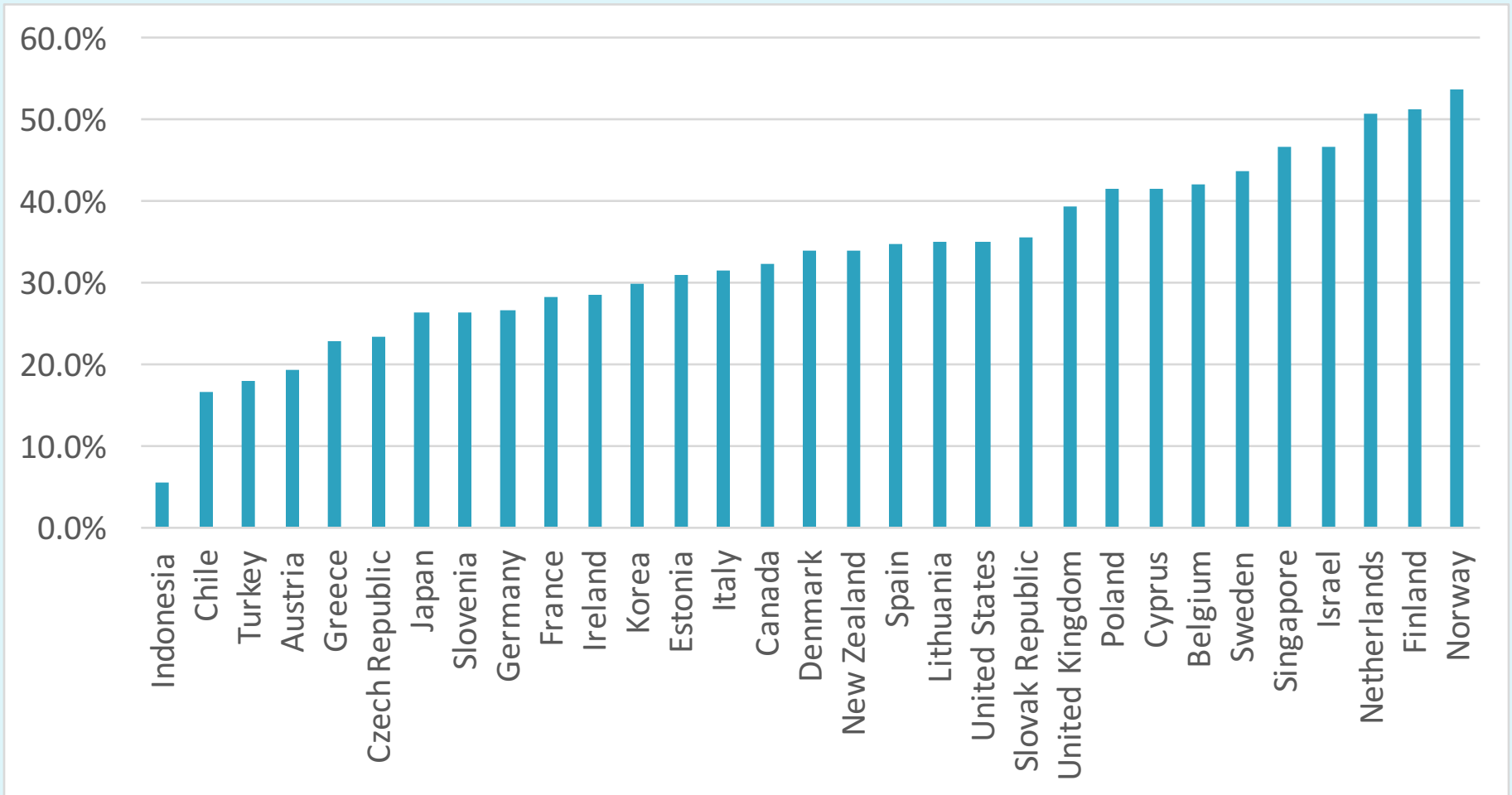
# Log wage penalty for underemployed graduates



# Graduate Employment Clouds?

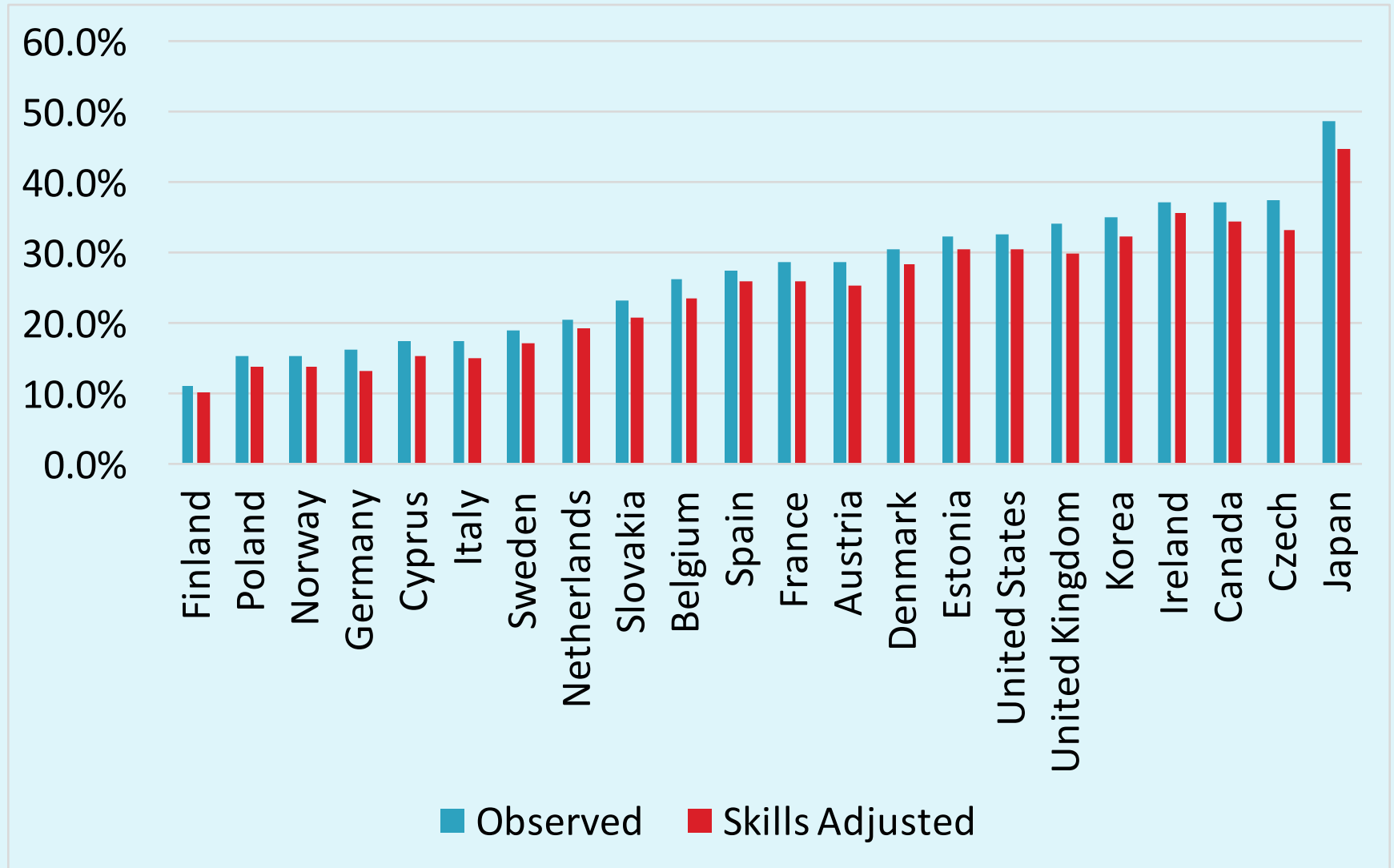
- UK graduate underemployment relatively high
- ongoing rise in supply of graduates
- Demand uncertainty:
  - ongoing hollowing out?
  - maturity of existing ICT?
  - the difference in new-wave automation?
- Brexit-led recession

# The proportion of total working hours in graduate jobs\* in international comparison



Base: Employed Labour Force 25-54 years. Source: SAS Rounds I and II

# "Under-employed" graduates





# Our work at LLAKES and CGHE

- studying the differentiation in the economic and other returns to HE for many developed countries
- differentiation within the labour market, and/or within HE itself

So far:

Green, F. and G. Henseke (2016). "The Changing Graduate Labour Market: Analysis Using a New Indicator of Graduate Jobs". IZA Journal of Labor Policy.

Green, F. and G. Henseke (2016) "Should governments of OECD countries worry about graduate underemployment?" Oxford Review of Economic Policy.

Both available open access online.