



## Conference

# "EVIDENCE BASED POLICY AND HIGHER EDUCATION: PROGRESS, PITFALLS AND PROMISE"

## Opening the black box of graduate horizontal competences. Divergent outcomes in the Italian labour market

31<sup>st</sup> October 2022

Luca Cattani (Gran Sasso Science Institute-GSSI)

Giulio Pedrini (University of Enna – Kore)

[luca.cattani@gssi.it](mailto:luca.cattani@gssi.it)

[giulio.pedrini@unikore.it](mailto:giulio.pedrini@unikore.it)

# Outline

- Motivations
- Aims and research question
- Theoretical framework
- Stylized facts on Italian graduate labour market
- Graduate jobs – SOC(HE)-Italy classification
- Empirical strategy
- Results
- Comments and conclusion

# Motivations

- **Policy focus:** the assessment of labour market outcomes of Higher Education (HE) programmes is critical in the political agenda (Behle and Maher, 2018).
- Once acquired via HE, **each category of graduate skill can be more or less demanded in the labour market** and enjoy or not higher premia in terms of economic returns (Freeman, 1975; Duncan and Hoffman, 1981; Valletta 2018; etc.).
- **Horizontal competences**, such as sophisticated relational and socio-emotional skills are increasingly viewed as primary outcomes of HE.
- **Need to assess the capability of HE systems** to cope with the evolving demand for such type of skills
- ✓ Italy is a suitable context for such an analysis.
  - Relatively recent HE reform (3+2) and expansion of HE participation;
  - Early evidence on: occupational downgrading and off-shoring (Falzoni and Tajoli, 2008), lack of organizational change (Piva and Vivarelli, 2006).

# Aims and contribution

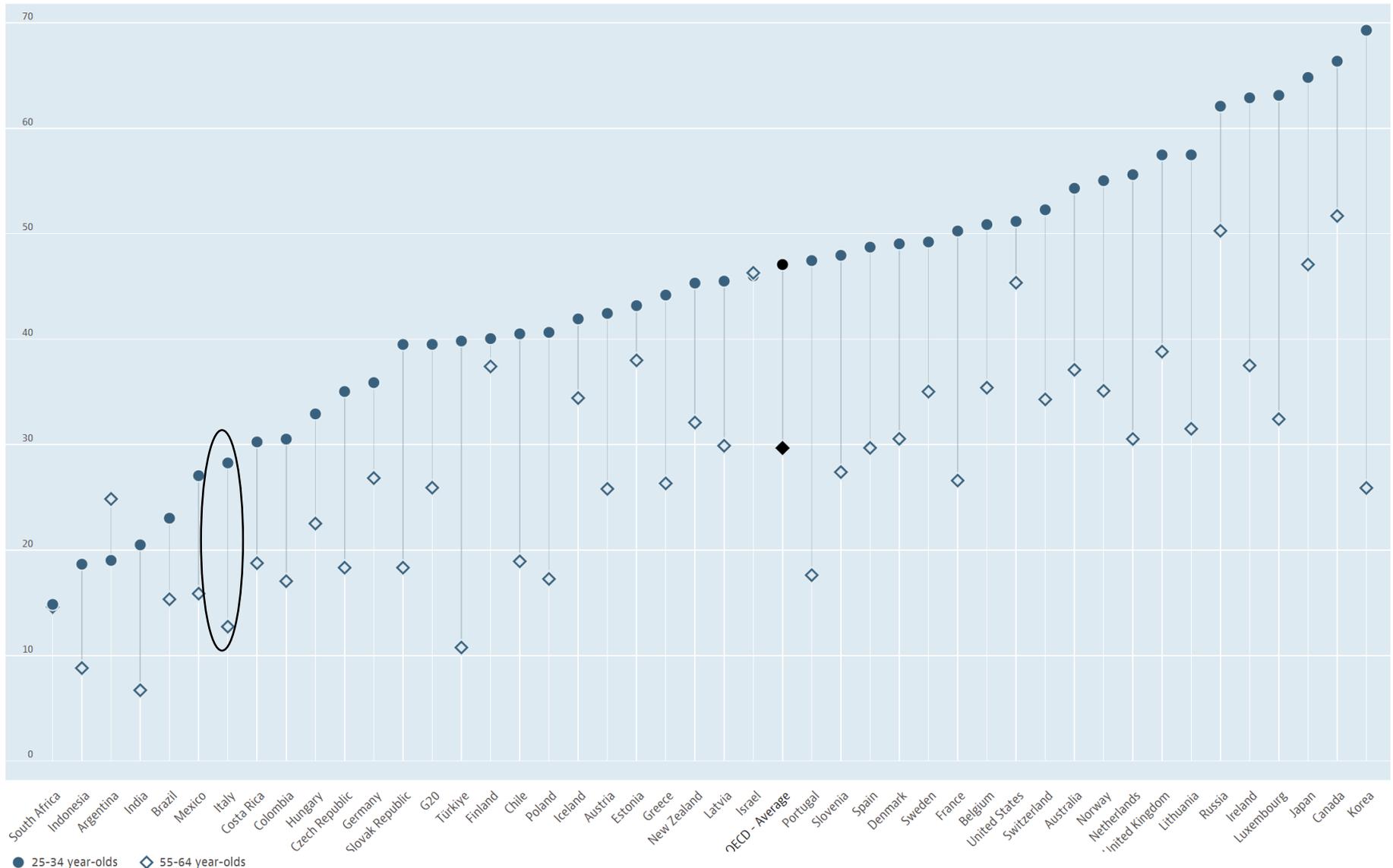
1. To assess the **earning premium associated with graduate occupations discriminating between different skill categories** (identified through a skill-based classification).
  2. To evaluate **how this premium has changed over time**, particularly in the period following the crisis.
- The paper contributes to the existing literature by **assessing the capability of the Italian HE to enhance horizontal competences and graduates' employability.**

# Theoretical framework

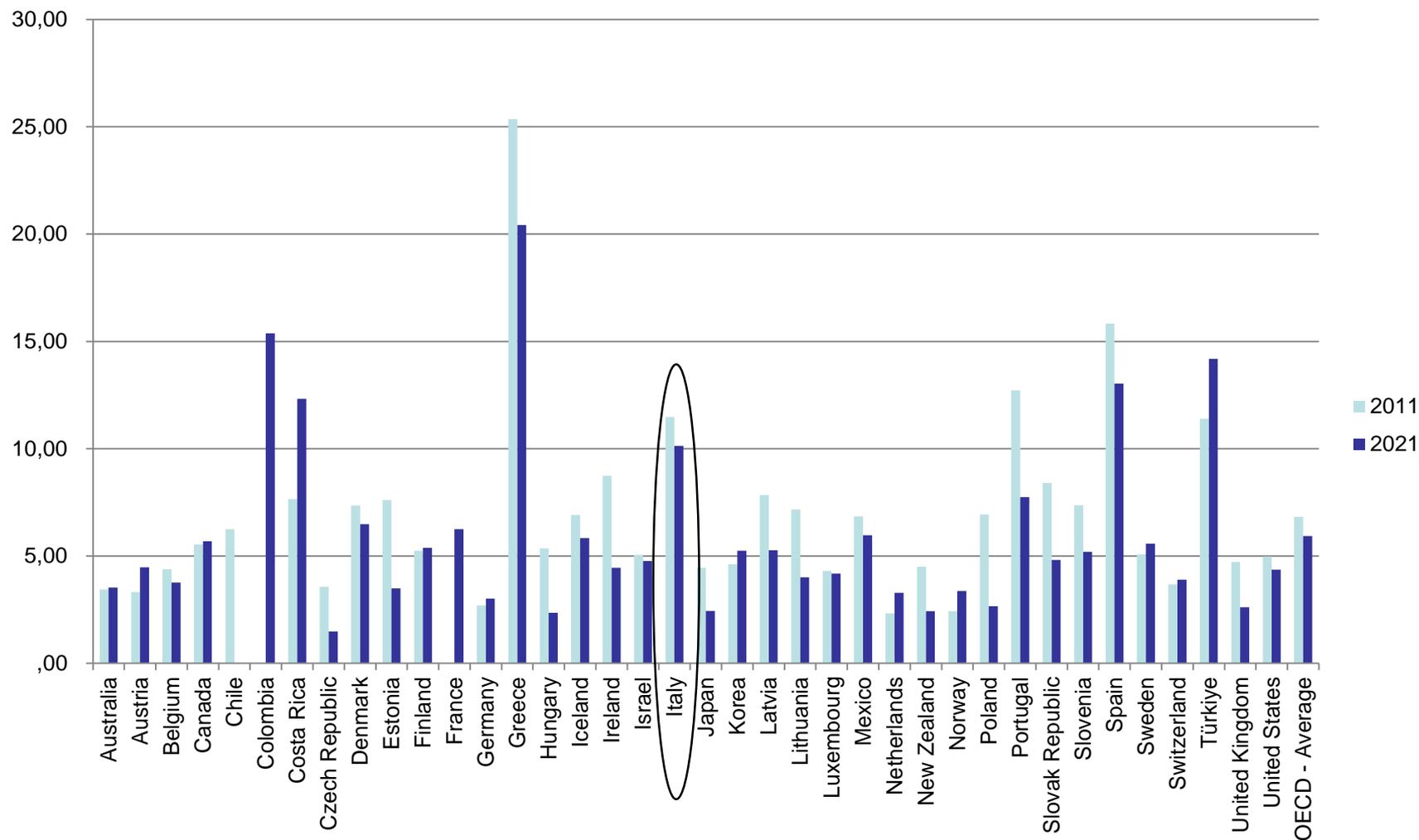
- **Horizontal skills are deemed to be increasingly important in the logic of enhancing graduates' employability** in the age of automation (Autor, 2015), while they are considered as a bottleneck that hampers labour substitutability with digital technologies (Frey and Osborne, 2017).
- Workers acquiring such skills are expected to enjoy **increasing returns in terms of earnings as long as digital technologies are employed in the production processes** (Katz and Autor, 1999; Acemoglu and Autor, 2011).
- **Horizontal skills, however, can also be developed outside formal learning paths** (internships, field-trips, job-related training) in the initial phase of the career (Crebert et al., 2004).
- To assess the effectiveness of the HE system in offering horizontal skills **it is important to determine the extent to which such skills are correlated to a tangible outcome in the labour markets** (Roksa and Levey 2010; Thomas and Zhang 2005; Webber, 2014).

# Stylized facts on Italian Labour markets: population with tertiary education

Population with tertiary education 25-34 year-olds / 55-64 year-olds, % in same age group, 2021 or latest available

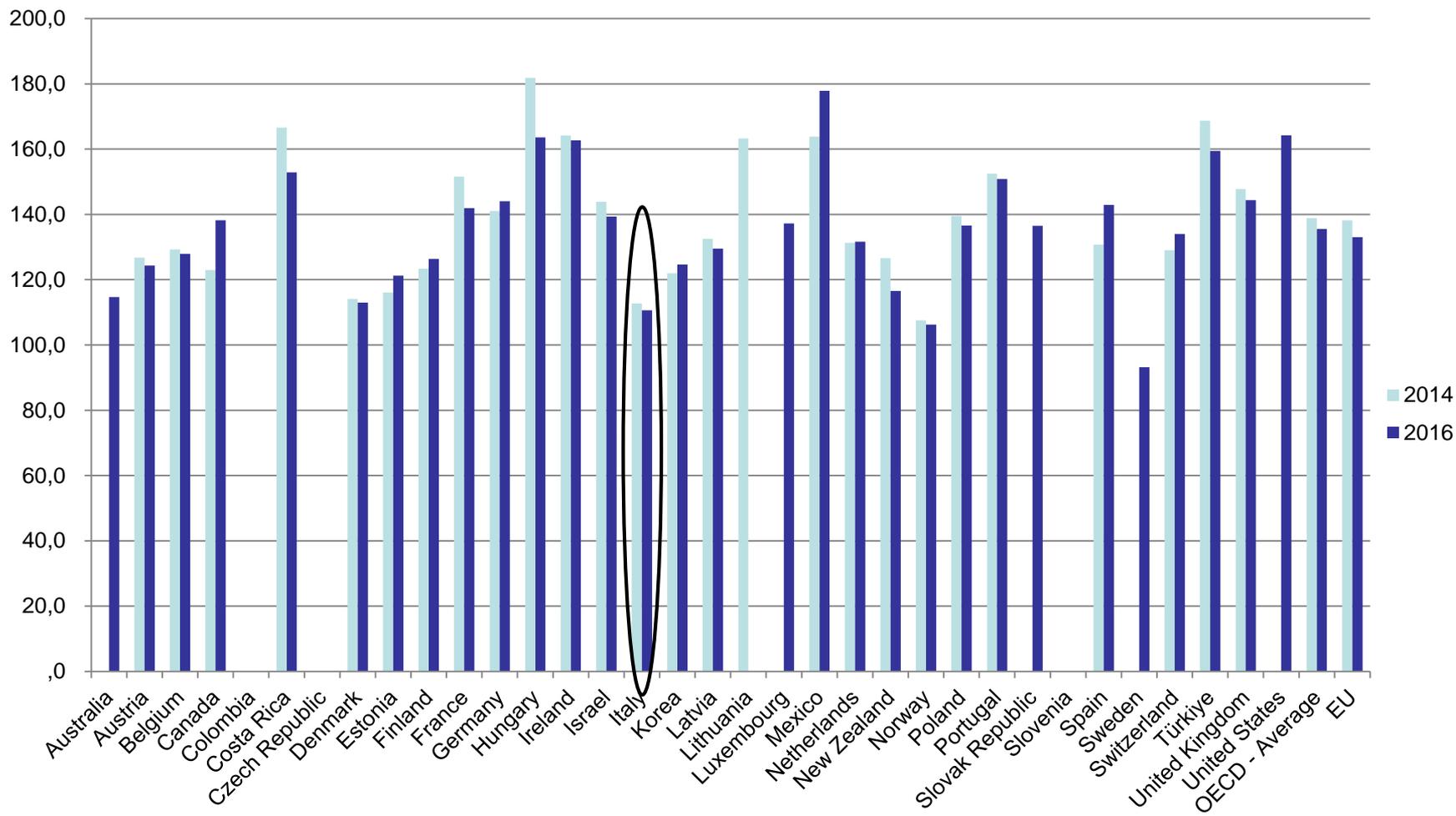


# Stylized facts on Italian Labour markets: unemployment rate among young graduates



In percentage; source: OECD, 2022

# Stylized facts on Italian Labour markets: graduates earning premium



Secondary education=100; source: OECD, 2022

# Graduate job classification

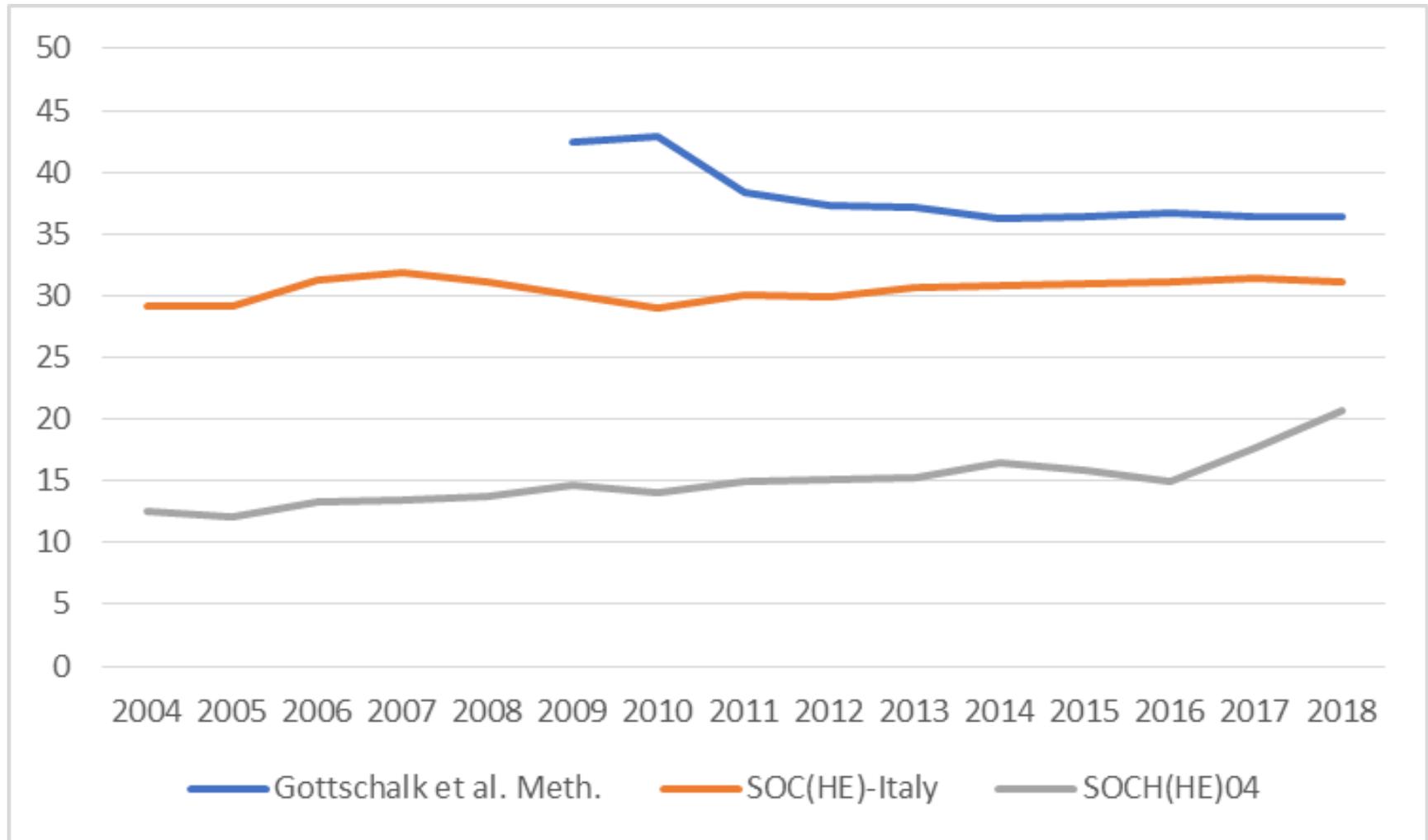
- **Our classification of *graduate jobs*** is based onto SOC(HE)-Italy, an application to the Italian labour force of the British SOC(HE)2010 occupational classification (Elias and Purcell, 2004, 2013, 2014).
- **A graduate job is a job that requires knowledges and skills acquirable ONLY via tertiary education** to competently perform its constituent tasks.
- «Graduate jobs» are grouped in the same 3 Major Groups defined by the British SOC(HE): Experts, **Orchestrators and Communicators**.

# Graduate job classification: examples

ID	Label	Underlying skills	SOC(HE) Cluster of competence
B1a	Business administration and management	Knowledge of the principles and methods that govern businesses and their management relating to strategic planning, the allocation of human, financial and material resources, command techniques, production methods and coordination of people and resources	ORC
B2a	Paper work	Knowledge of administrative and office procedures, word processing programs, archive and database management techniques and transcription rules or other procedures and languages required on the clerical jobs	EXP
B4a	Marketing and sales	Knowledge of principles and methods for presenting, promoting, selling products or services. It includes the definition of marketing strategies and tactics, their presentation, sales and monitoring techniques	COM

# Graduate jobs in Italy - evolution over time

Comparison between different measures for graduate jobs



# Empirical strategy

- We test the **effects of the interaction between holding a degree (*Grad*) and the three SOC(HE) major occupational groups on earnings** to estimate the magnitude of the different mark-ups in 2010 and 2018.
- The associated OLS regression is given by the following equation:

$$\begin{aligned} \log(W_i) &= \alpha + \beta_1 Exp_i + \beta_2 Orch_i + \beta_3 Com_i + \beta_4 Grad_i + \beta_5 Exp_i * Grad_i \\ &+ \beta_6 Orch_i * Grad_i + \beta_7 Com_i * Grad_i + \gamma X_i + \varepsilon_i \end{aligned}$$

# Results – overall sample

**Table 4.** Earning premia and Mark-Ups for Appropriate Occupations in 2018 (April-June), compared to 2010 (April-June).

	2018 Earning Premium (Non-Graduates Employed in non-graduate jobs as Benchmark)	2010 Earning Premium (Non-Graduates Employed in non-graduate jobs as Benchmark)	2010–2018 Earning Premium percentage point difference	2018 Mark-up (Graduates Employed in Non-Graduate Jobs As Benchmark)	2010 Mark-up (Graduates Employed in Non-Graduate Jobs As Benchmark)	2010–2018 Mark-up percentage point difference
Non-graduates Employed as Experts	17.00%	18.58%	<b>-1.58%</b>	/	/	/
Non-graduates Employed as Orchestrators	19.18%	35.66%	<b>-16.48%</b>	/	/	/
Non-graduates Employed as Communicators	21.91%	23.97%	<b>-2.06%</b>	/	/	/
Graduates Employed in Non-Graduate Jobs	21.31%	20.50%	<b>+0.81%</b>	0.0%	0.0%	<b>-0.0%</b>
Graduates Employed as Experts	30.08% <sup>a</sup>	36.04%	<b>-5.96%</b>	+8.77%	+15.54%	<b>-6.77%</b>
Graduates Employed as Orchestrators	20.91% <sup>b</sup>	36.66%	<b>-15.75%</b>	-0.40%	16.16%	<b>-16,56%</b>
Graduates Employed as Communicators	34.41% <sup>c</sup>	35.90%	<b>-1.49%</b>	+13.10%	+15.40%	<b>-2.30%</b>

# Results – young workers subsample

	2018 Earning Premium	2010 Earning Premium	2010-2018 Earning Premium percentage point difference	2018 Mark-up	2010 Mark-up	2010-2018 Mark-up percentage point difference
Non-graduates Employed as Experts	7.00%	13.21%	<b>-6.21%</b>	/	/	/
Non-graduates Employed as Orchestrators	16.11%	24.78%	<b>-8.67%</b>	/	/	/
Non-graduates Employed as Communicators	14.76%	10.28%	<b>4.48%</b>	/	/	/
Graduates Employed in Non-graduate Jobs	10.72%	8.98%	<b>1.74%</b>	0.0%	0.0%	<b>-0.0%</b>
Graduates Employed as Experts	17.72%	22.19%	<b>-4.47%</b>	7.00%	13.21%	<b>-6.21%</b>
Graduates Employed as Orchestrators	26.83%	33.76%	<b>-6.93%</b>	16.11%	24.78%	<b>-8.67%</b>
Graduates Employed as Communicators	15.43%	19.26%	<b>-3.83%</b>	4.71%	10.28%	<b>-5.57%</b>

# Comments

- **Monetary benefits attached to all graduate jobs substantially decreased after the financial crisis.**
- The inter-temporal comparison also confirms the **different path of the three categories of jobs with an increasing polarization within them**
- **No differential between non-graduate and graduate workers employed as "Orchestrators" in 2018, while the returns enjoyed by graduates employed in such occupations suffered the highest drop**
- **Only communication skills enjoy a persistent comparative advantage, but not among young workers.**
- **Role of the structural features of Italian labour markets:** low degree of skill-biased technical change, low complementarity between education and training, substantial risks of off-shoring for graduate occupations.

# Conclusions

- **Partial rethinking of the idea that, in the era of digitalization, social intelligence is at the basis of the advantage of humans over robots.**
- **Ambiguous effectiveness of the Italian HE system** in providing the skills required by different graduate jobs
- **Italian universities seem to fail to provide suitable competences for those graduates employed as "Orchestrators"**
- It may also be, however, that managerial skills can be more easily developed through alternative learning paths, such as work-based experience or other extra-curricular activities
- Italian HE system should deeply reconsider their curricula in terms of horizontal skills usually associated with managerial professions.

...THANKS FOR YOUR ATTENTION!!!

COMMENTS ARE MORE THAN WELCOME!

giulio.pedrini@unikore.it

luca.cattani@gssi.it