

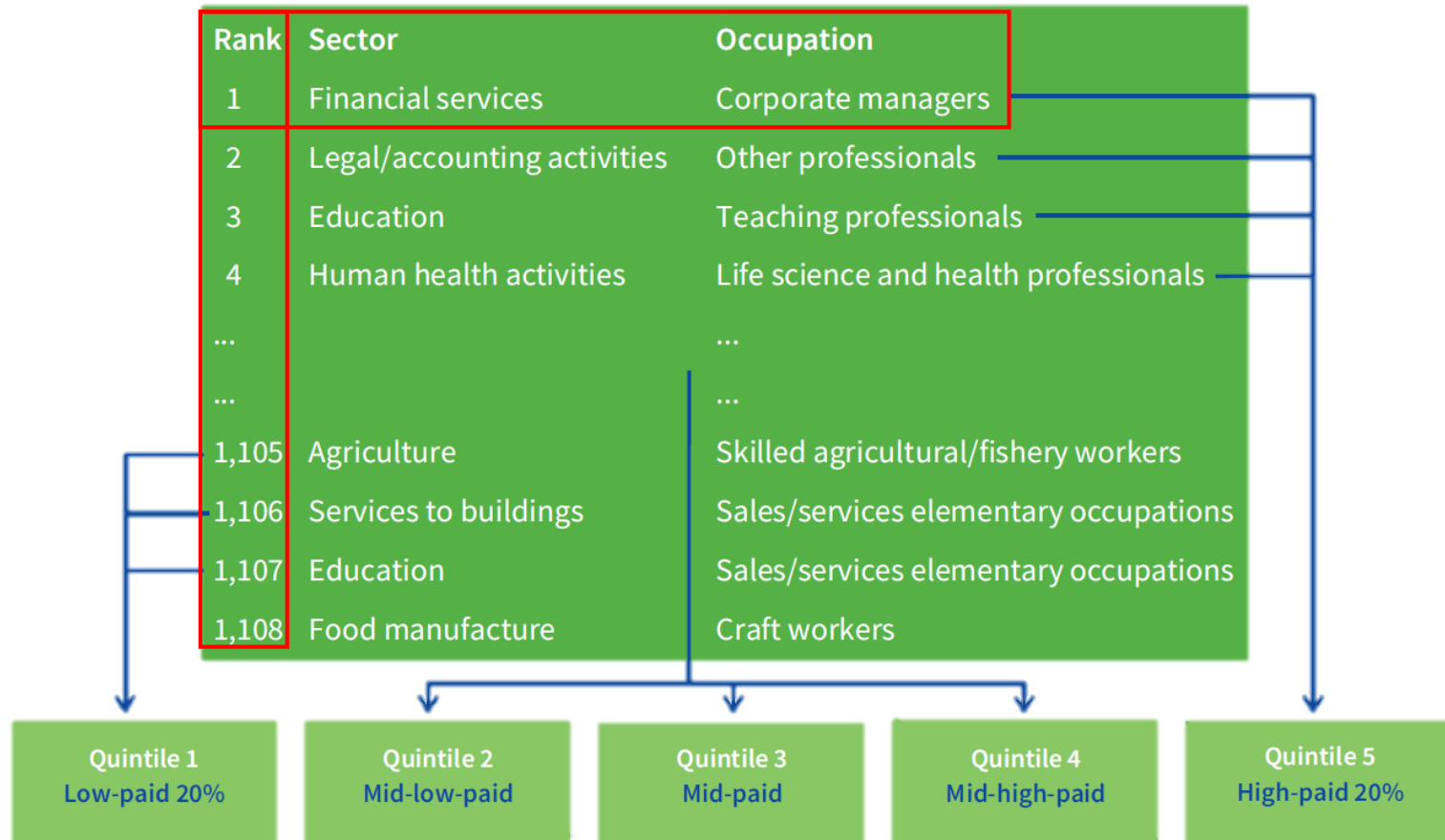
# The changing employment structure and implications for skills / tasks

John Hurley  
DG-EMP conference  
Matching skills with needs  
Brussels, 06/11/19

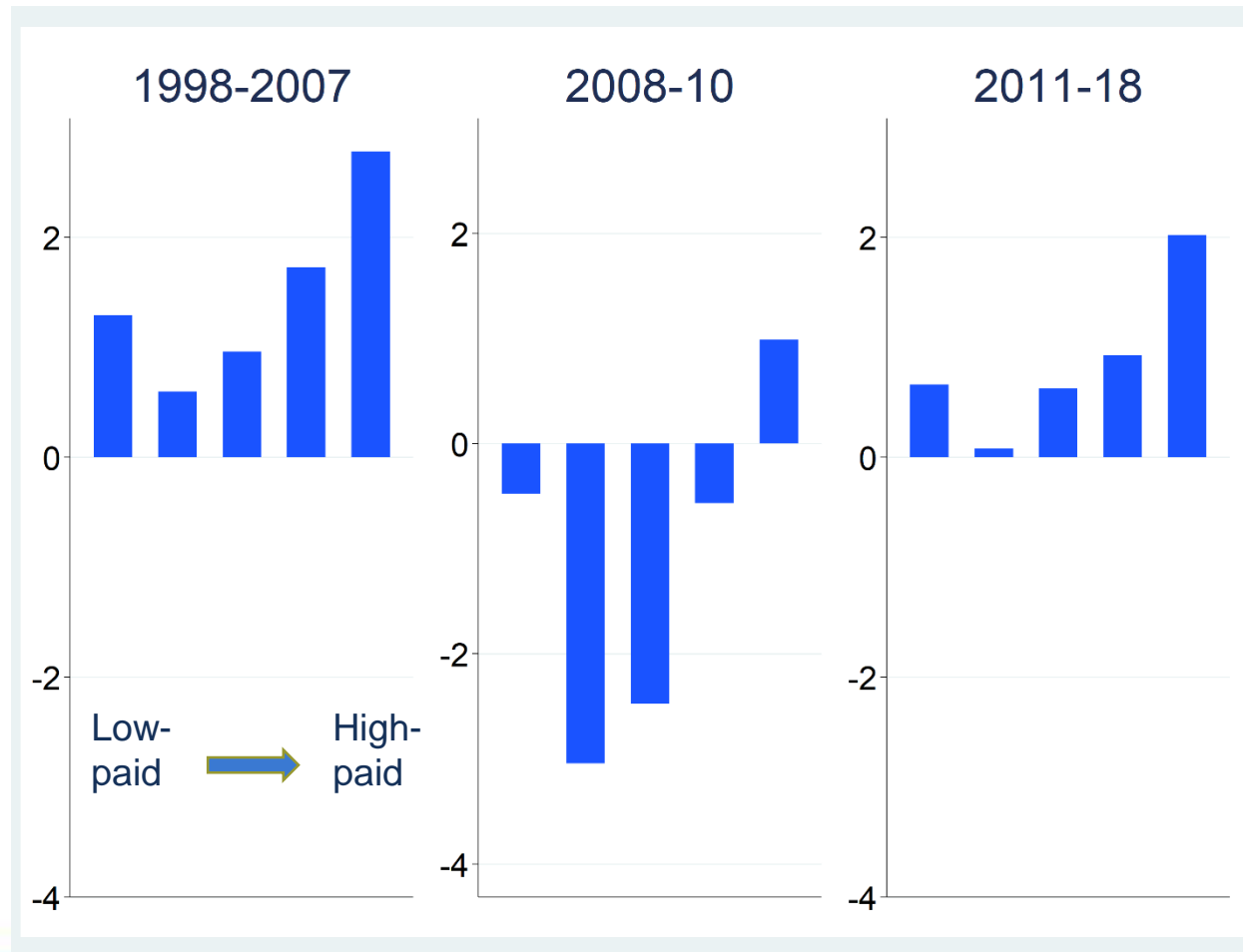
- European Jobs Monitor
  - Methodology
  - Main findings
- Principal hypotheses regarding changes in employment structure
- An expanded tasks framework
- Concluding observations

# European Jobs Monitor 'jobs approach': methodology

## Example of job rankings and quintile assignments

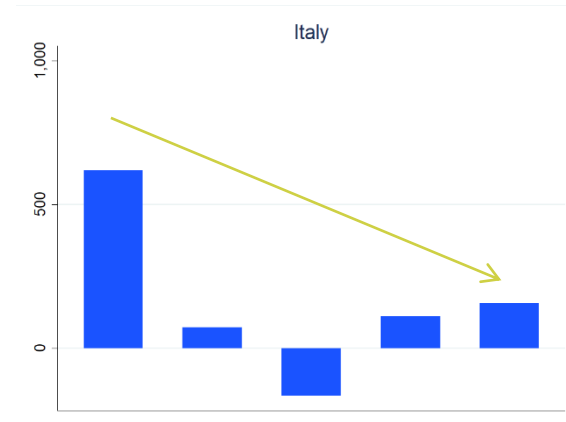


# Employment shifts (%pa), EU by job-wage quintile



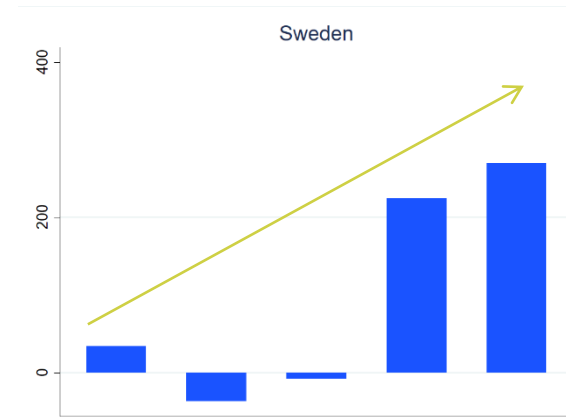
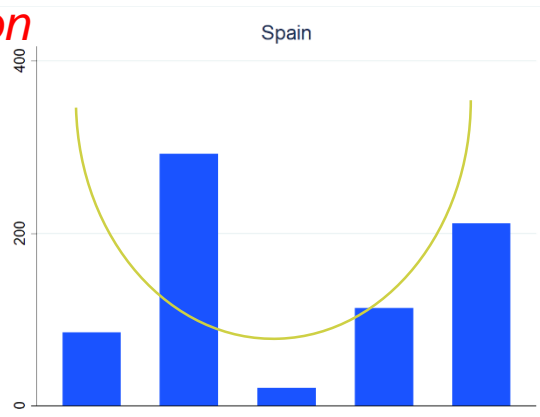
Source: Eurofound (2019)

# Variety of employment shift patterns by country 2011-18



*Downgrading*

*Polarisation*

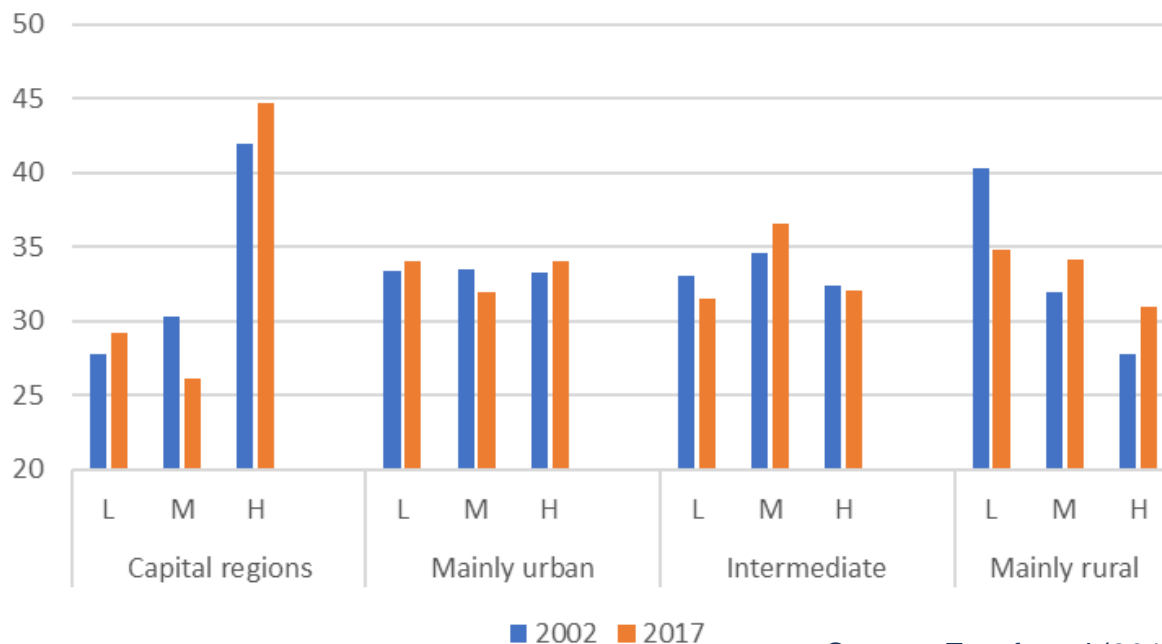


*Upgrading*

Source: Eurofound (2019)

# Regional differences

Employment % by tercile, EU9



Source: Eurofound (2019)

Notes:

EU9 = DE, FR, UK, IT, ES, PL, SE, BE, CZ

130 regions – NUTs 2 except DE and UK (NUTs 1)

Terciles; static comparison in each case with EU9 reference in 2002 and 2017. Job-wage terciles.

Urban-rural typology, adapted from Eurostat 2011

Interactive regional data viz:

[www.eurofound.europa.eu/data/regional-shifts-in-employment-structure-2002-2017](http://www.eurofound.europa.eu/data/regional-shifts-in-employment-structure-2002-2017)

# Upgrading and polarising employment shifts

- Upgrading: the pattern is a more or less linear improvement in the employment structure.
  - **skill-biased** technological change increases the demand for skilled labour at the expense of less-skilled labour.
- Polarisation: employment growth is weakest in the middle and relatively stronger at top and bottom.
  - **routine-biased** technological change complements those with higher skills, but substitutes those performing routine job tasks, more easily machine-replaceable (predominant in mid-paid jobs).



Shift from a SKILLS to a TASK based consideration of jobs / occupations



# Expanding the task framework

- Definitions / key concepts:
  - Tasks: ‘units of work activity that produce output’ (Autor)
  - Skills: the stock of human capabilities that allow humans to perform tasks (Autor)
  - Jobs / occupations: involve bundles of tasks
- Advantages:
  - Captures the production process at a finer level of detail
  - Accounts for the relative strength of low-paid employment growth vis-à-vis mid-paid
  - No reference to human agency / capabilities: tasks will be completed by human labour or machine based on comparative cost, technological feasibility etc
- Some limitations:
  - focus on particular types of tasks rather than a comprehensive typology (cognitive / manual, routine / non-routine)
  - narrowly technical perspective of the production process, often neglecting the social aspects of production.
  - workers’ input in production requires their cooperation: this generates specific task input (managerial, supervisory and control tasks). The need to secure cooperation can also (re)shape the contents and methods of labour input in production.



# Eurofound taxonomy of tasks

## In terms of the content

**1. Physical tasks:** physical manipulation and transformation of material things:

- a. *Strength*
- b. *Dexterity*

**2. Intellectual tasks:** manipulation and transformation of information and the active resolution of complex problems:

- a. *Information processing* (literacy and numeracy)
- b. *Problem solving* (gathering and evaluation of information, creativity and resolution)

**3. Social tasks:** interaction with other people:

- a. *Serving/attending*
- b. *Teaching/training/coaching*
- c. *Selling/influencing*
- d. *Managing/coordinating*

## In terms of the methods and tools

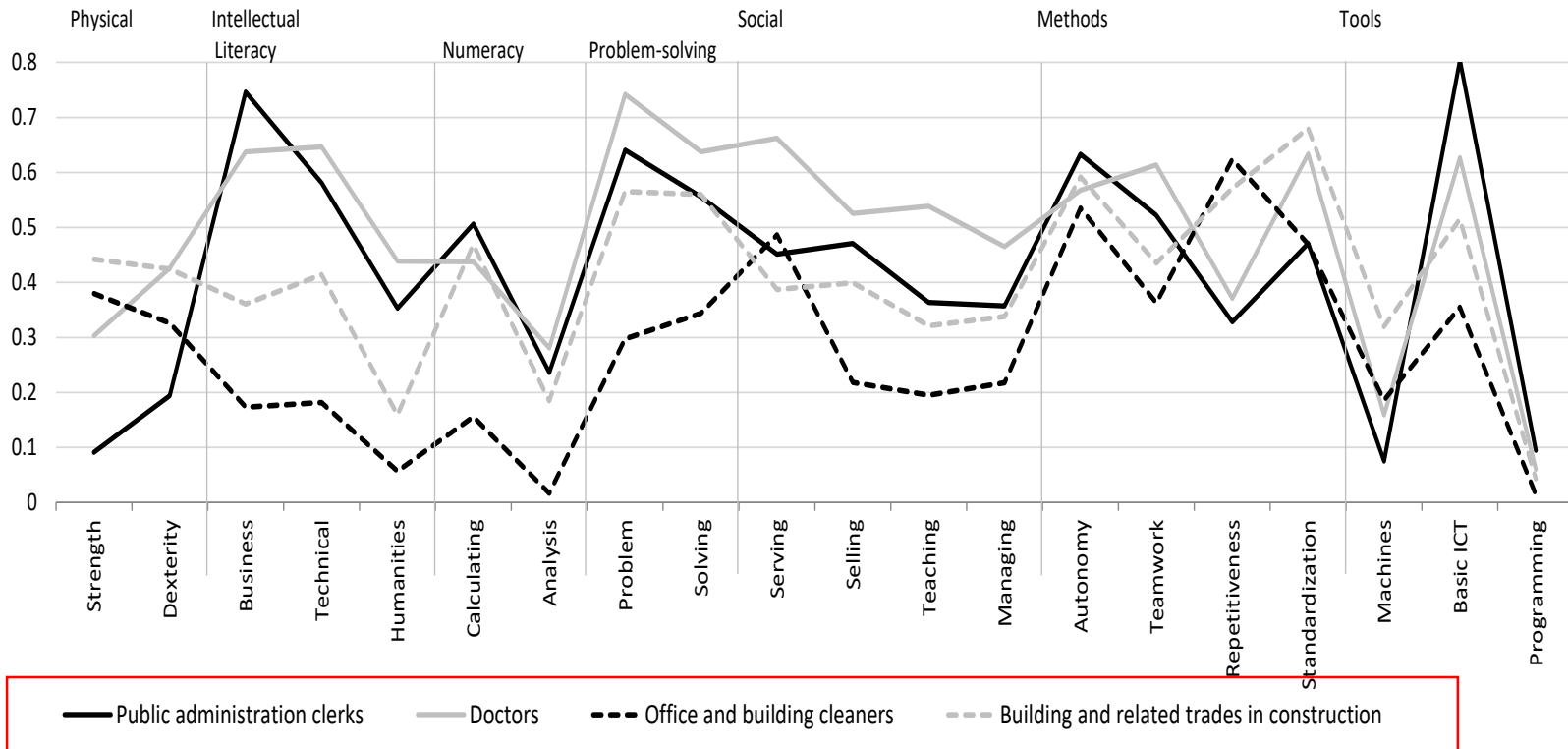
**1. Methods:** forms of work organisation used in performing the tasks:

- a. *Autonomy*
- b. *Teamwork*
- c. *Routine* (repetitiveness and standardization)

**2. Tools:** type of technology used at work:

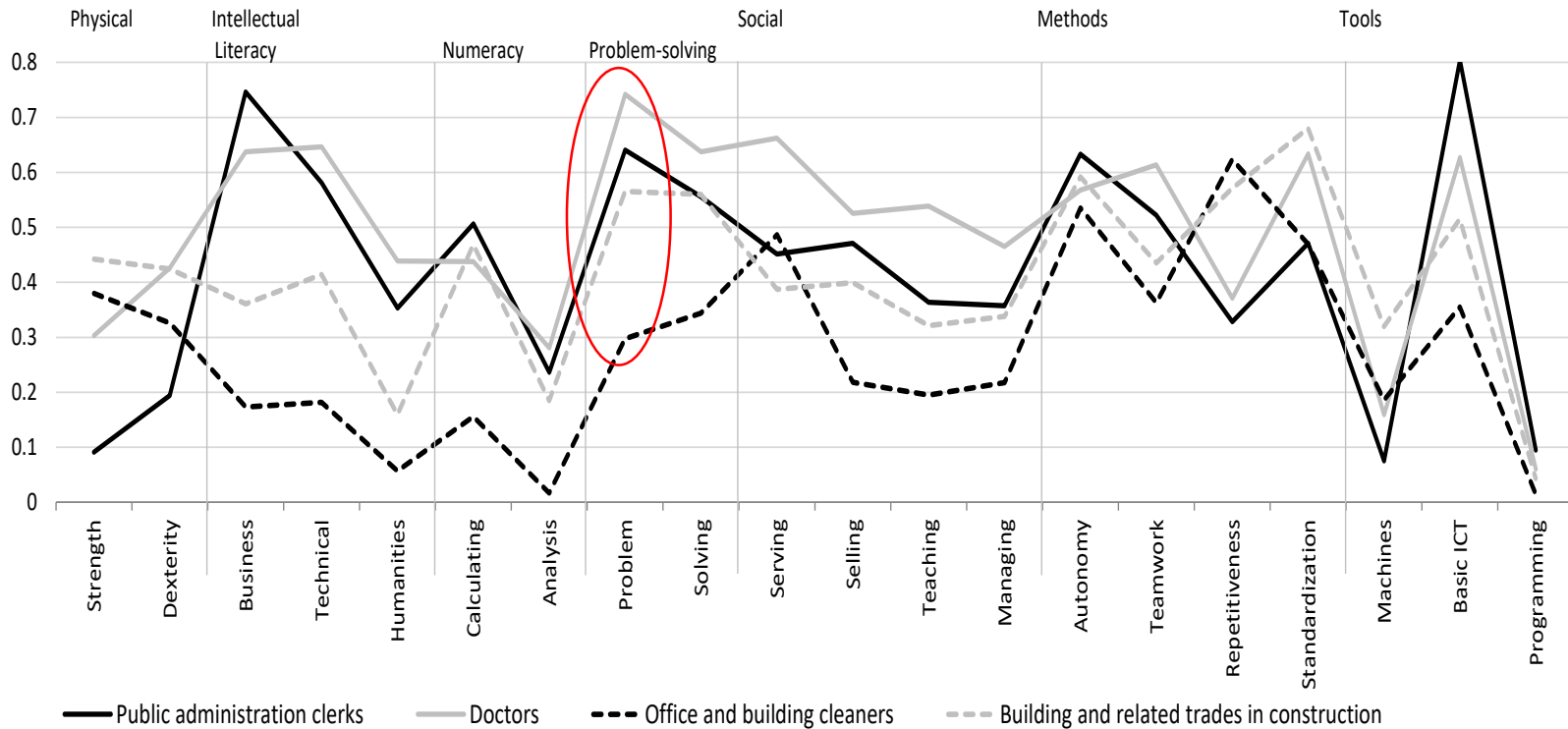
- a. *Machines* (excluding ICT)
- b. *Information and communication technologies* (basic and programming)

# Task profile of 4 big jobs



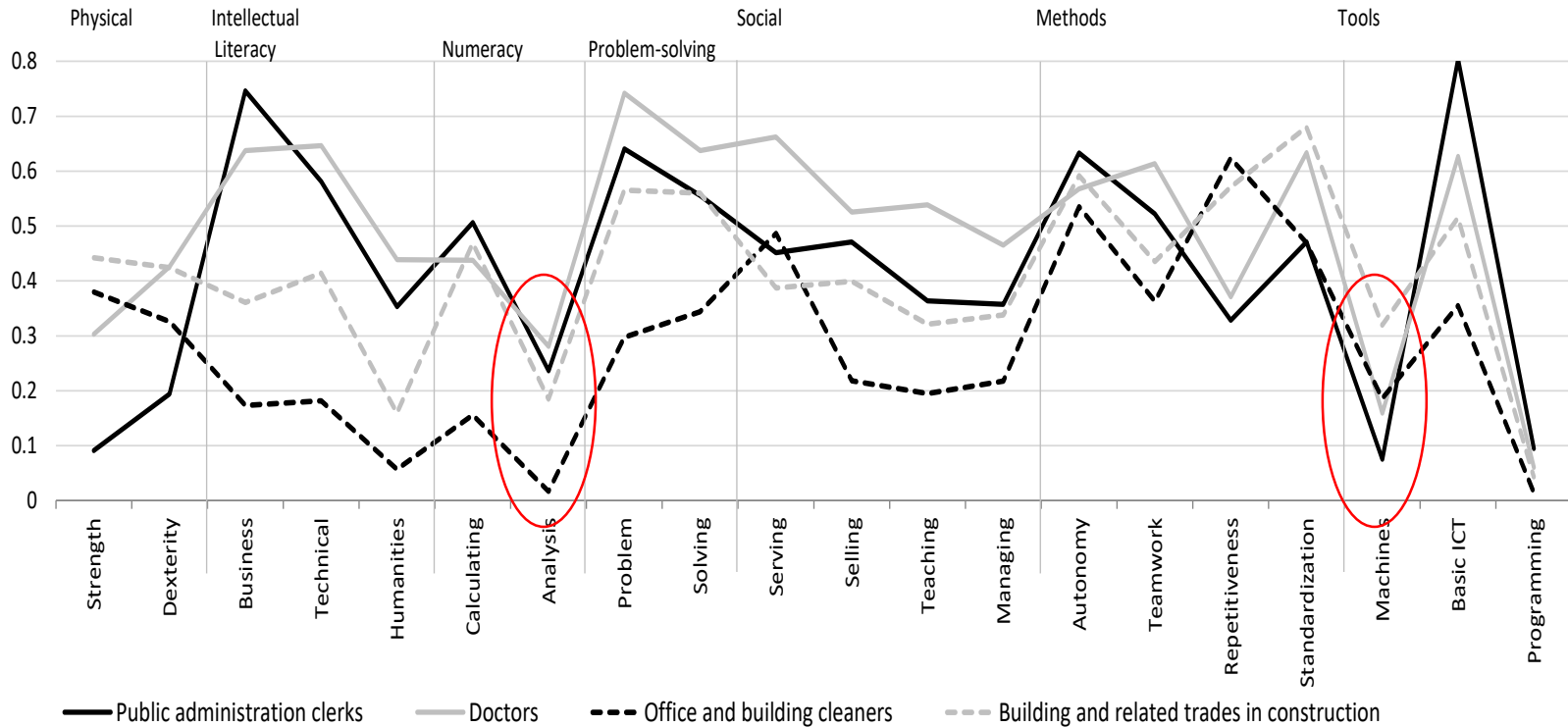
# Task profile of 4 big jobs

High general task intensity: problem solving



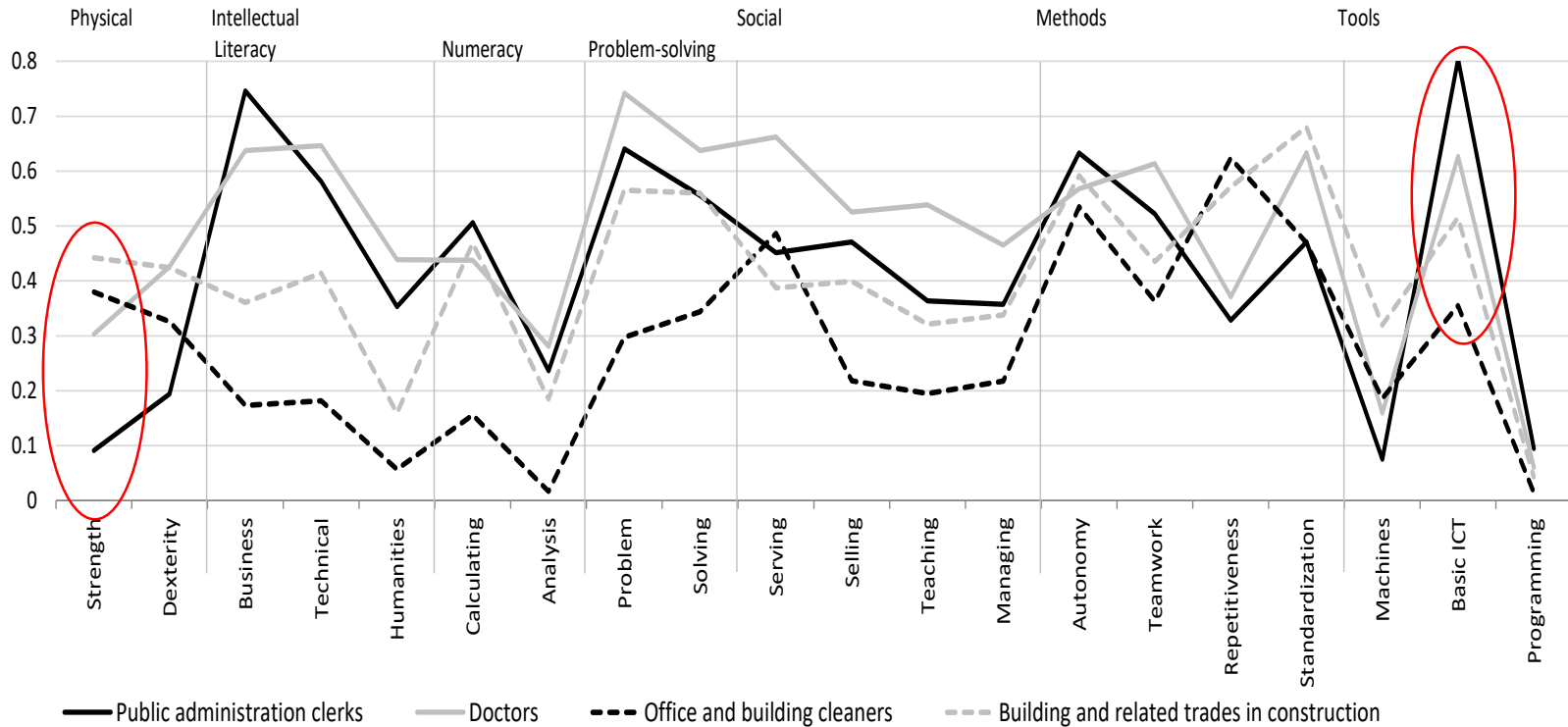
# Task profile of 4 big jobs

Low general task intensity: non-ICT machine use, analytical numeracy



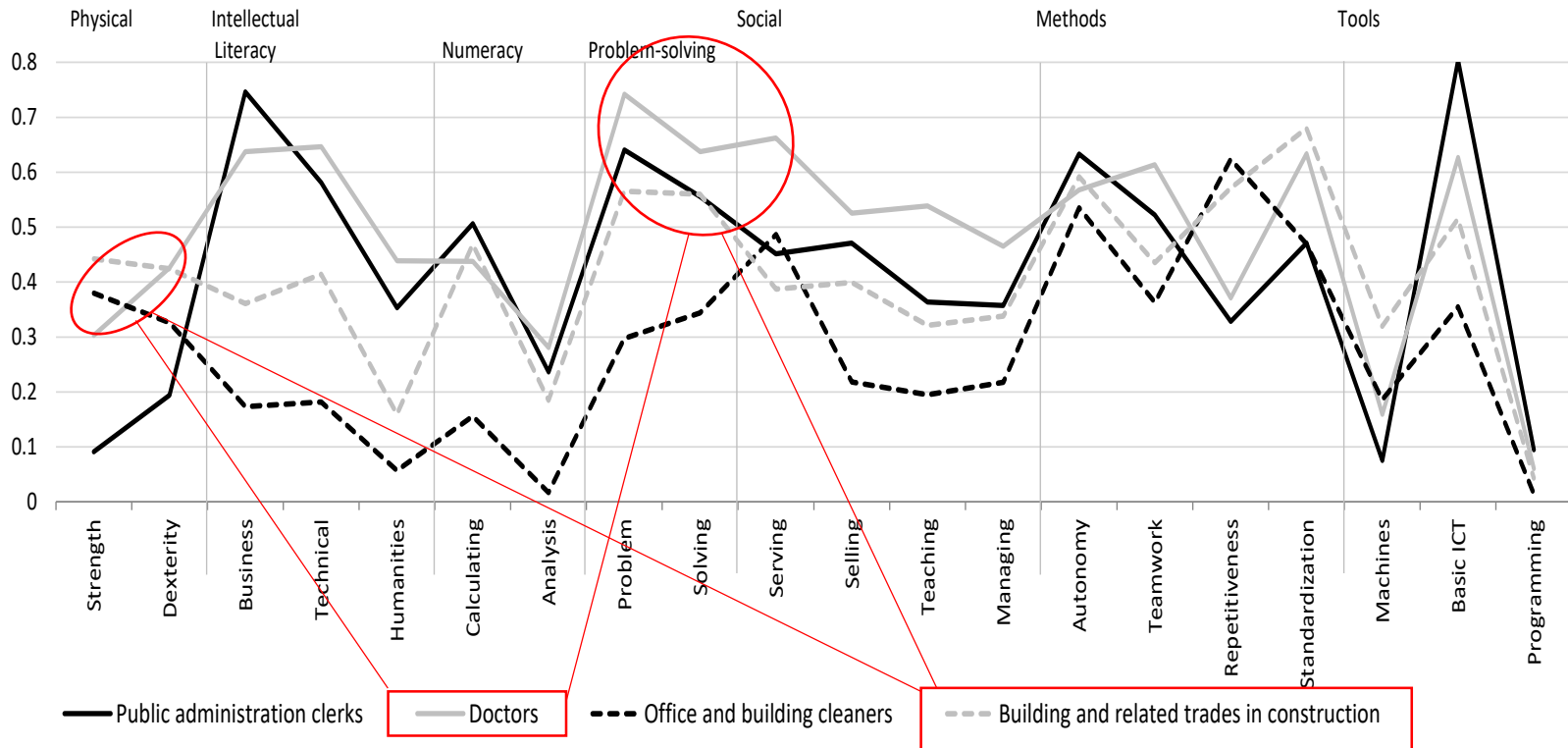
# Task profile of 4 big jobs

Negative correlation: physical tasks and information processing/basic ICT

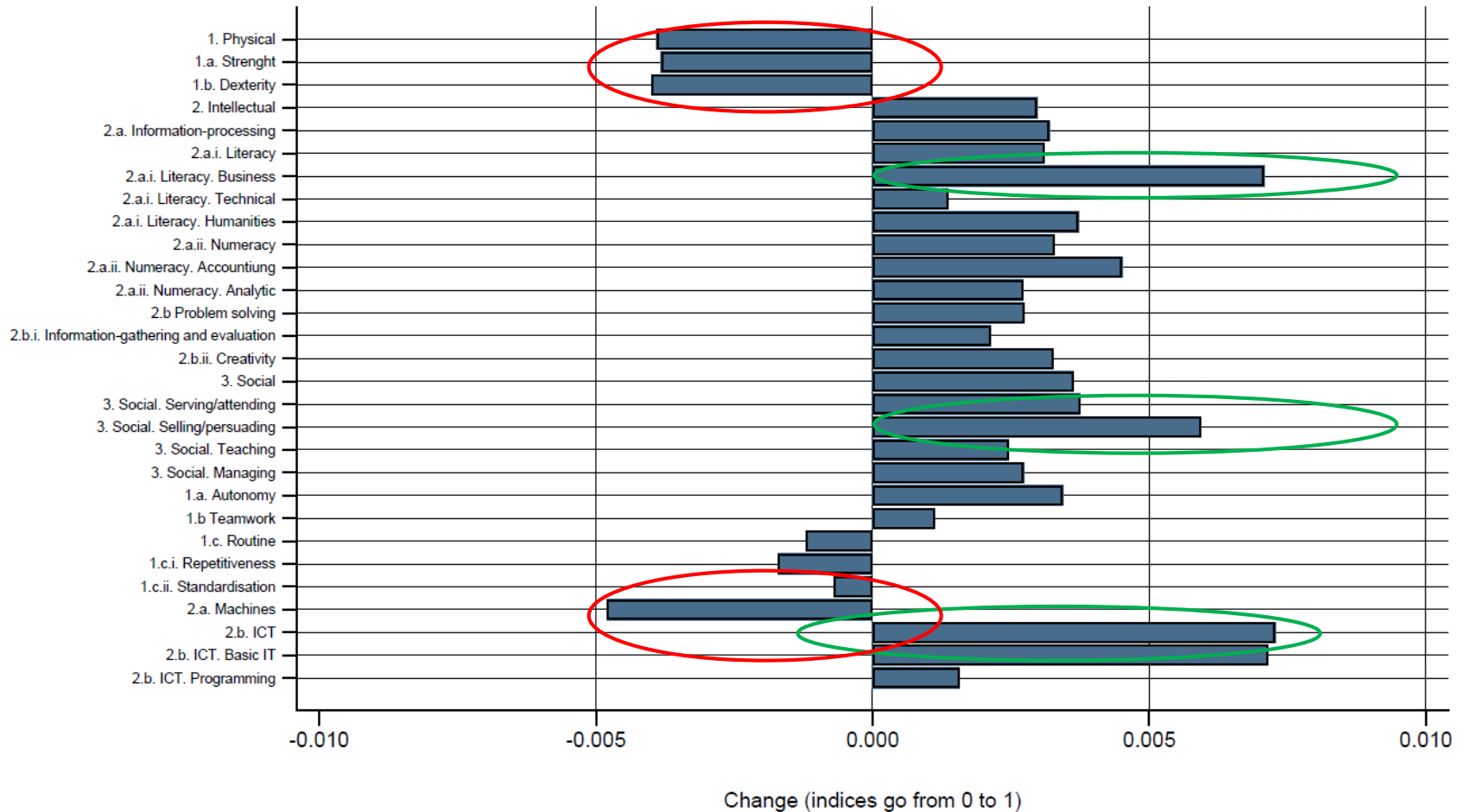


# Task profile of 4 big jobs

But many jobs have idiosyncratic task combinations ...



# Future change in the task profile (2016 – 2030), EU



# Fewer routine jobs but more routine work

	<b>Compositional change</b> ↓	<b>Reported change</b> ↑
<b>Repetitiveness</b>	<b>-3.4%</b>	<b>+5.6%</b>
<b>Standardisation</b>	<b>-1.7%</b>	<b>+10.3%</b>

European Working Conditions Survey and EU-Labour Force Survey data, 1995-2015, EU-15

Managers and professionals are among the occupational groups that reported the largest increases in the levels of standardisation.



# Some concluding observations

- The identification of the tasks actually performed at work is a necessary first step in the identification of skill needs both present and future.
- Jobs are idiosyncratic bundles of tasks. There are some regularities – intellectual and social task types correlate positively, intellectual and physical tasks negatively – but also many exceptions
- Main barrier to automation is variety of tasks in a job rather than routine nature of individual tasks – all jobs are routine to some extent but most jobs combine many types of tasks
- Highly routine jobs are being displaced, jobs in general are becoming more routinised and standardised.

# Thank you for your attention!

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**Web:**  
[European Jobs Monitor](#)

**References:**

[Shifts in the employment structure at regional level](#) (Eurofound / Commission JRC, 2019)

[What do Europeans do at work? A task-based analysis](#) (Eurofound, 2016)

[How computerisation is transforming jobs](#) (Bisello et al, Commission JRC working paper, 2019)

# Employment change by job-wage quintile in the EU 2016 – 2030, in thousands

Total

