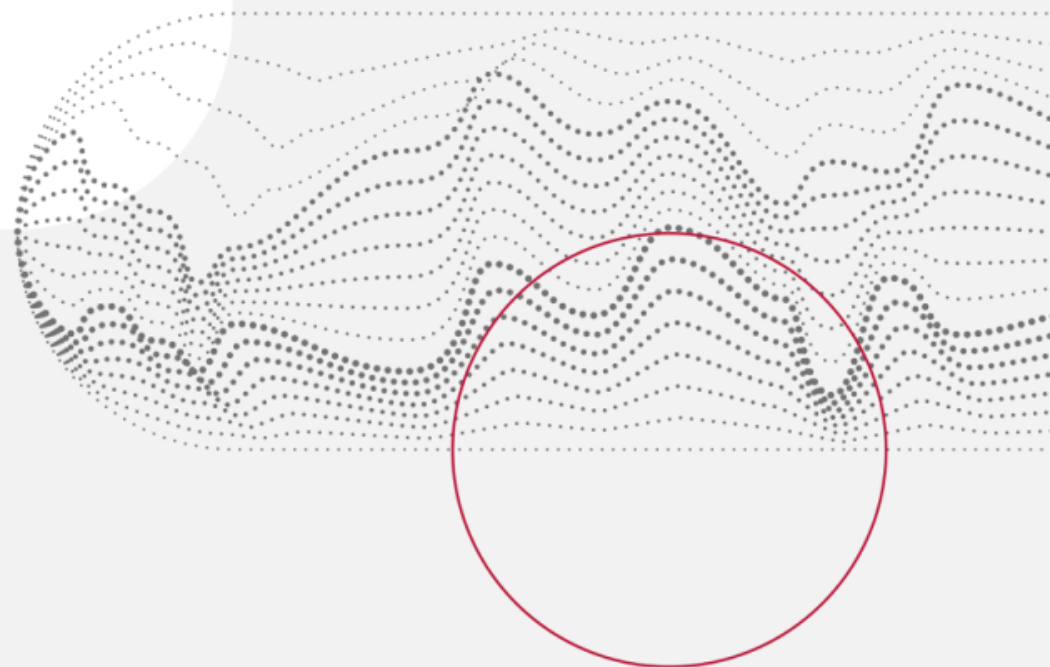


Technology or upskilling? Trends in the task composition of jobs in the CEE

Wojciech Hardy
Roma Keister
Piotr Lewandowski



Task – a unit of work activity, not a skill



TASK

=

„a unit of work activity that produces
output”

Task – a unit of work activity, not a skill



TASK



„a unit of work activity that produces output”



SKILLS



„worker’s abilities for performing various tasks”

Five shades of tasks



Non-routine cognitive (analytical and personal)

- Managers
- IT specialists
- Architects
- Engineers

Routine cognitive

- Bookkeepers
- Tellers
- Office clerks
- Salespersons

Manual (routine and non-routine)

- Assemblers
- Toolmakers
- Drivers
- Farmers

Where did tasks come from – Autor et al. (2003)



Rising wage premium for graduates
Increasing wage inequality
Hollowing-out of middle-skilled employment

Job
polarization

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Falling price of ICT

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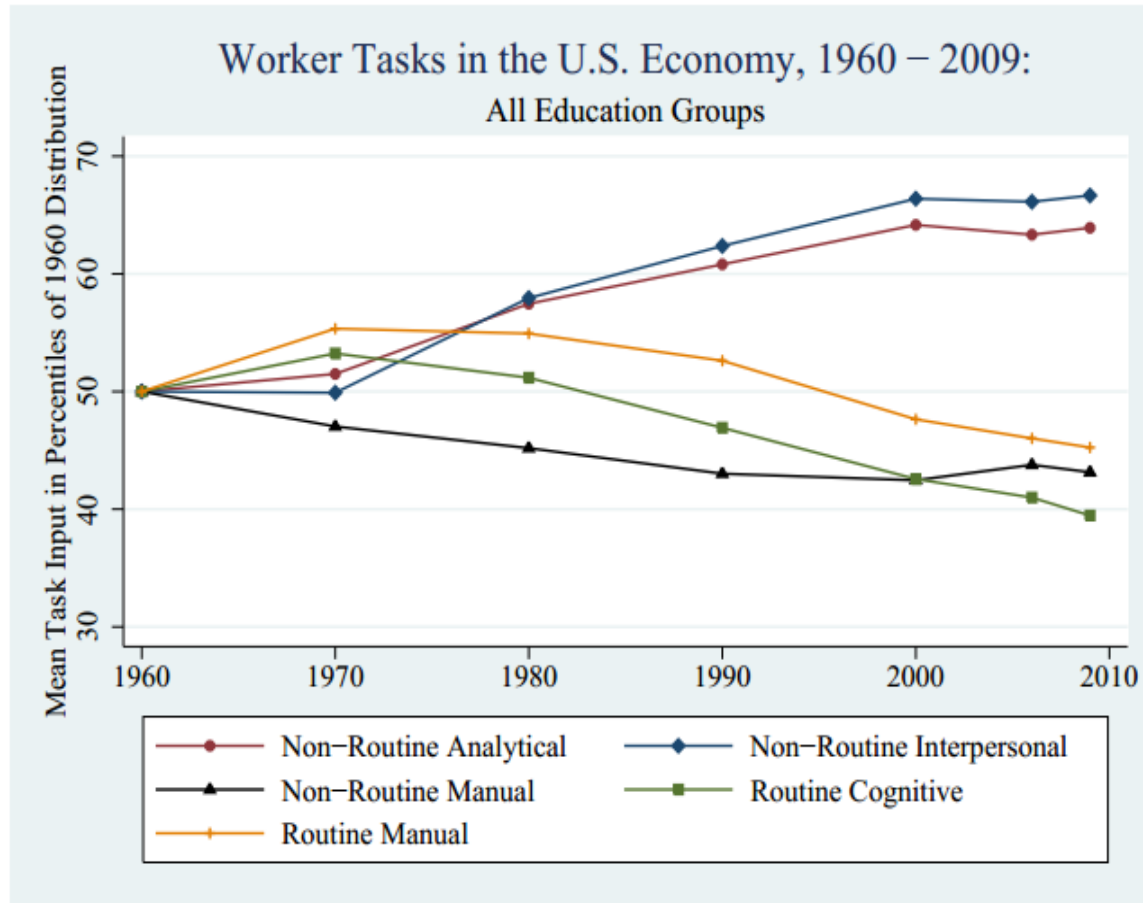


Falling price of ICT



The „routinization” hypothesis

Results for the US confirm the „routinization” hypothesis



- Routine cognitive and manual tasks **fell**
- Non-routine cognitive tasks **grew**
- Non-routine manual tasks **decreased**, but started to **grow**

Source: Autor, Price (2013)

In time new hypotheses emerged



- Labour supply developments – workforce upgrading, migration (Oesch, 2013; Salvatori, 2015; Eurofound, 2015)
- Role of labour market institutions – wage-setting institutions (Oesch, 2013; Eurofound, 2015)
- Structural change (Barany and Siegel, 2015)

Work is changing, whether we like it or not



60% of jobs in OECD are at risk of automation
(WDR 2016)

60% of youth (16-24) in Poland are not able to
solve abstract problems (PIAAC)

How we measure the tasks contents of jobs



EU-LFS data for 10 CEE
countries in the period
1998-2013

How we measure the tasks contents of jobs



EU-LFS data for 10 CEE
countries in the period
1998-2013



O*NET data – editions
2003 and 2014

How we measure the tasks contents of jobs



EU-LFS data for 10 CEE
countries in the period
1998-2013

O*NET data – editions
2003 and 2014

5 annual country-level
task content measures
Autor & Acemoglu (2011)

It is ok to apply O*NET to European countries

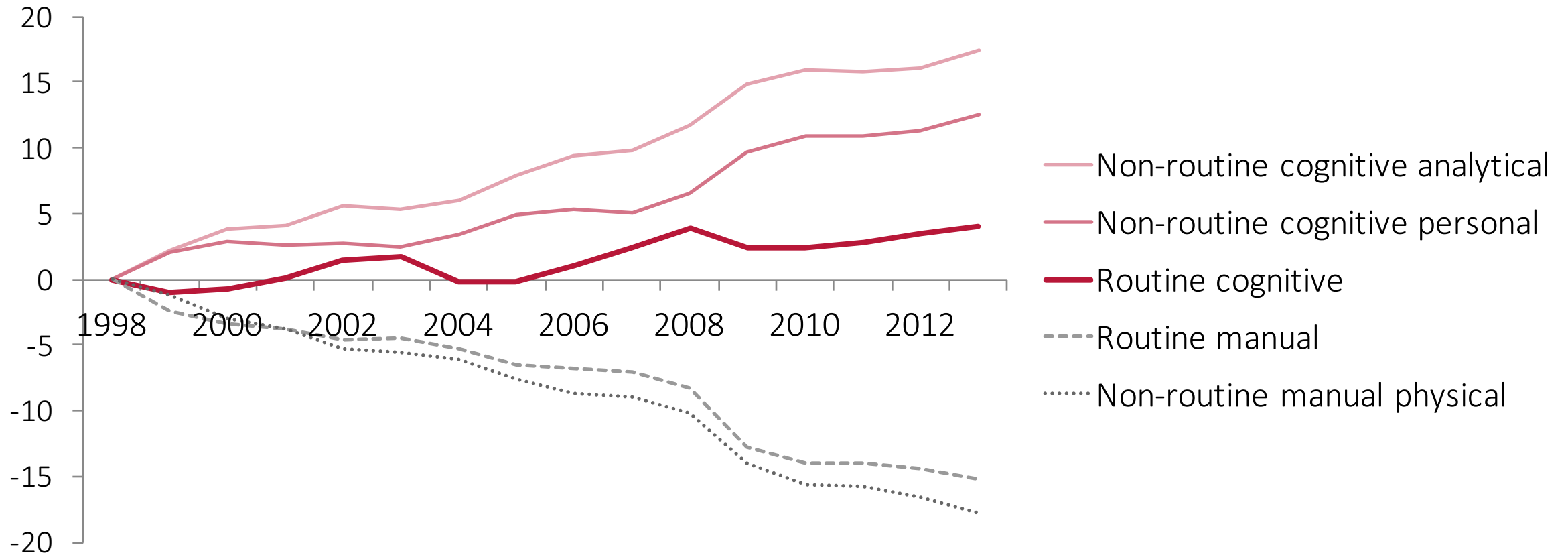


- Handel (2012) – US occupation-based and non-US skill survey-based measures lead to very similar outcomes for European countries
- Cedefop (2013) – high correlation between country-specific surveys tasks measures (for Czech Rep. and Italy) and O*NET scores
- O*NET likely to underestimate routine task content

Increasing intensity of routine cognitive tasks in the CEE



The average for 10 CEE countries



Different developments in **routine cognitive** tasks across countries



Increasing

- Romania
- Baltic States
- Croatia
- Poland

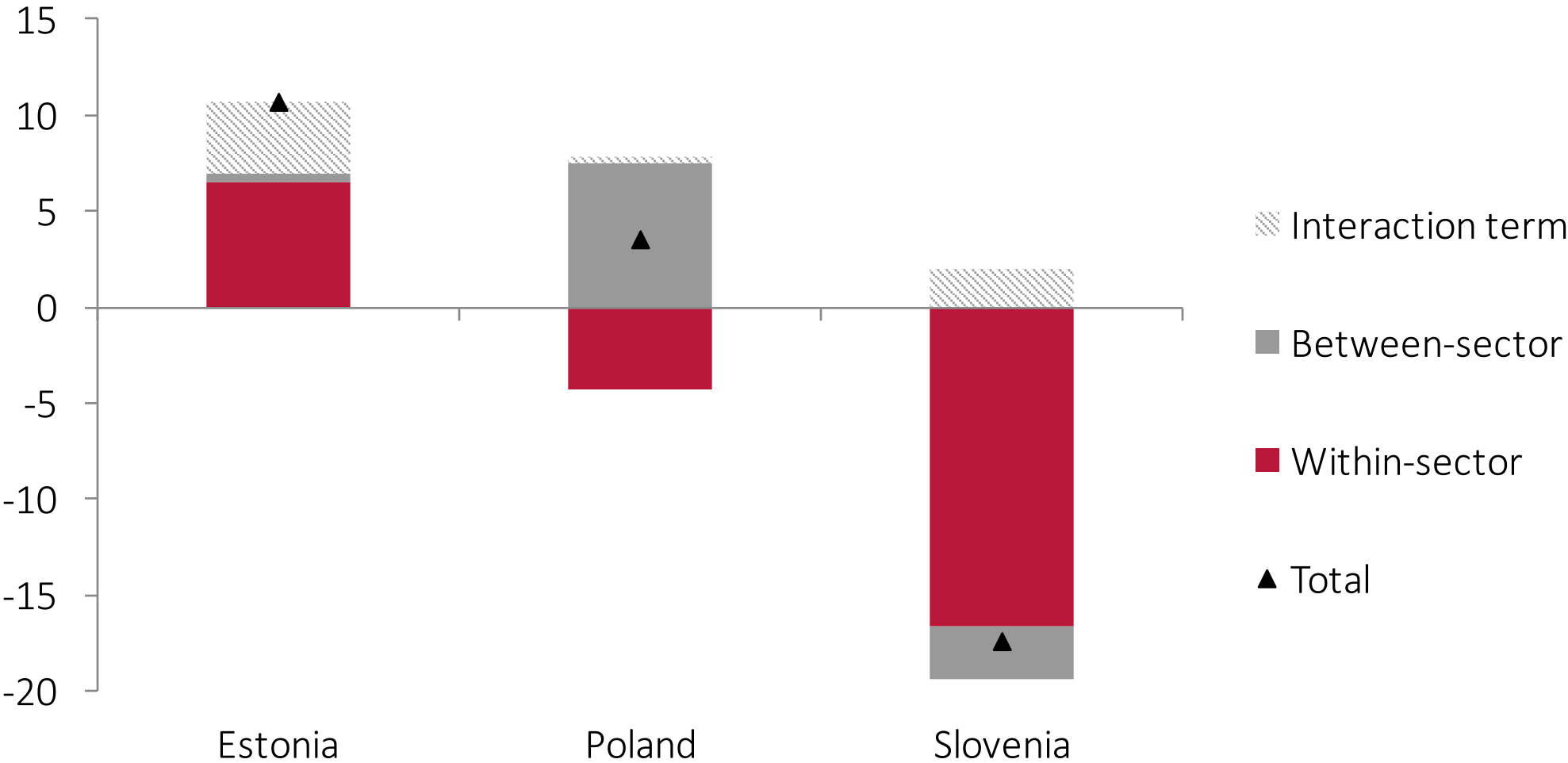
Stable

- Czech Rep.
- Slovakia

Decreasing

- Hungary
- Slovenia

Structural changes drove the growth of routine cognitive tasks

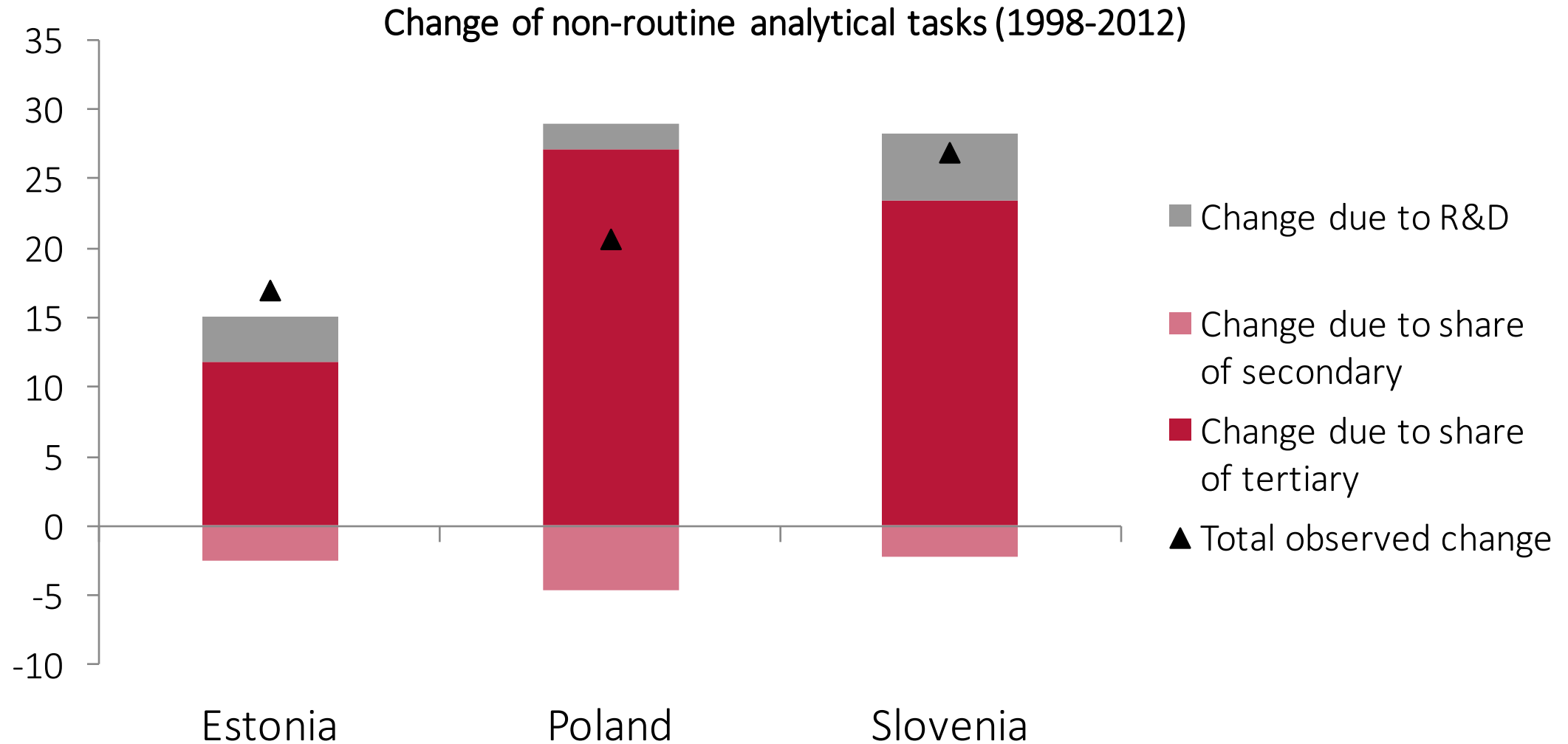


Workforce upskilling associated with growing non-routine cognitive and falling manual tasks

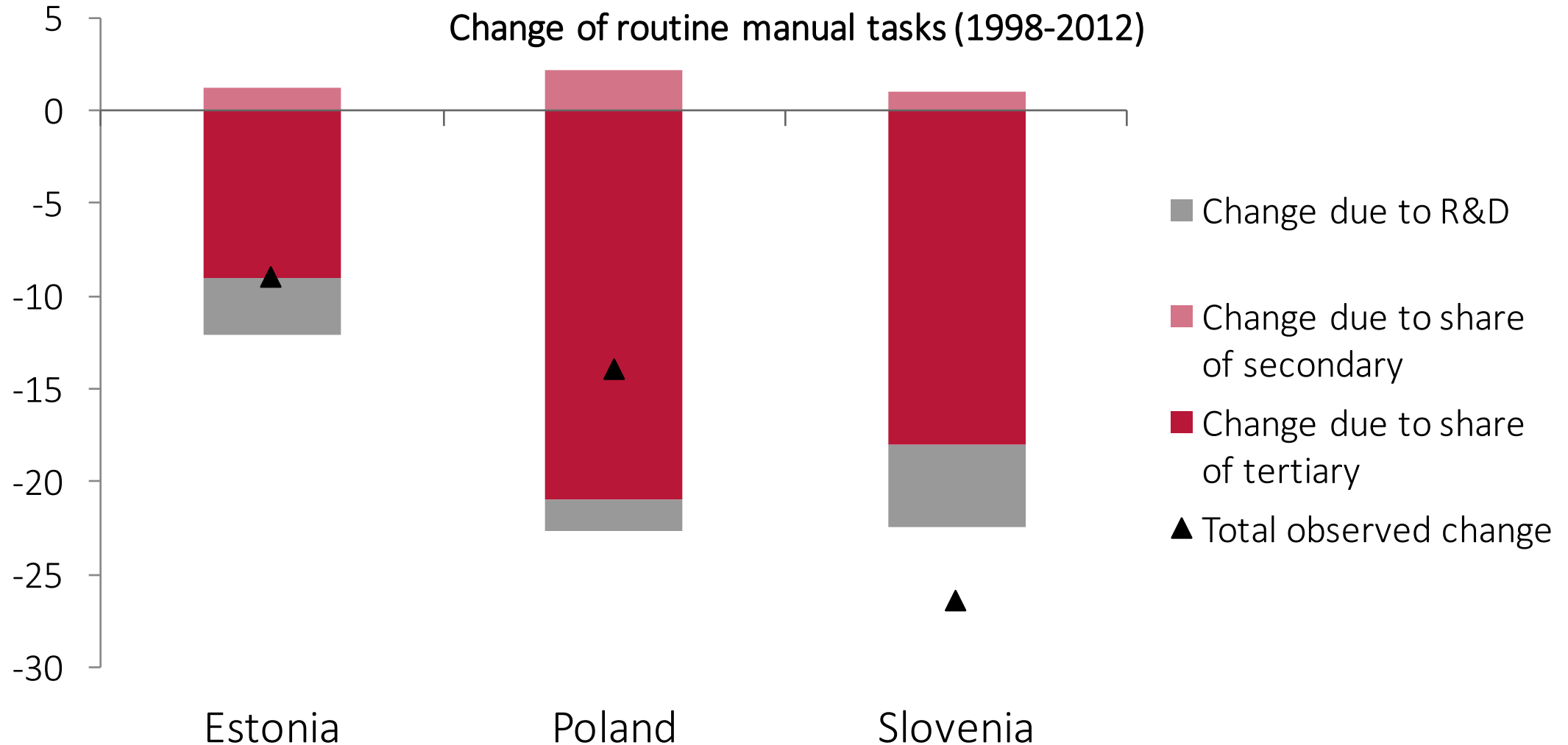


	Non-routine cognitive analytical	Non-routine cognitive personal	Routine cognitive	Routine manual	Non-routine manual physical
Share of persons with tertiary education attained	1.58***	0.82***	0.70	-1.22***	-1.78***
Share of persons with secondary education attained	0.72***	0.03	0.59	-0.34	-1.18**
R&D expenditure as a percentage of GDP	2.96*	2.99*	-4.32	-2.65**	-1.48

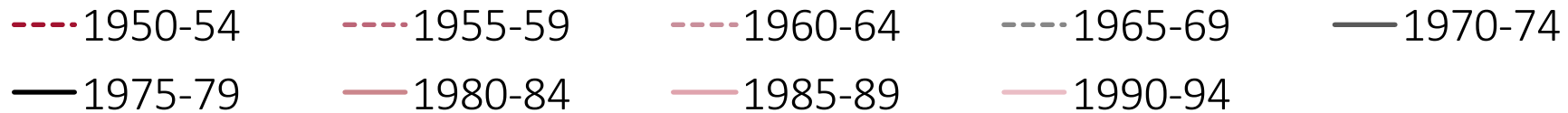
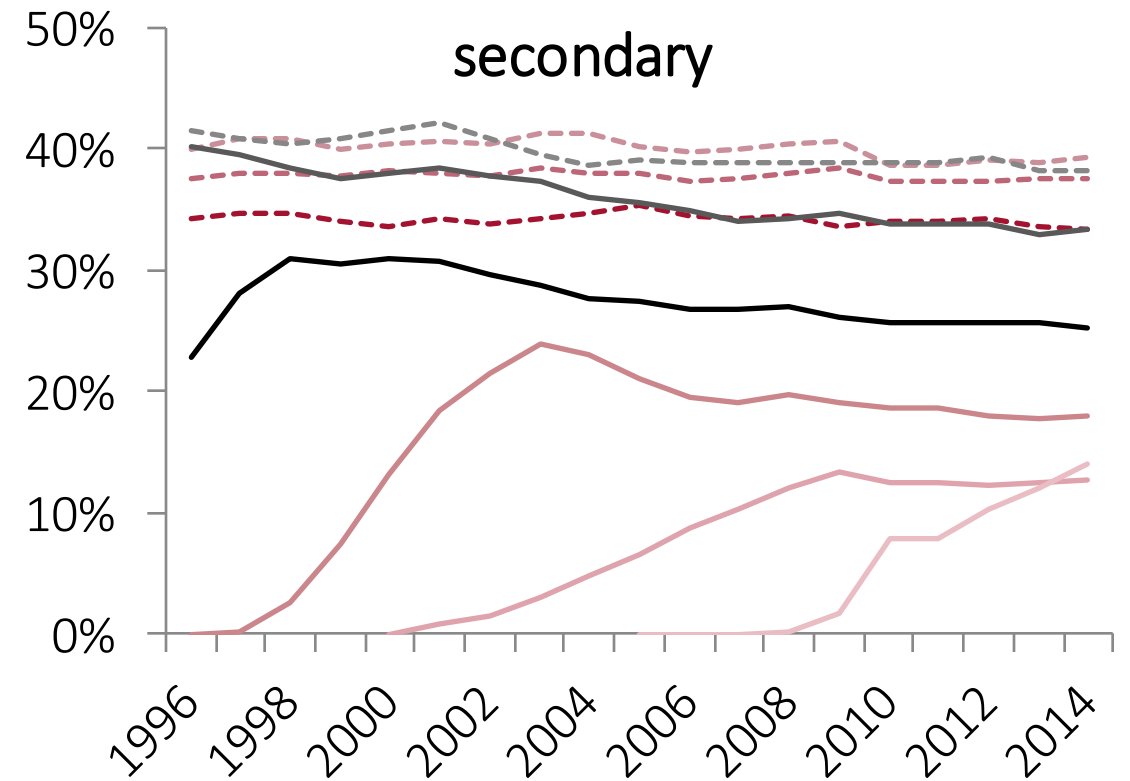
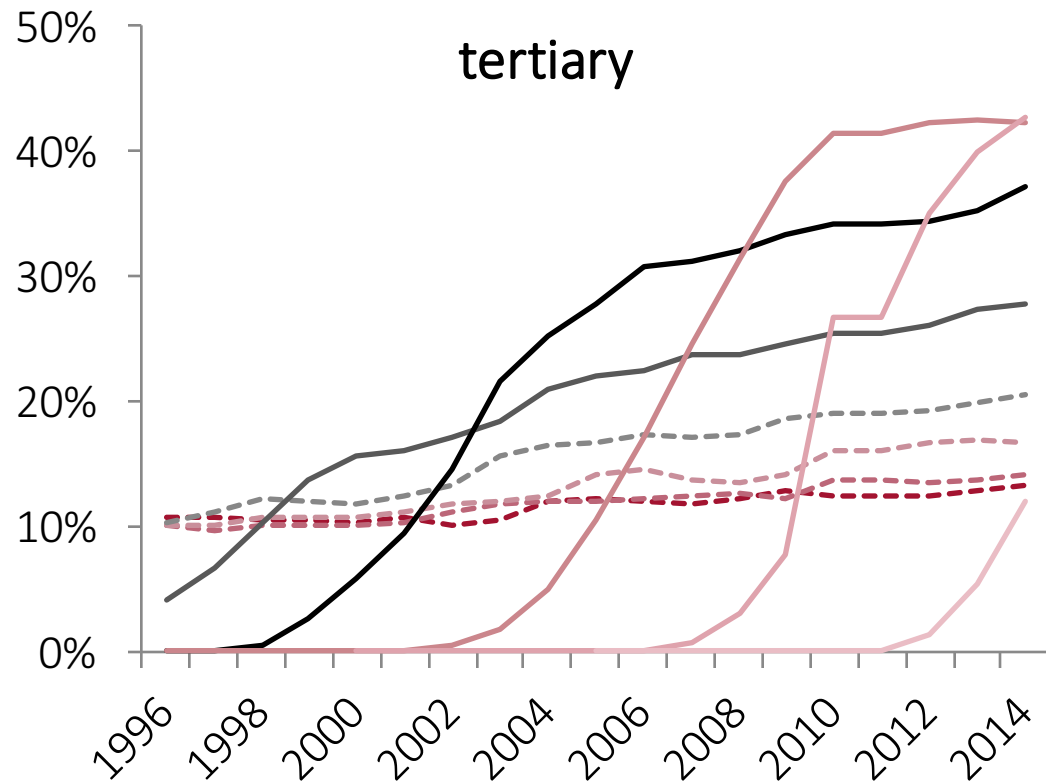
Educational boom fuelled the growth of non-routine analytical tasks . | :



Educational boom fuelled the growth of non-routine analytical tasks and the fall of routine manual tasks



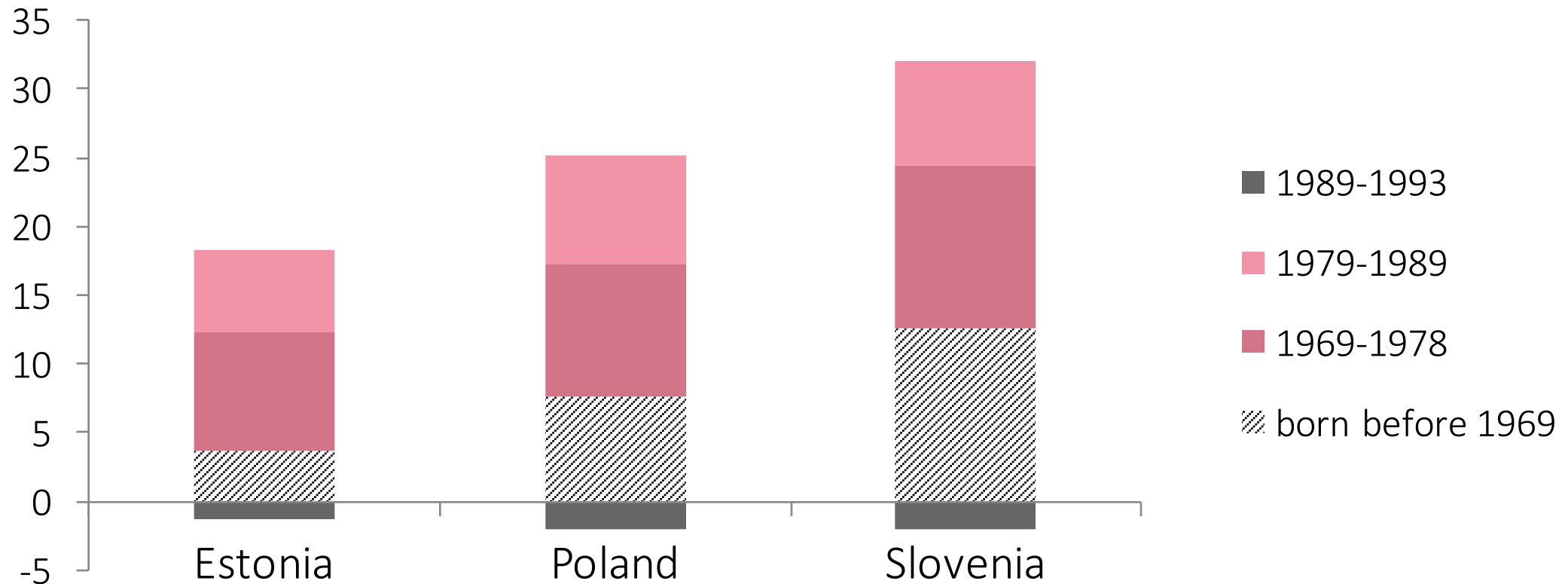
Upskilling is embodied in the younger cohorts



...and they spurred the growth of analytical tasks



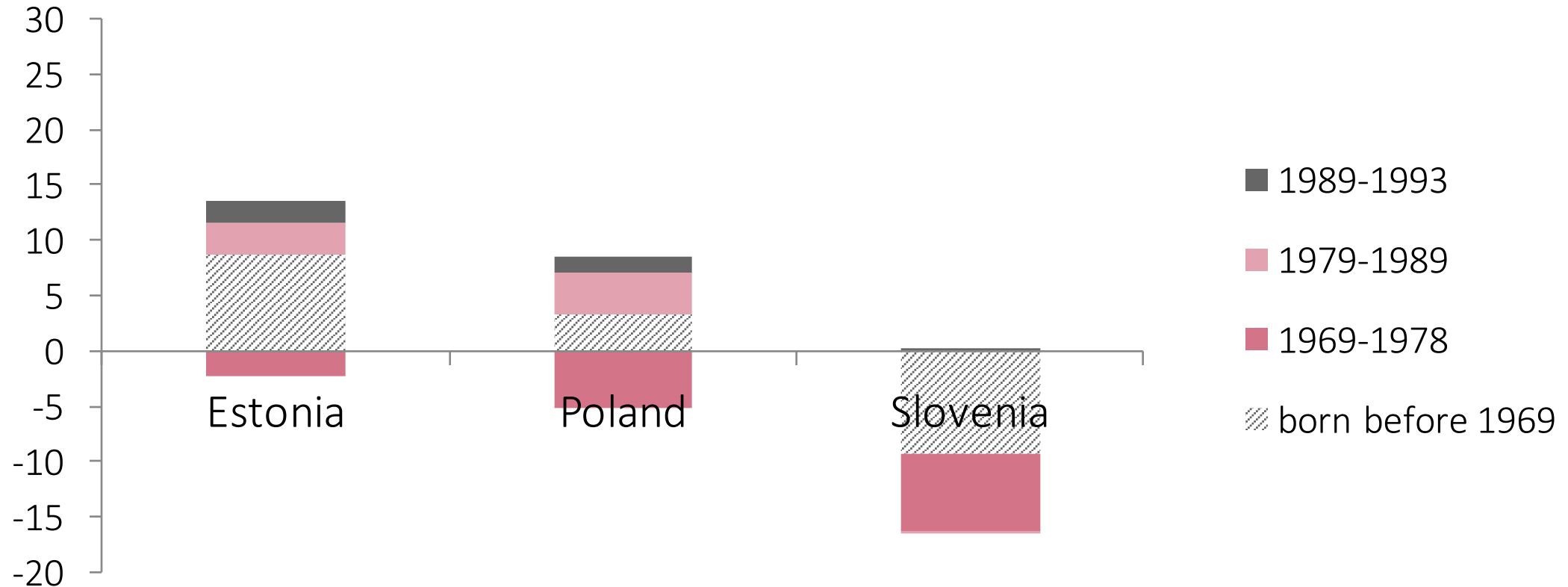
Change of non-routine cognitive analytical tasks



Older cohorts withdrawal from the labour force drove evolutions of routine cognitive tasks



Change of routine cognitive tasks



So far no de-routinisation in CEE



- Rising routine cognitive tasks – structural changes
- Growing non-routine cognitive tasks and plummeting manual tasks
- Crucial role of workforce upskilling
- Intergenerational divide

Wojciech Hardy

wojciech.hardy@ibs.org.pl

www.ibs.org.pl

@ibs_warsaw

@ibs_thinktank

