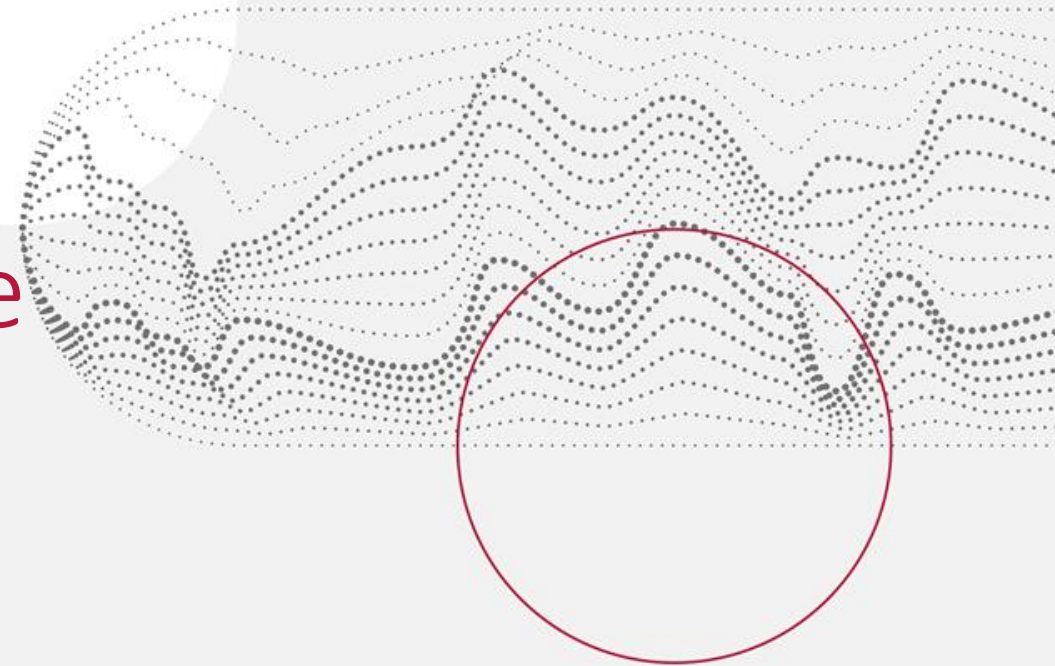


# The evolution of task content of jobs in Central Eastern Europe

Piotr Lewandowski,  
Wojciech Hardy, Roma Keister



---

# Parallel developments in CEE countries after transition

---



- Convergence of GDP and employment structures to the EU15
- Restructuring within industry and new types of services
- New production methods and occupational change
- Rising educational attainment
- Demographic developments – youth bulge vs. ageing

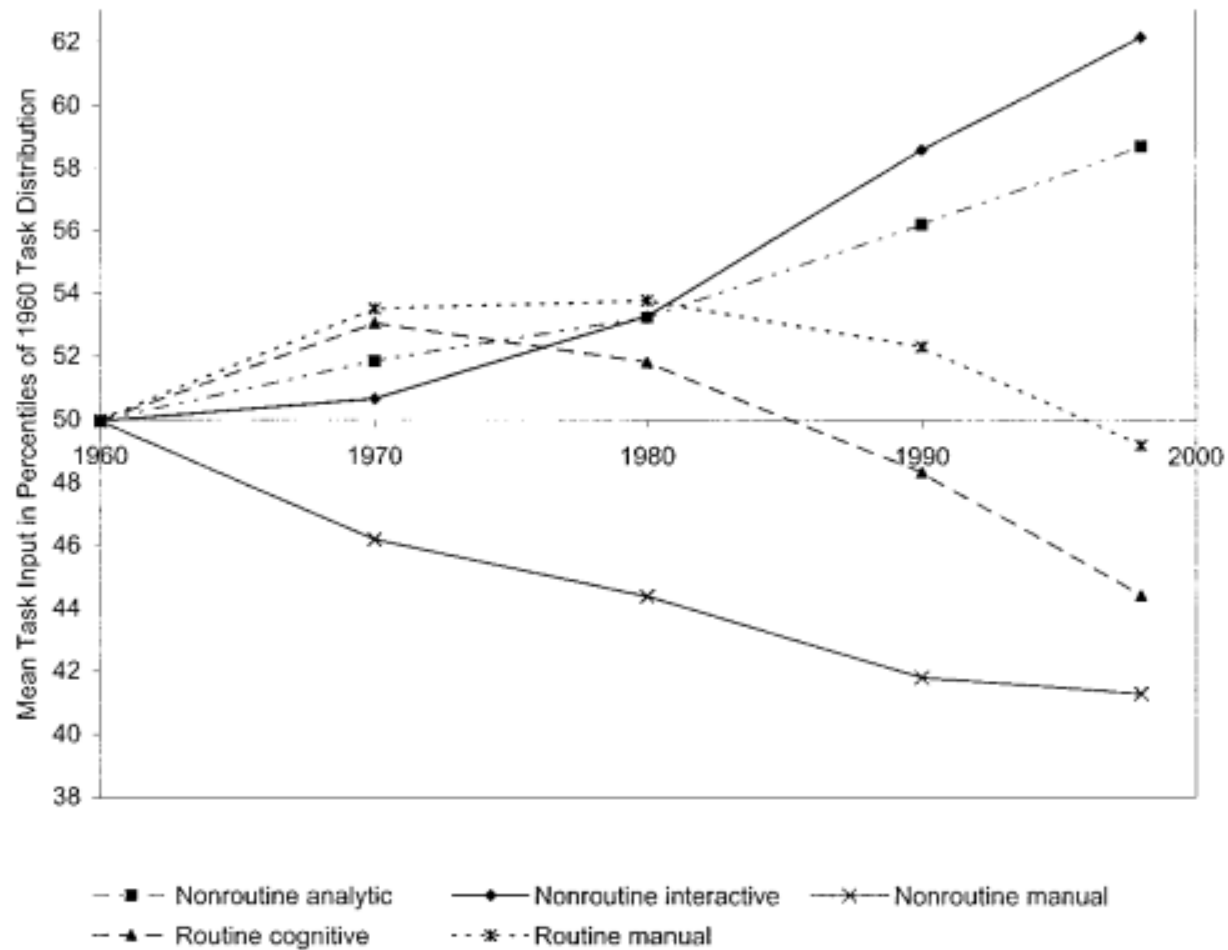
---

# How has the nature of jobs changed in CEE?

---



# Skills, tasks and technologies



Source: Autor, Levy, Murnane (2003)

---

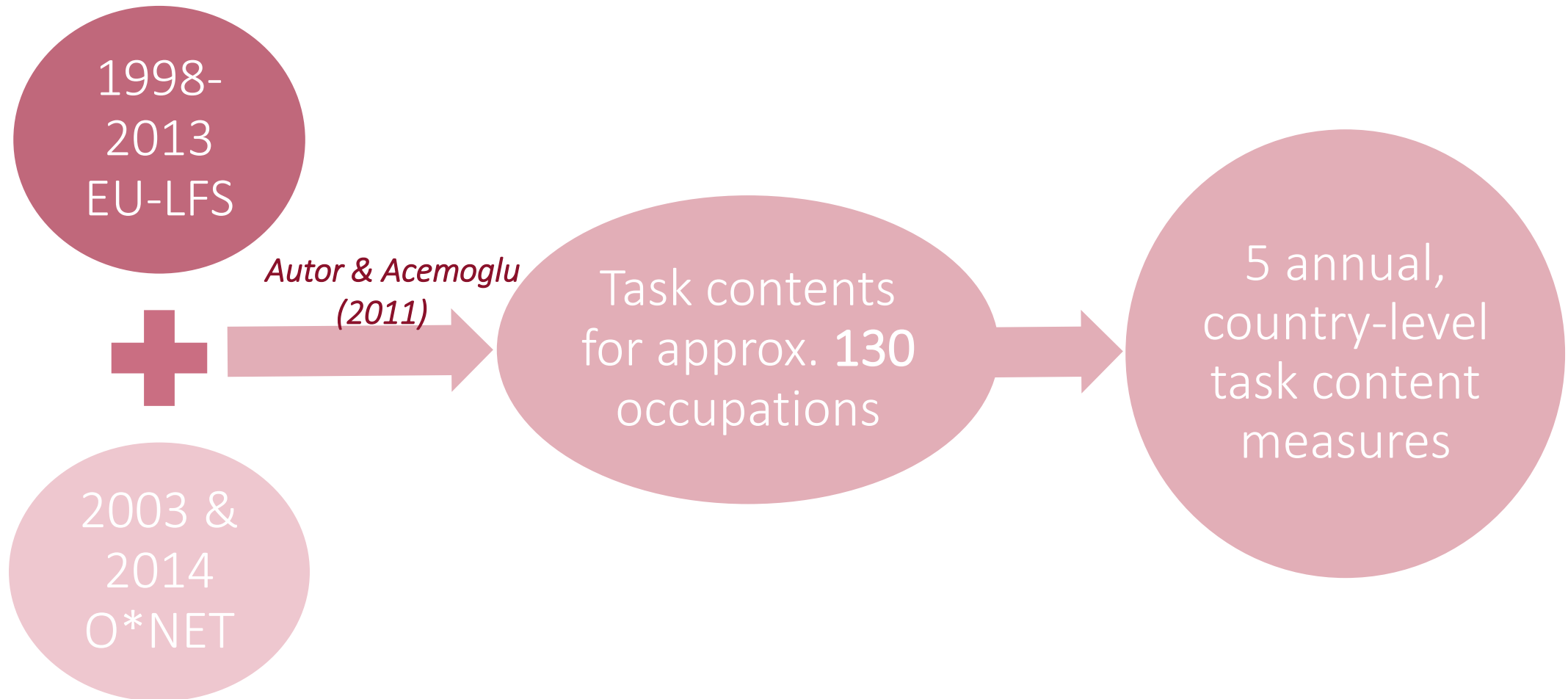
# Labour market polarisation and task content of jobs

---



- Routine biased technological change (Autor et al. 2003, Autor & Dorn, 2013 for the US, Spitz-Oener 2006 for Germany, Goos et al. 2009 for Europe, Michaels et al. 2013 for the US, Japan, 9 EU)
- Labour supply developments (Oesch 2013, Salvatori 2015, Eurofound 2015)
- Role of labour market institutions (Oesch 2013, Eurofound 2015)
- Structural change (Barany, Siegel 2015)
- Growing importance of social skills (Deming 2015)
- Scarce research for low & middle income countries (Aedo et al., 2013)

# Empirical strategy for 10 CEE countries

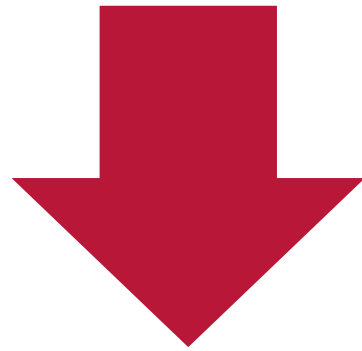


# Applying O\*NET to European microdata

---



Requires a lot of crosswalks and remembering that



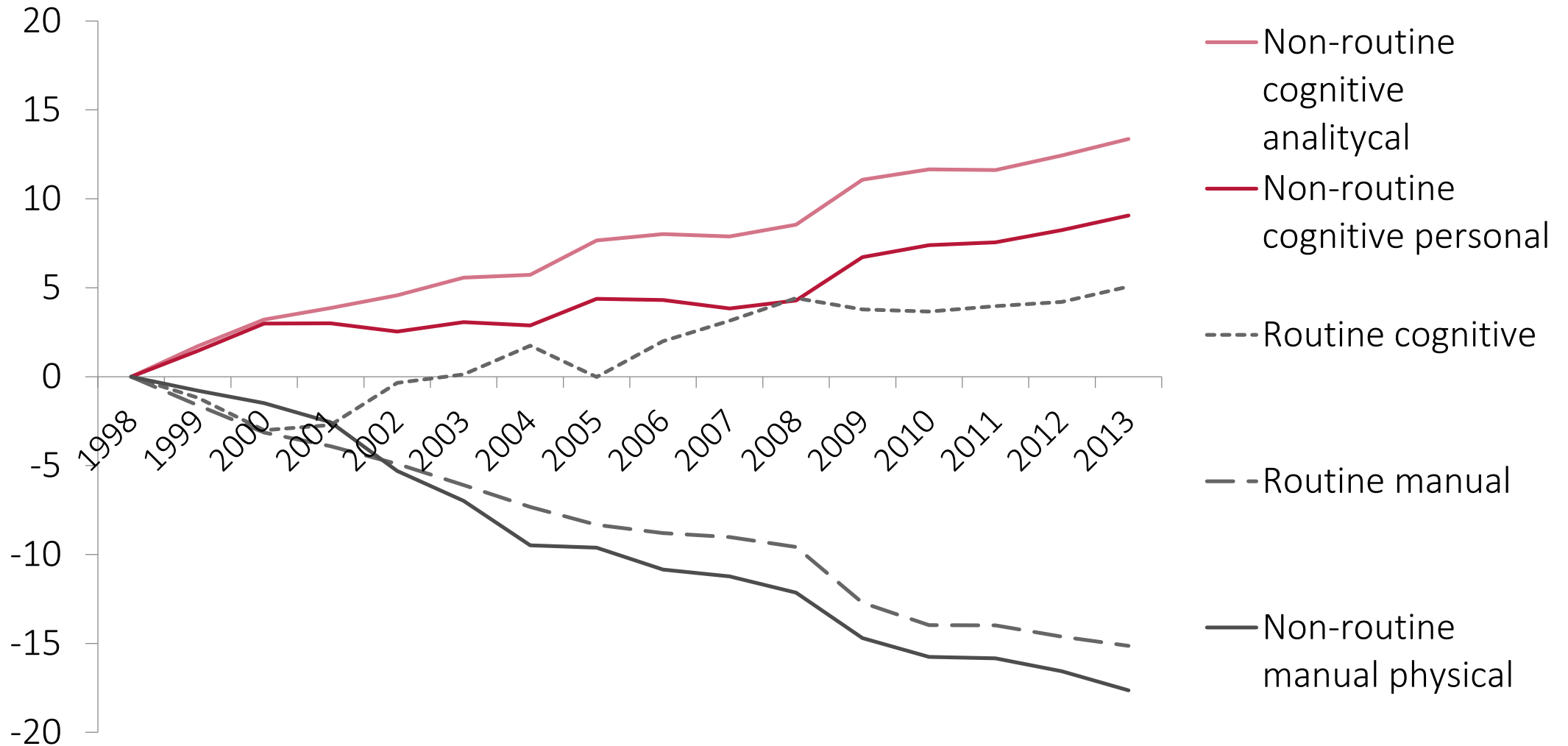
US occupation-based and non-US skill-survey-based measures lead to very similar outcomes (Handel 2012, Eurofound 2015)



Routine task contents probably underestimated

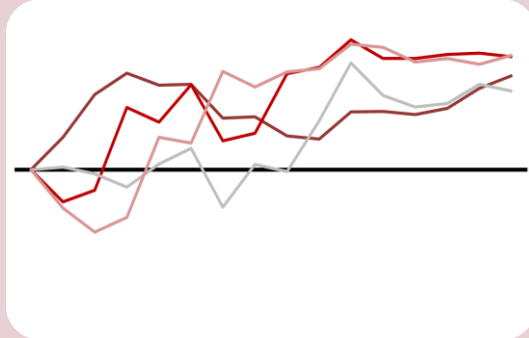


# Task content in CEE9 - familiar story except for routine cognitive tasks . | :



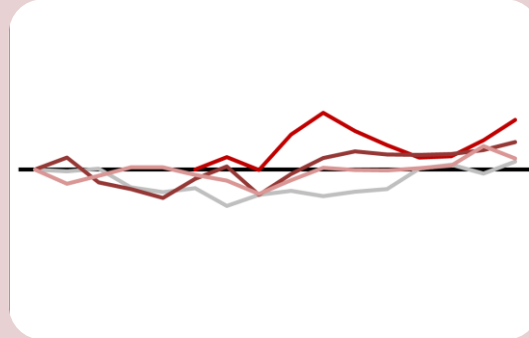


# Different developments in routine cognitive tasks



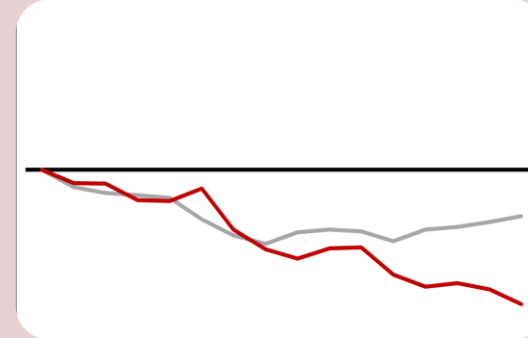
## Increasing

- Estonia
- Latvia
- Lithuania
- Romania



## Stable

- Czech Rep.
- Croatia
- Poland
- Slovakia



## Decreasing

- Hungary
- Slovenia

---

## Shift-share look at the evolution of task contents

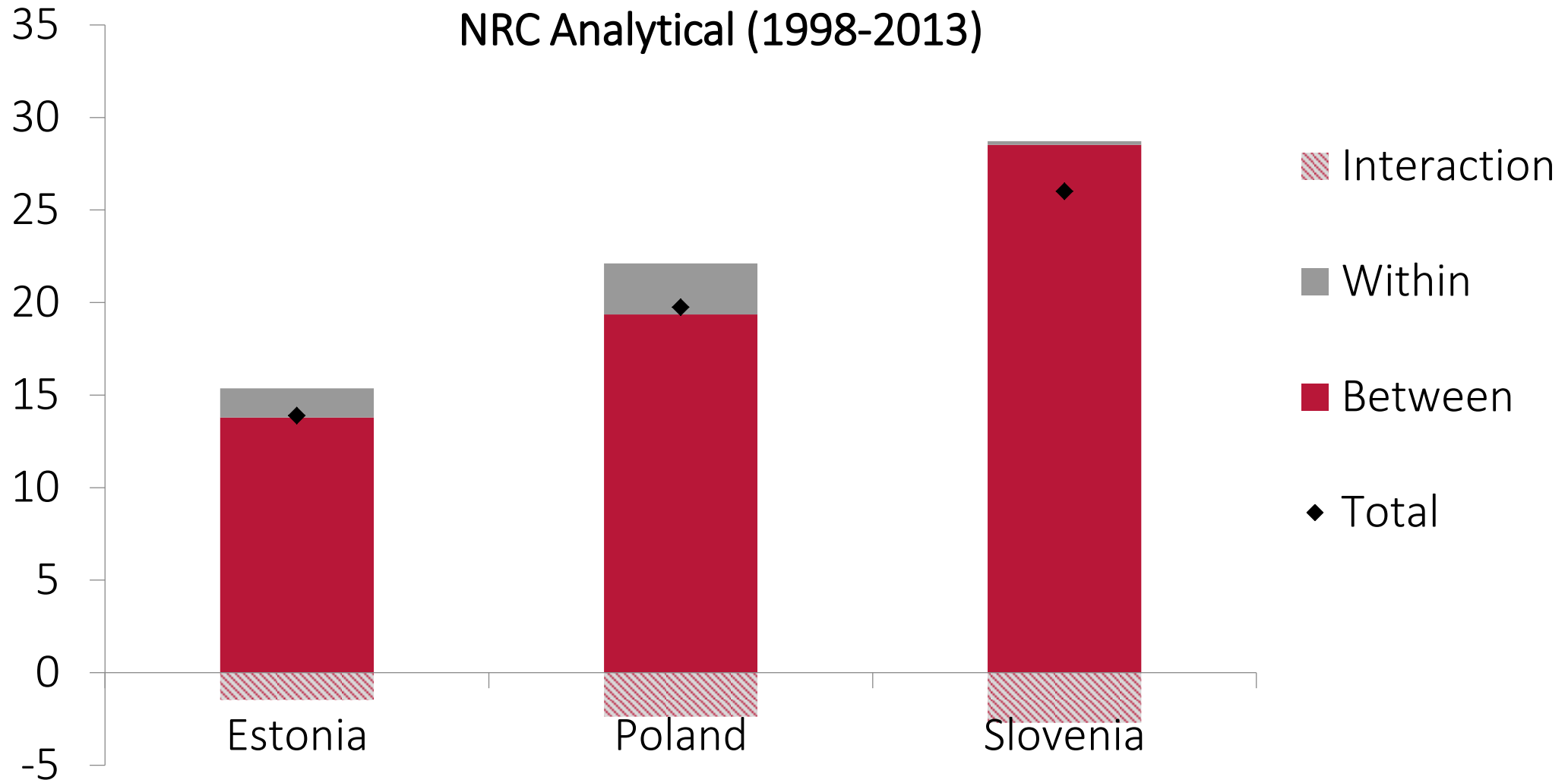
---



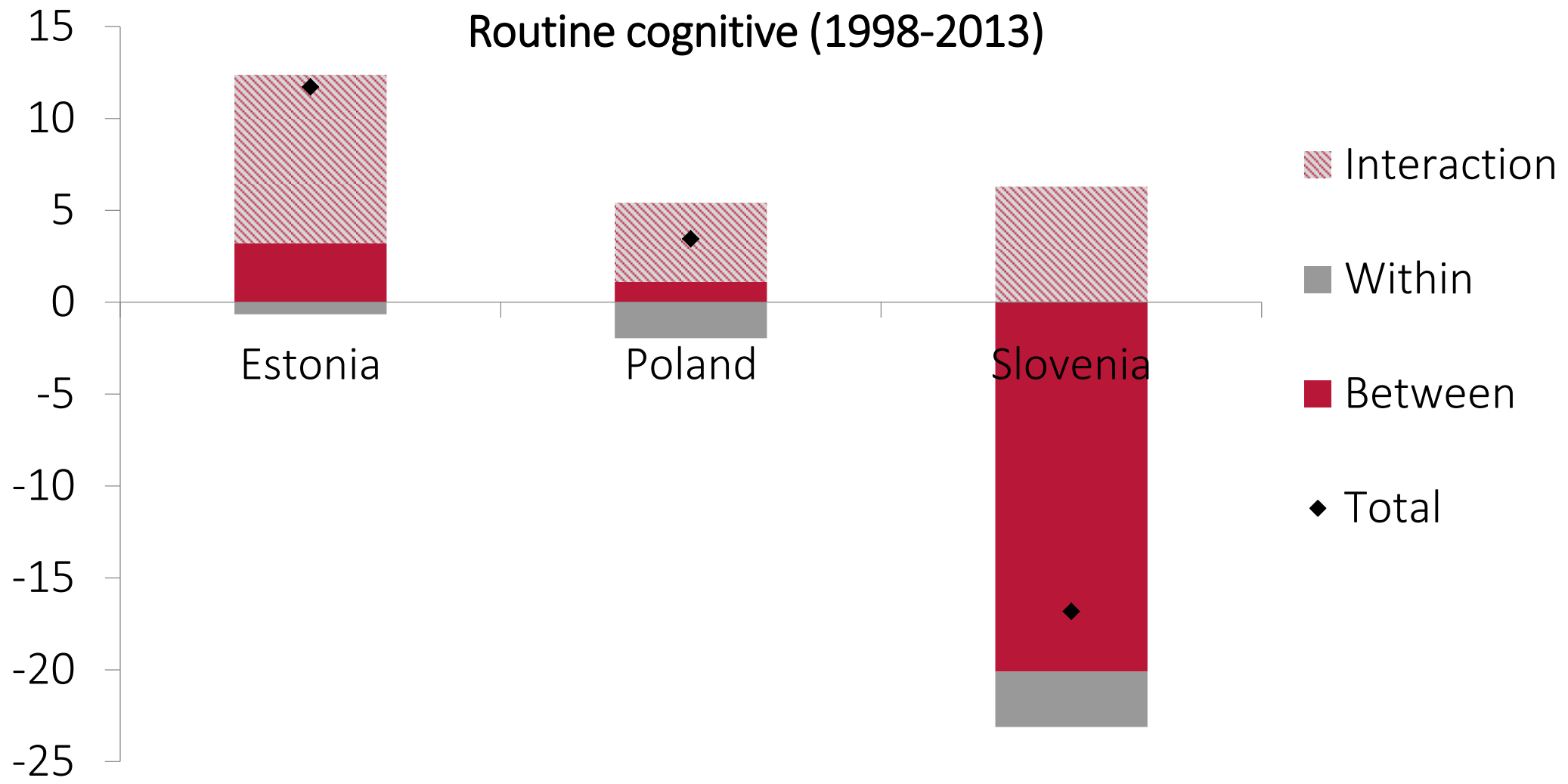
What was the contribution of :

- changes in structure of employment (**between-occupation** effect)
- changes in task content intensities over time (**within-occupation**)
- **interaction** between the two

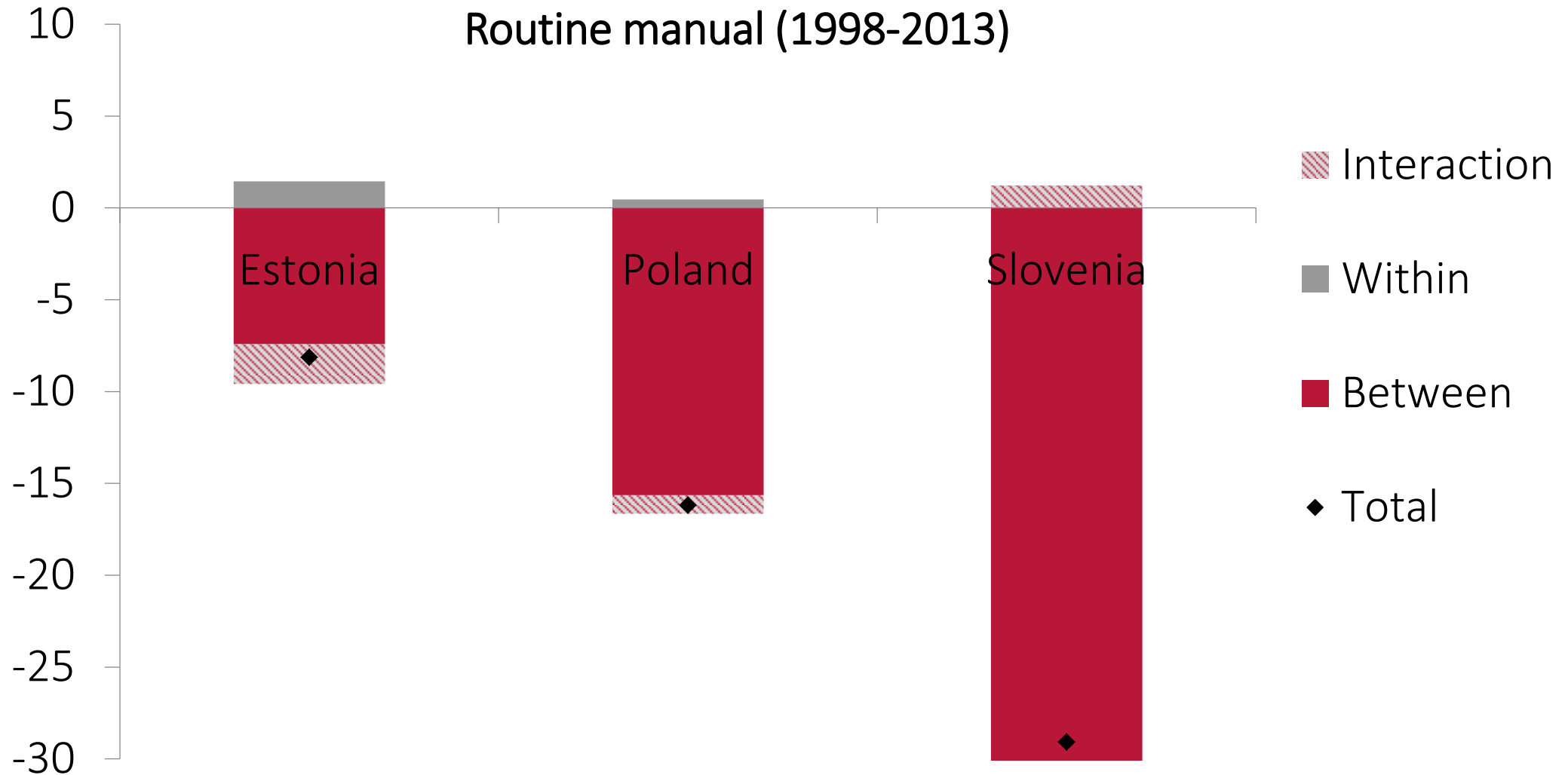
# Non-routine cognitive tasks' growth driven by the between effect



Routine cognitive: reduced by the within effect, raised by interaction



# Decline in manual tasks driven by the between effect



---

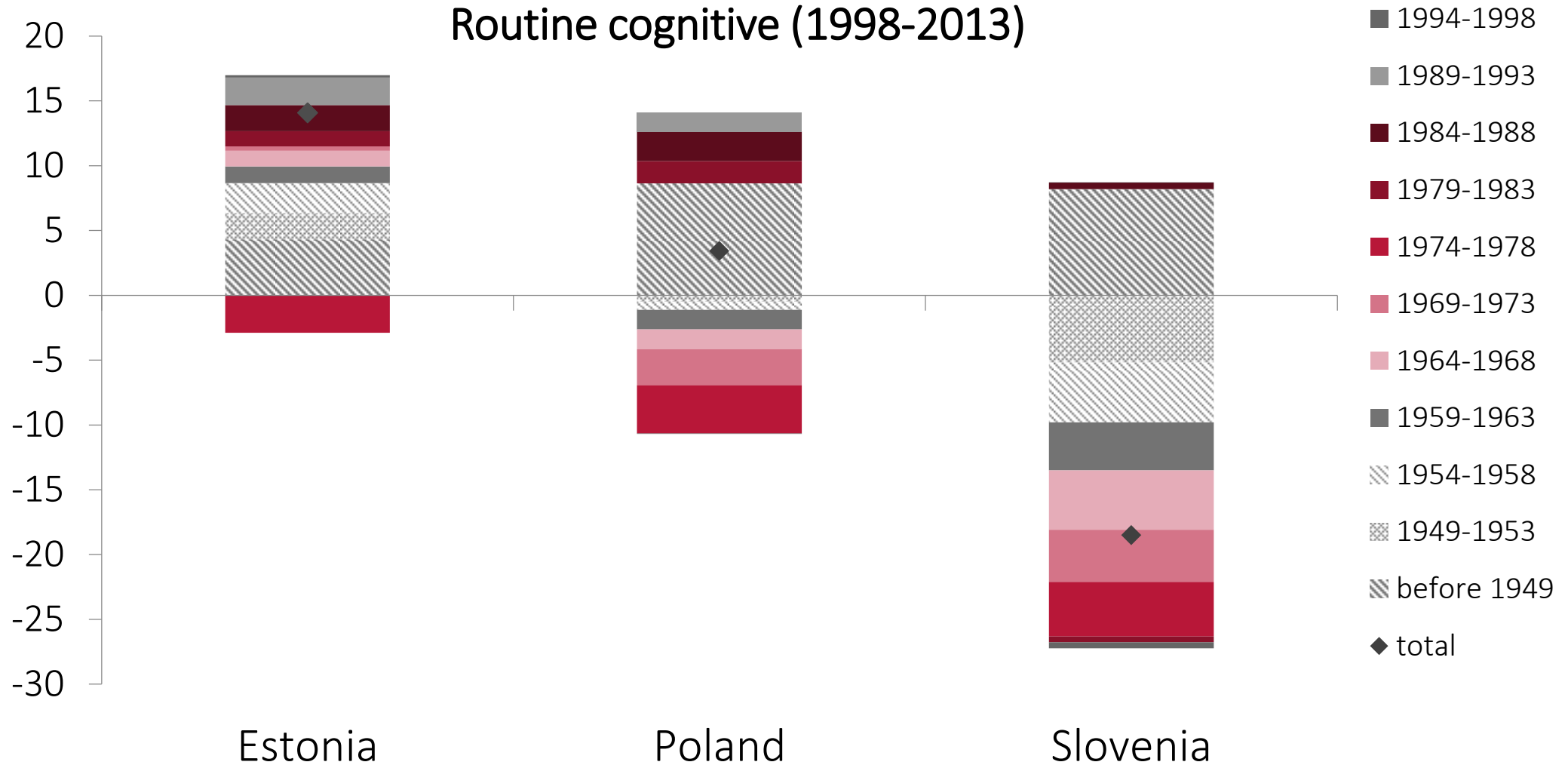
What was the contribution of different cohorts?

---





# Older workers pushed routine cognitive tasks upwards





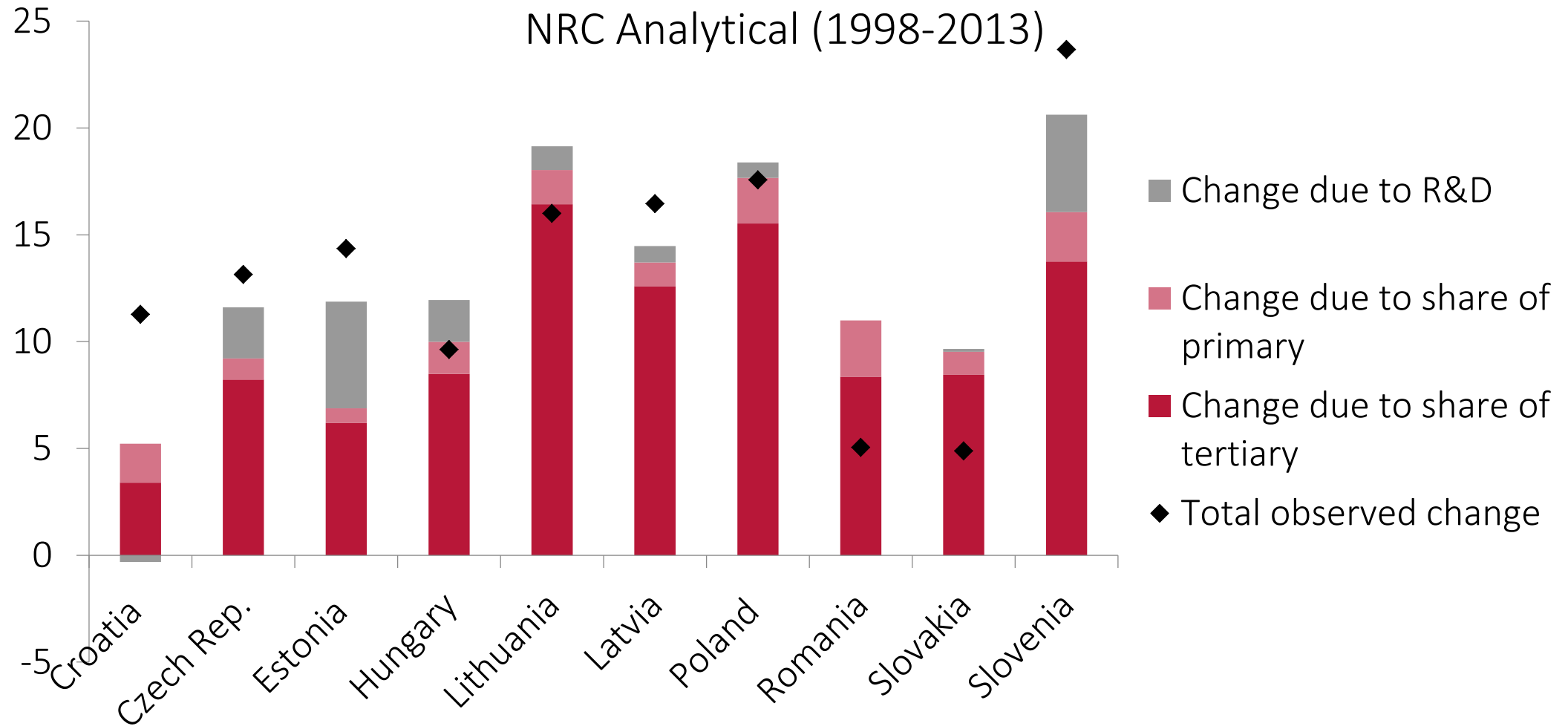


# Workforce upgrading supported de-routinisation

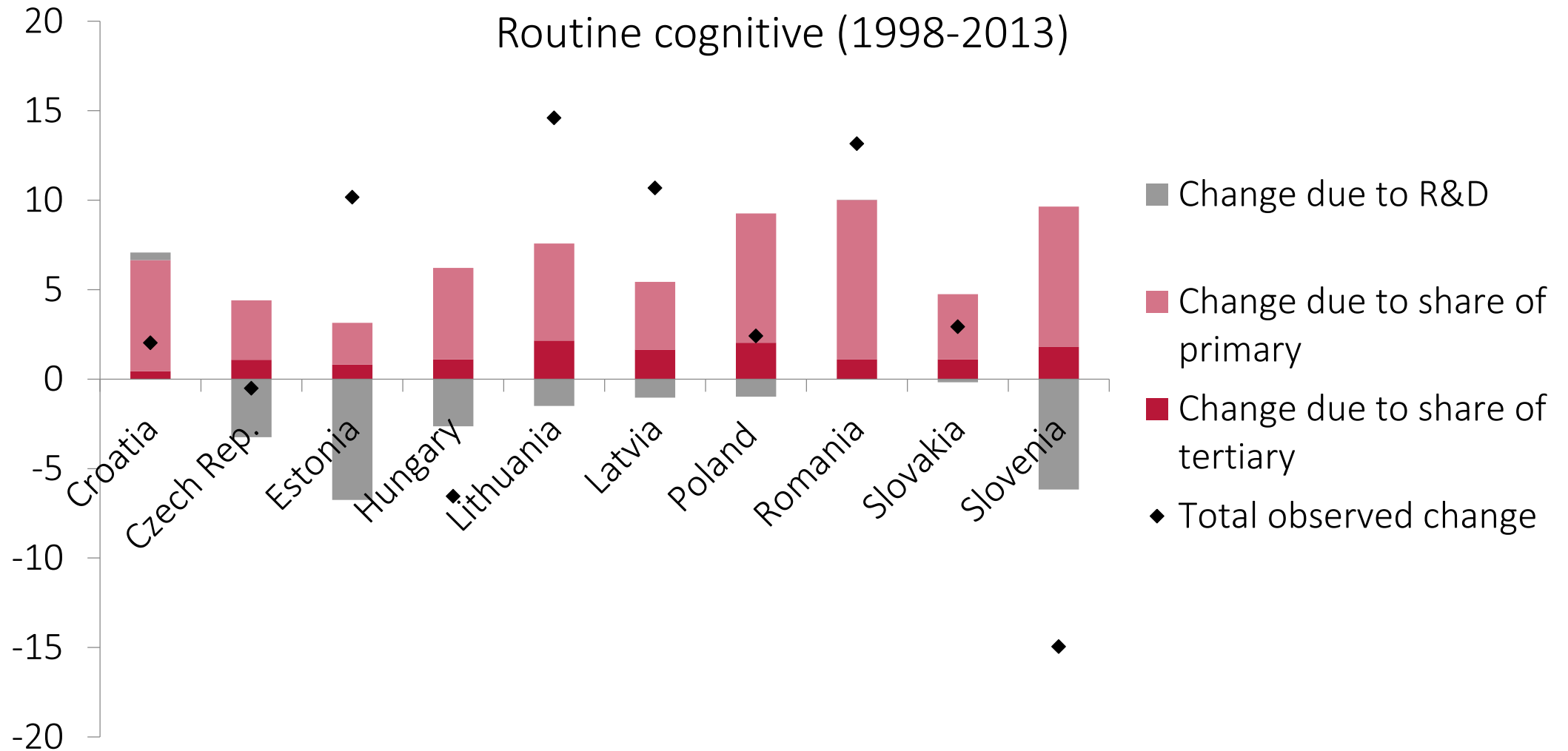


Explaining the evolution of tasks – fixed-effects estimation					
	Non-routine cognitive analytical	Non-routine cognitive personal	Routine cognitive	Routine manual	Non-routine manual physical
Share of tertiary educated	0.83***	0.67*	0.11	-0.73***	-0.62*
Share of primary educated	-0.19	0.08	-0.63	0.66***	1.10**
R&D / GDP	0.03**	0.03*	-0.04	-0.03**	-0.01

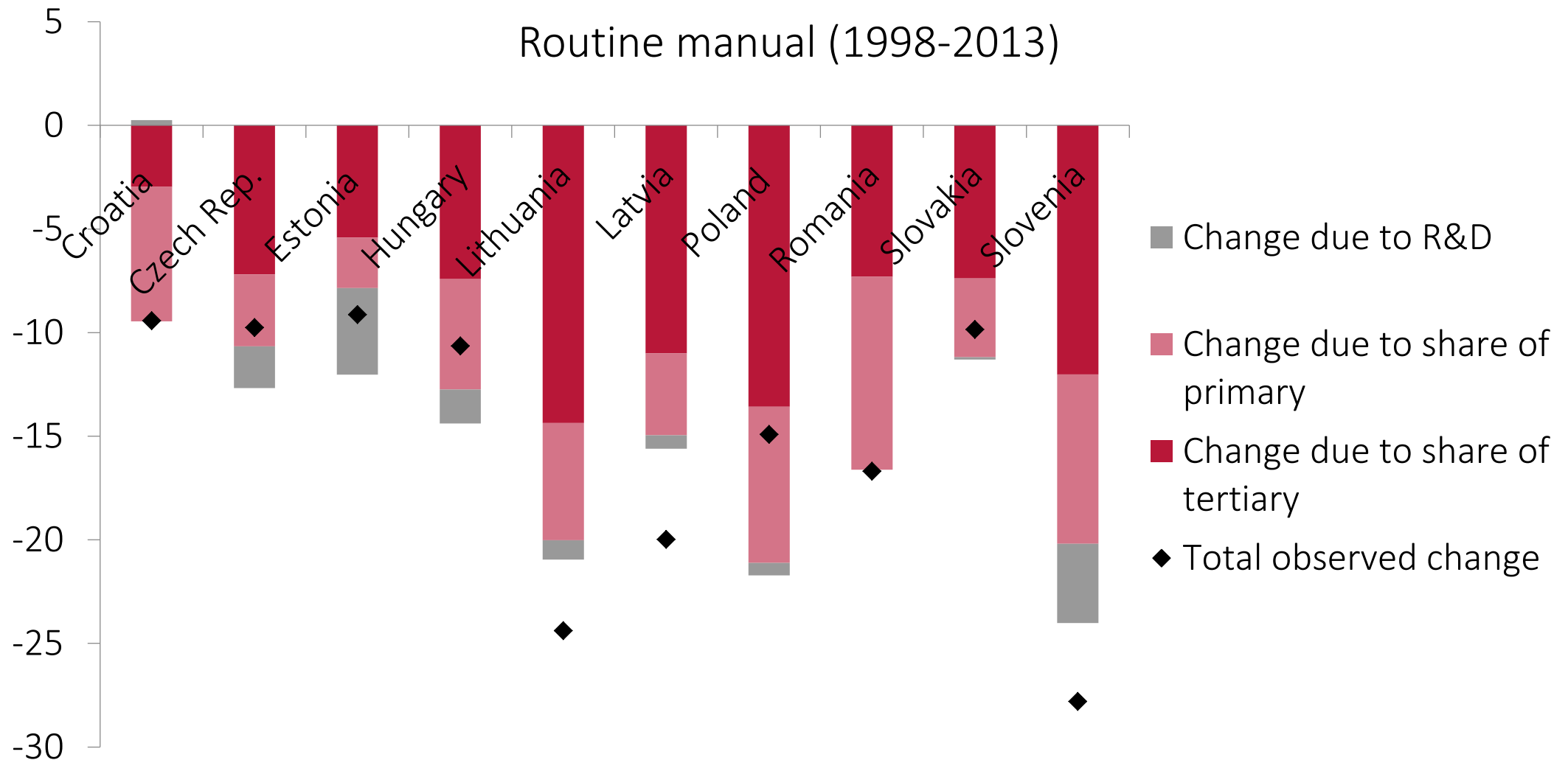
# Workforce upgrading most potent in Poland, Lithuania and Slovenia



# Routine cognitive tasks driven by cohort-specific patterns



# Upward shift from primary education -> decline in manual tasks



---

## The evolution of tasks in middle-income countries – challenges . | :

---

- For how long will the routine cognitive tasks hold firm?
- Intergenerational divide in the evolution of task contents
- Can the workforce upgrading continue with improving task structure?
- What is the task content of occupations around the world?
- What is the global evolution of task contents?

Thank you for your attention

[piotr.lewandowski@ibs.org.pl](mailto:piotr.lewandowski@ibs.org.pl)

[www.ibs.org.pl](http://www.ibs.org.pl)

[@ibs\\_warsaw](#)

