

# Labour market inequalities and fertility in the context of globalisation and technological change

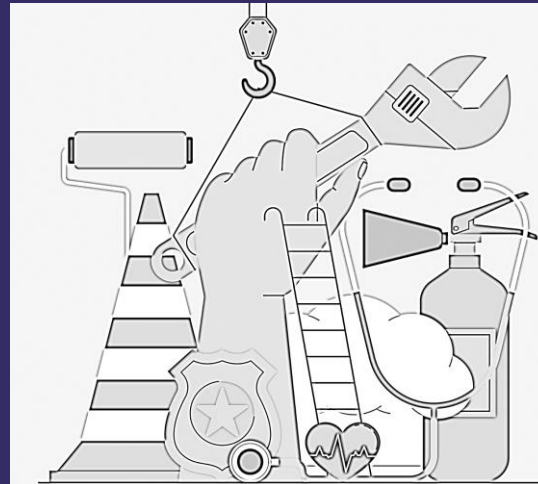


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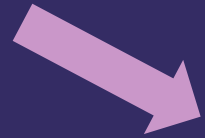


# Labour market and fertility

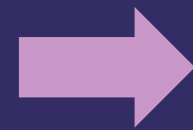
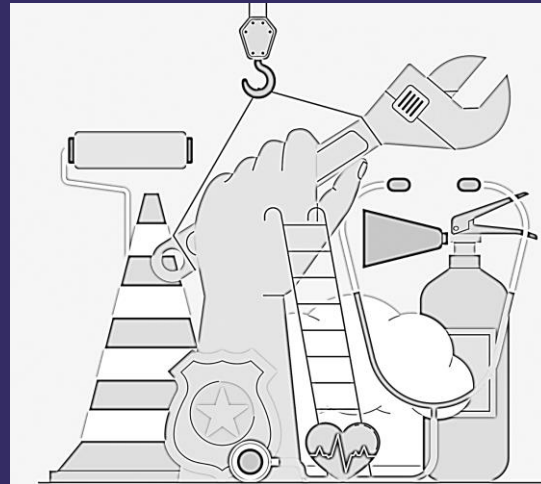


# Labour market and fertility

GLOBALISATION



TECHNOLOGICAL  
CHANGE

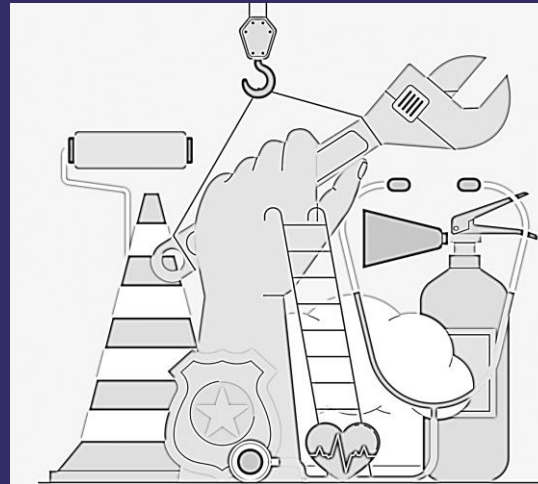


STRUCTURAL LABOUR  
MARKET CHANGE

# Labour market and fertility

GLOBALISATION

TECHNOLOGICAL  
CHANGE



STRUCTURAL LABOUR  
MARKET CHANGE

# Labour market and fertility

GLOBALISATION

TECHNOLOGICAL  
CHANGE



STRUCTURAL LABOUR  
MARKET CHANGE

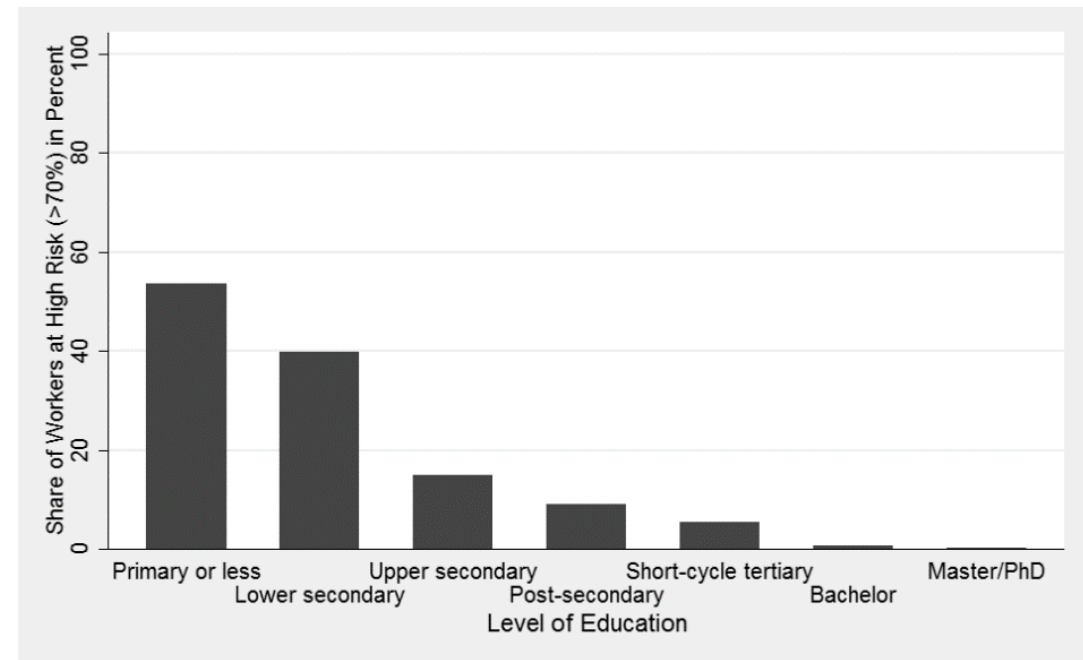


# Risks of automation

- 9-14% of jobs at high risk of full automation (more than 70% of tasks automatable)
- 25-32% jobs at medium risk (50-70% of tasks automatable)

Source: Arntz et al. (2017), Nedelkoska and Quinitni (2018)

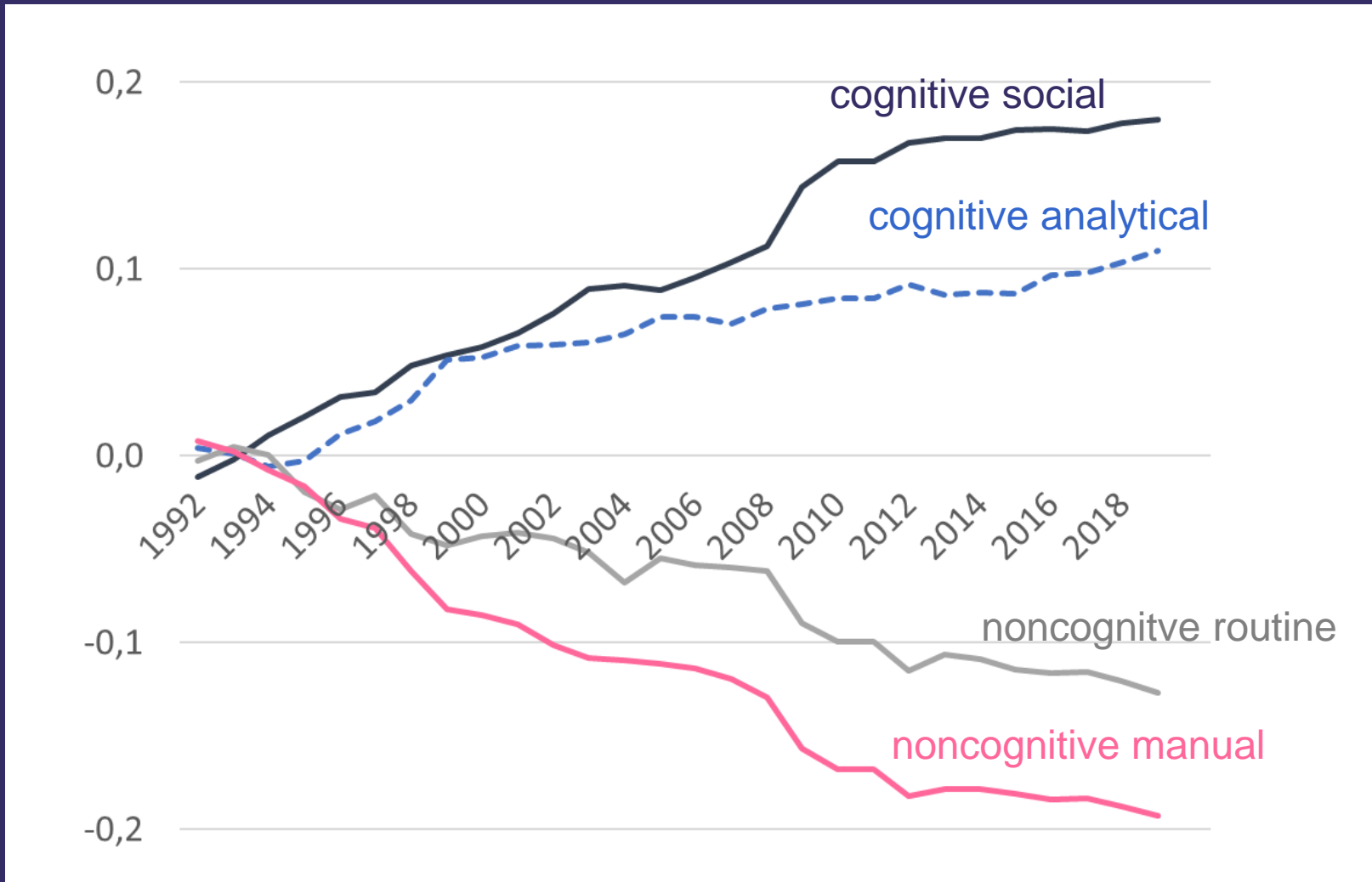
Figure 6. Share of Workers with High Automatability by Education



Source: Authors' calculation based on the Survey of Adult Skills (PIAAC) (2012)

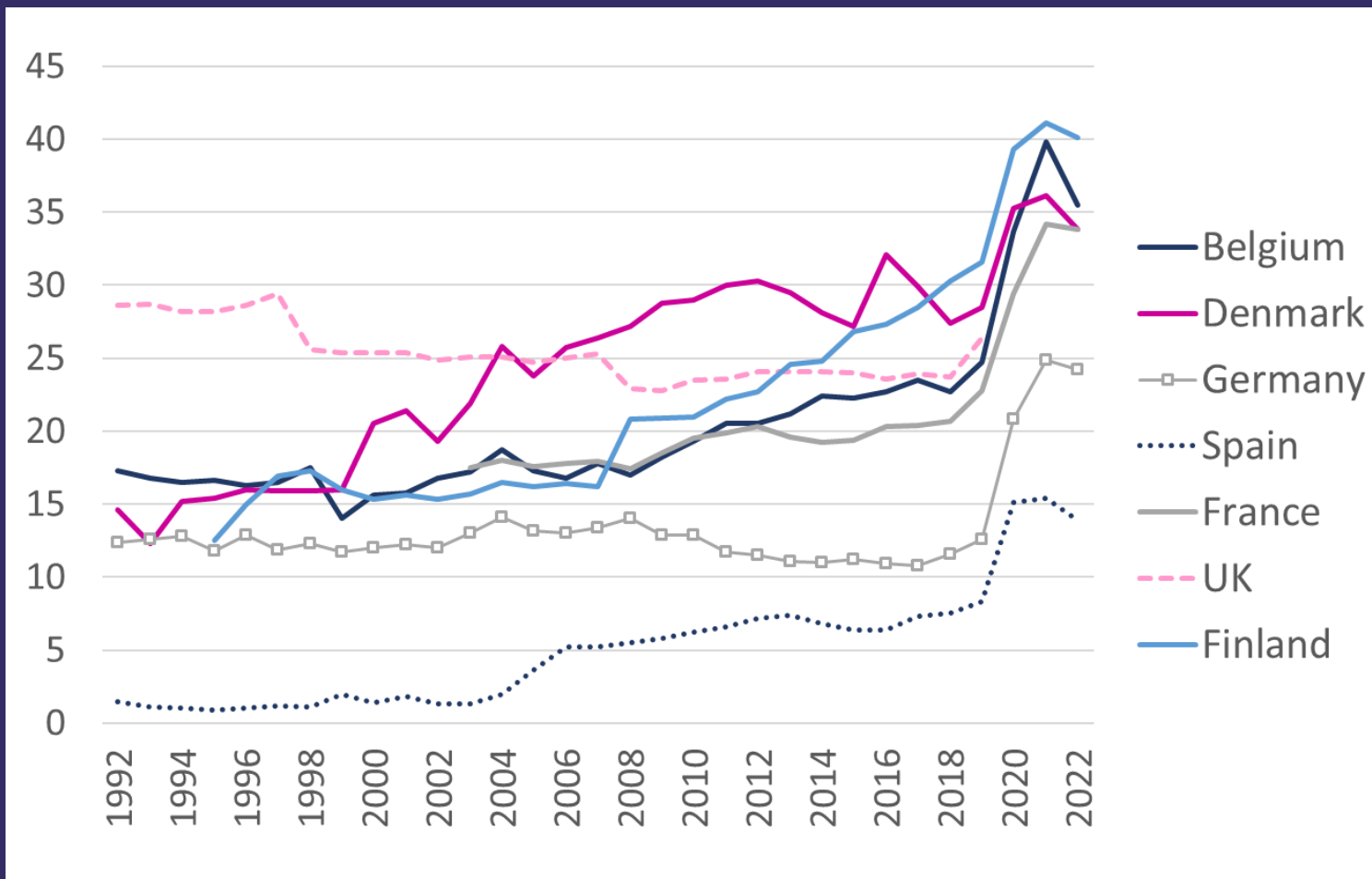
# Structural labour market change

Changing task content of jobs, 1992-2019



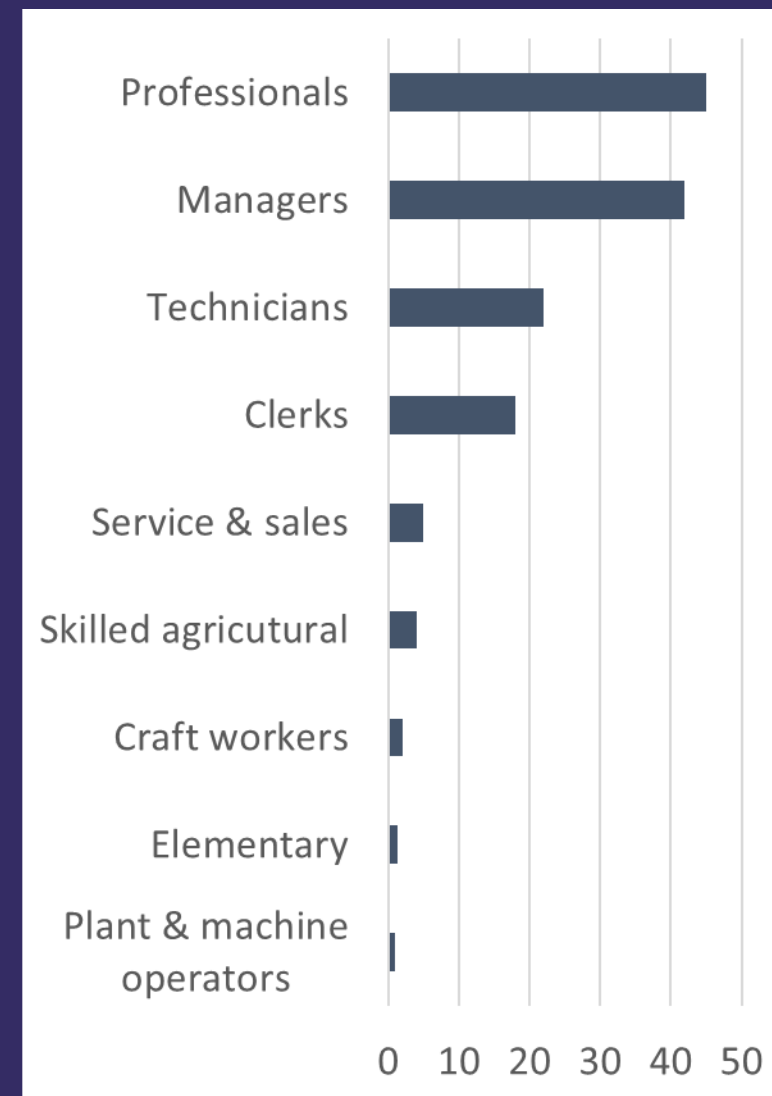
Countries covered: Belgium, Denmark, Germany, France, Italy, Spain, Netherlands, UK

# % Working from home (usually or sometimes)



Source: Eurostat

% working from home in 2020



Source: Eurofound



# Structural labour market change

- growing inequalities between high and low-to-middle skilled
  - Employability
  - Earnings
  - Job stability
  - Social protection
  - Work autonomy (flexi time and place)
- ongoing change (not cyclical)



# STUDY 1: Cognitive work and fertility



## COGNITIVE WORK

- Analytical
- Social /interpersonal

Co-authors: H. Bogusz, M. Kreyenfeld

Event: Entry to parenthood

Countries: Germany

Period: 1986-2019

Data:

- German Socio-Econ Panel (SOEP)
- The Employment Survey of the German Federal Institute for Vocational Education and Training (BiBB)

Method:

- Discrete-time EHA



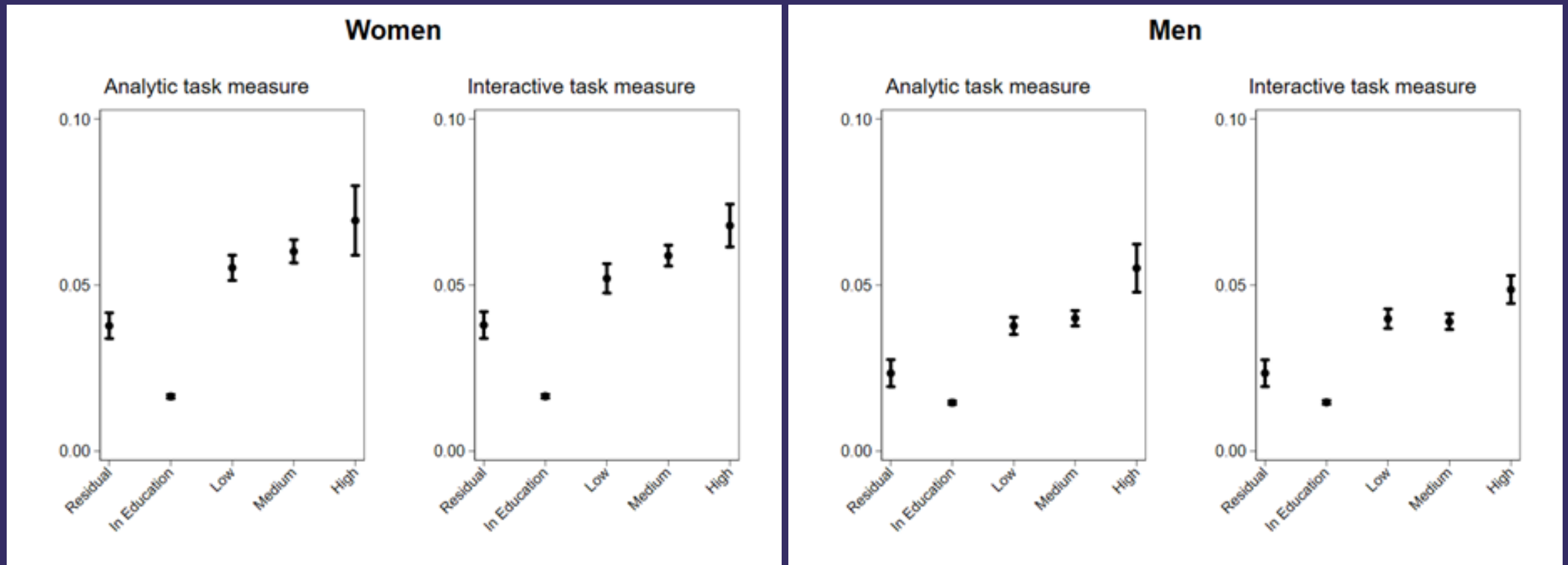
Measure:

- Cognitive task intensity (at the occupational level)

$$\frac{\textit{number of cognitive tasks}}{\textit{number of all tasks}}$$

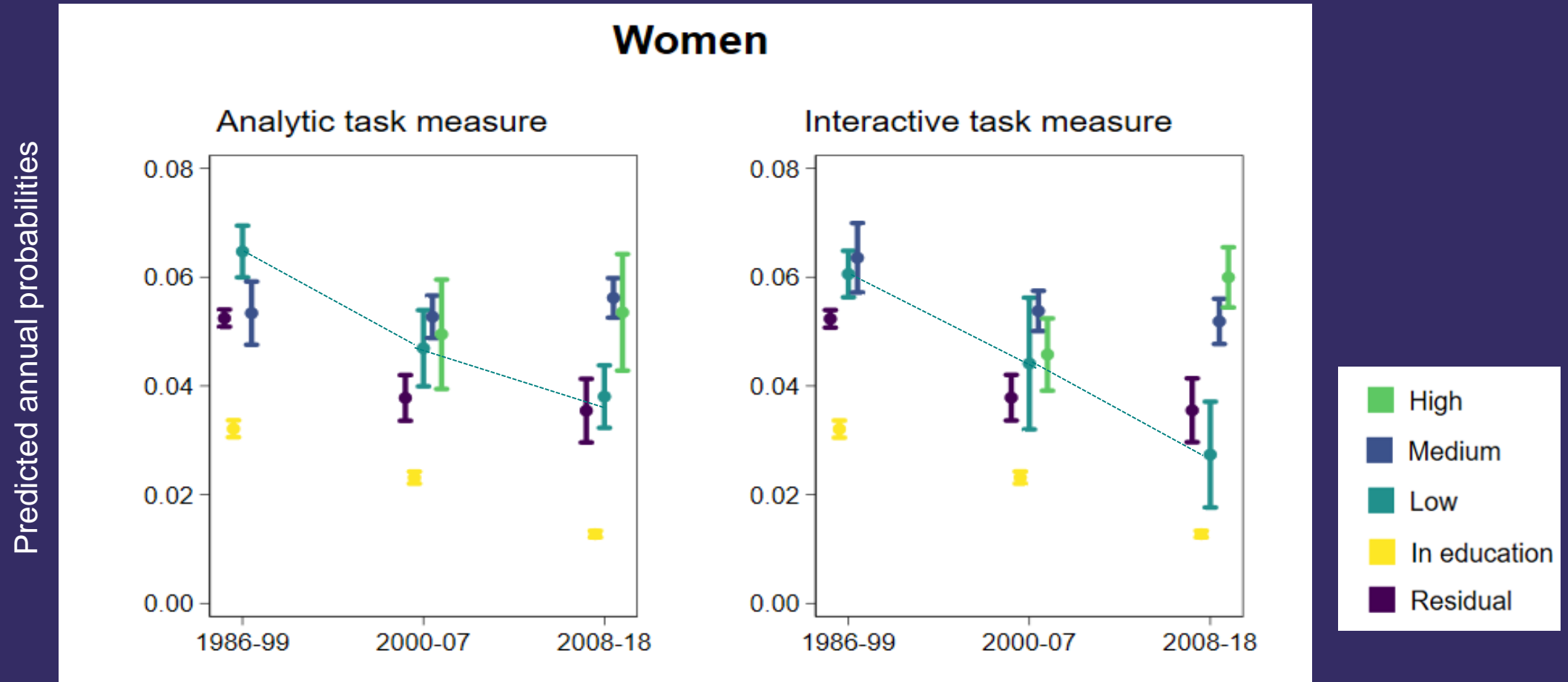
# Cognitive work and entry to parenthood

Predicted annual probabilities



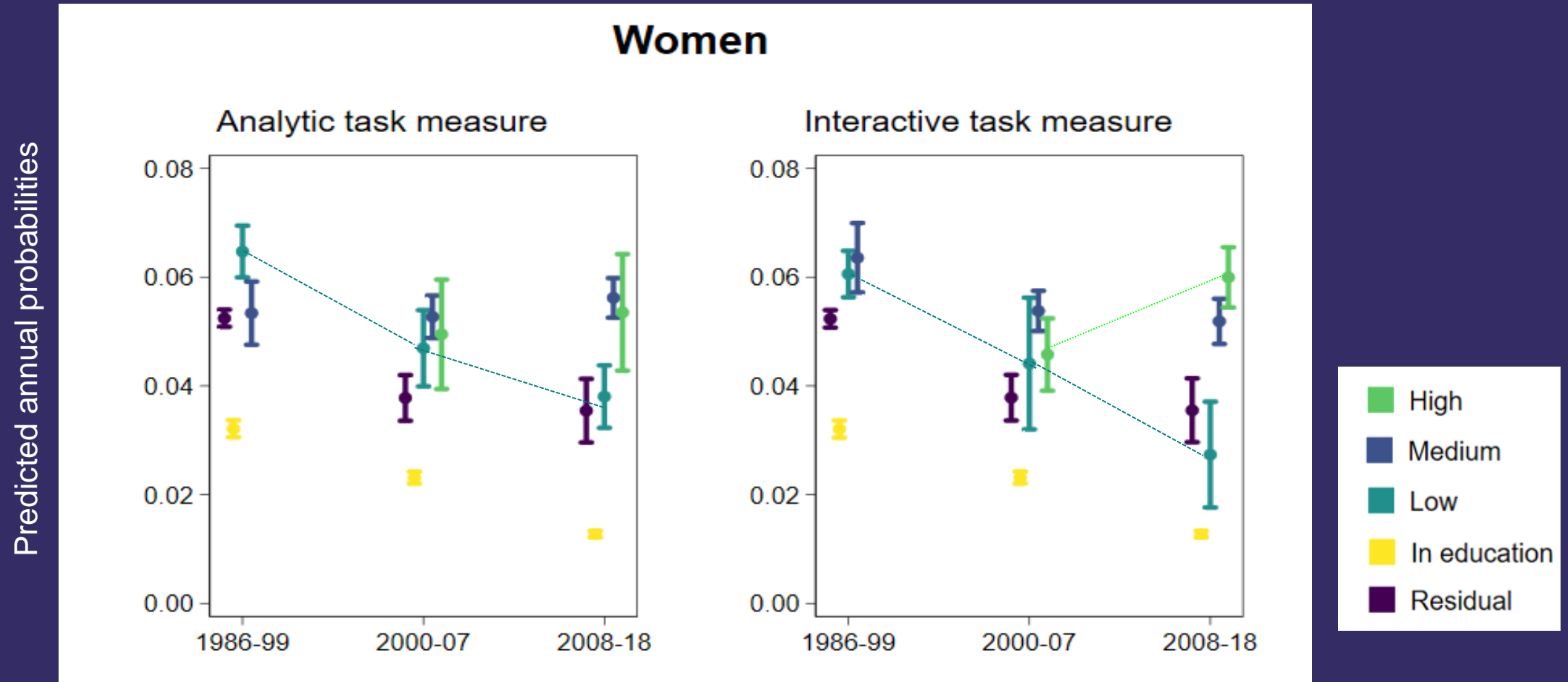
Source: Bogusz, Matysiak, Kreyenfeld, forthcoming

# Cognitive work and entry to parenthood



Source: Bogusz, Matysiak, Kreyenfeld, forthcoming

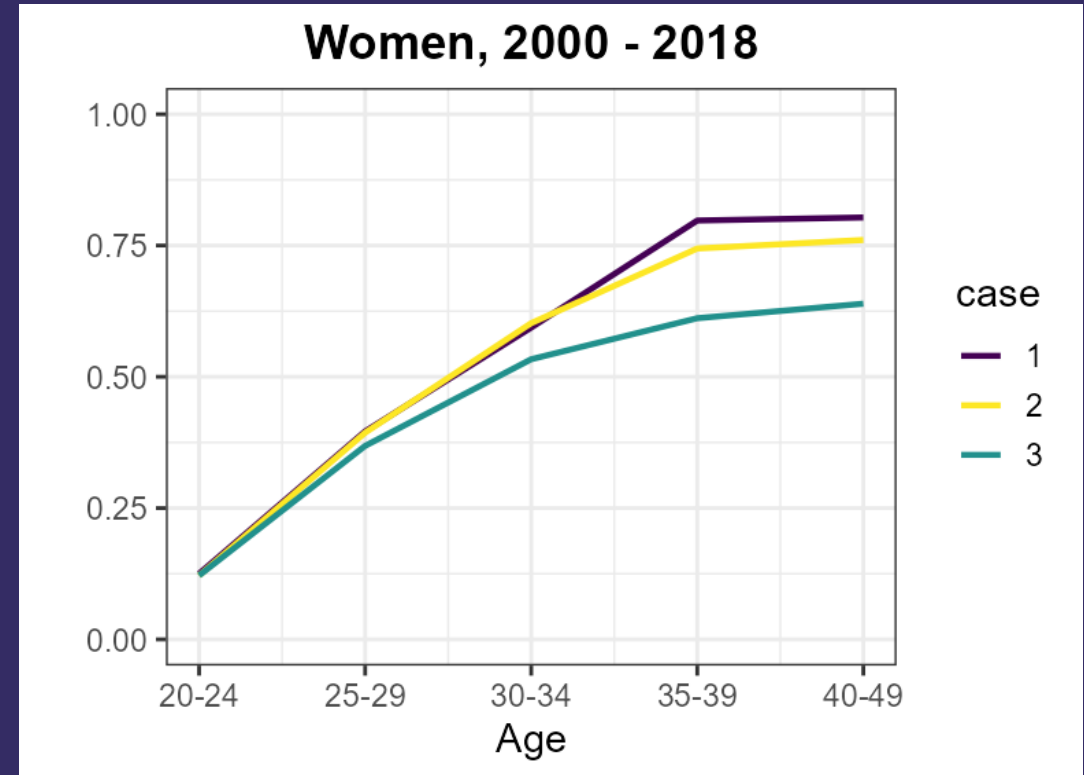
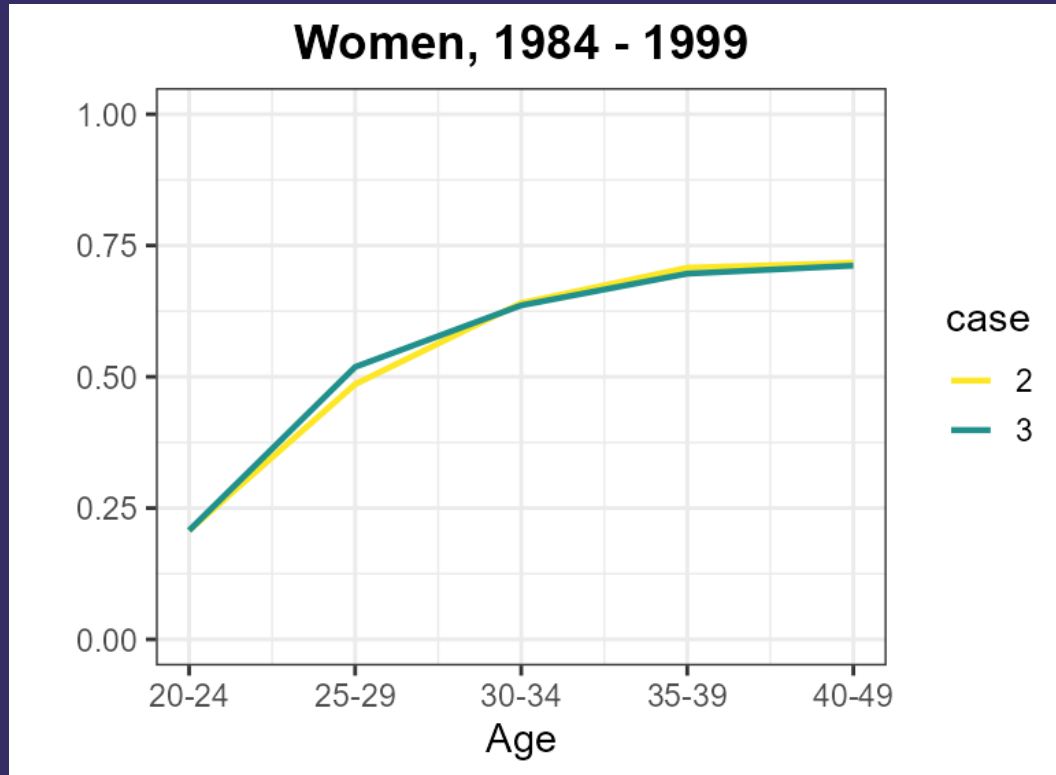
# Cognitive work and entry to parenthood



Source: Bogusz, Matysiak, Kreyenfeld, forthcoming

# Cognitive work and entry to parenthood

## First birth cumulative incidence curves



**Case 1:** a person is in education until age 29 and then has high analytic task intensity.

**Case 2:** a person is in education until age 24 and then has medium task analytic intensity.

**Case 3:** a person has always low analytic task intensity.



- Cognitive workers most likely to become parents
- Decline in first birth risks / increase in childlessness among workers with low cognitive intensity over time



# STUDY 2: Fertility effects of automation



AUTOMATION



Stability of employment

Wages

Quality of jobs

Uncertainty



Co-authors: L. Andersson, W. Hardy

Countries: Sweden

Period: 1993-2017

Data:

- Swedish register data
- IFR robot stocks (industry-specific) at 3 digit since 1993

Measure:

- Exposure to robots

Method:

- Discrete-time EHA

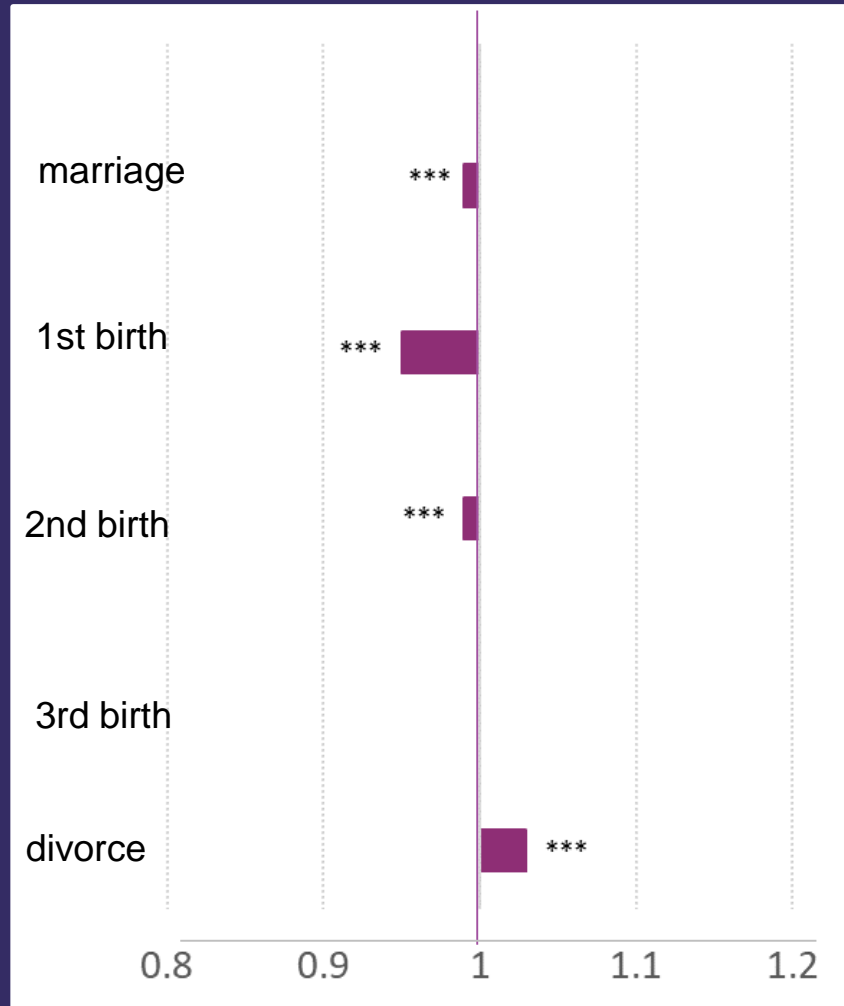


$$Exposure\ to\ robots_{r,t} = \frac{robots_{i,t}^C}{empl_{i,t_0}}$$

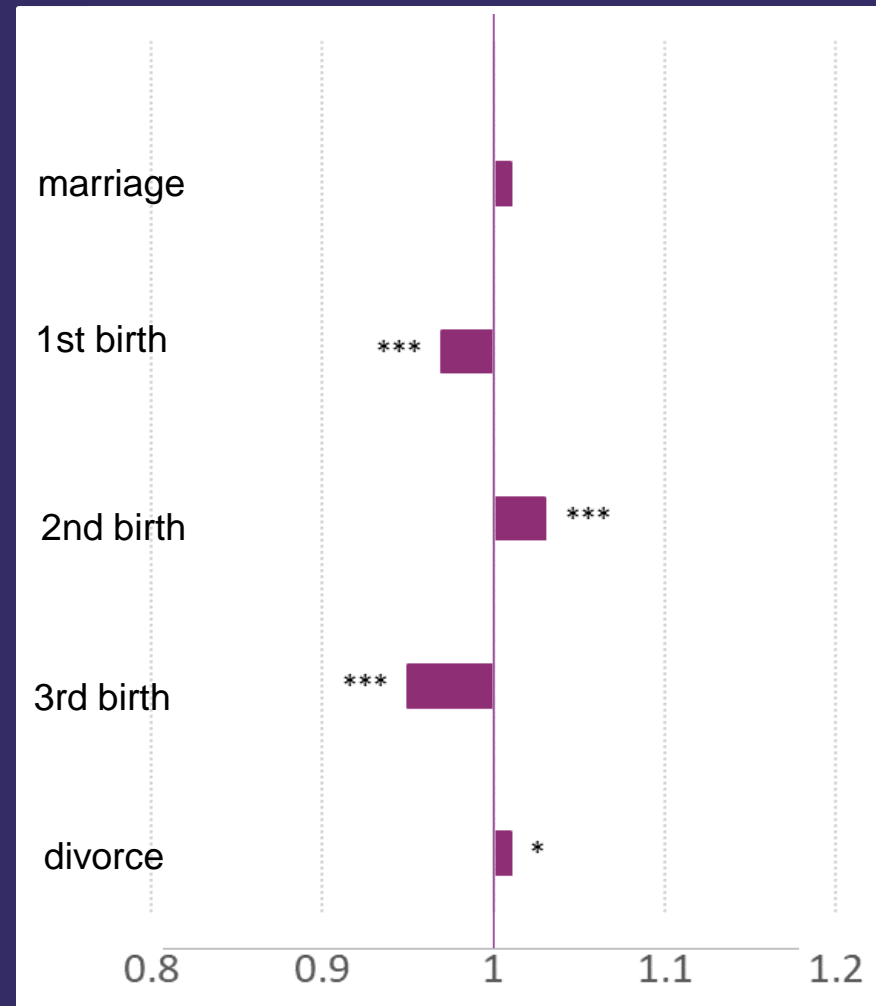
replacement of initial employment (at  $t_0$ ) in the industry  $i$  by robots

# Fertility effects of automation, Sweden

MEN

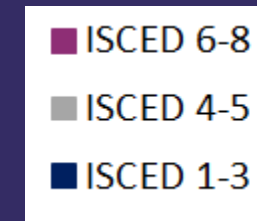
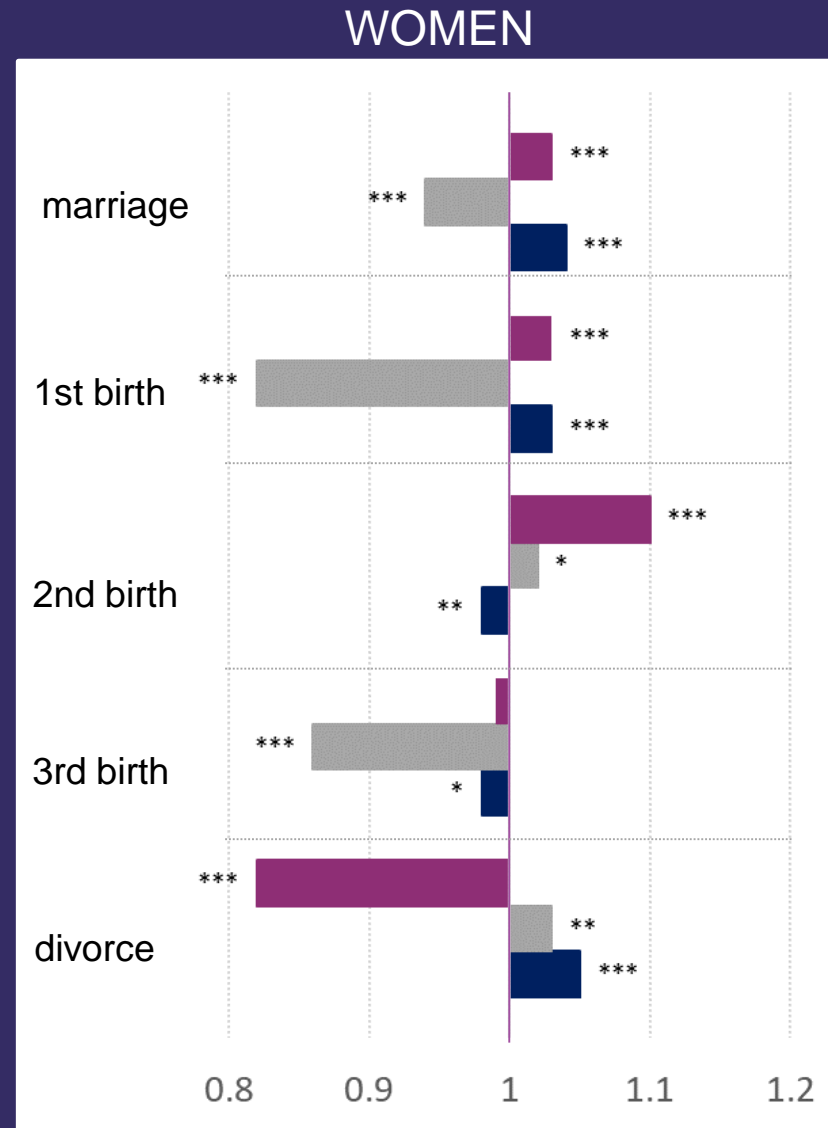
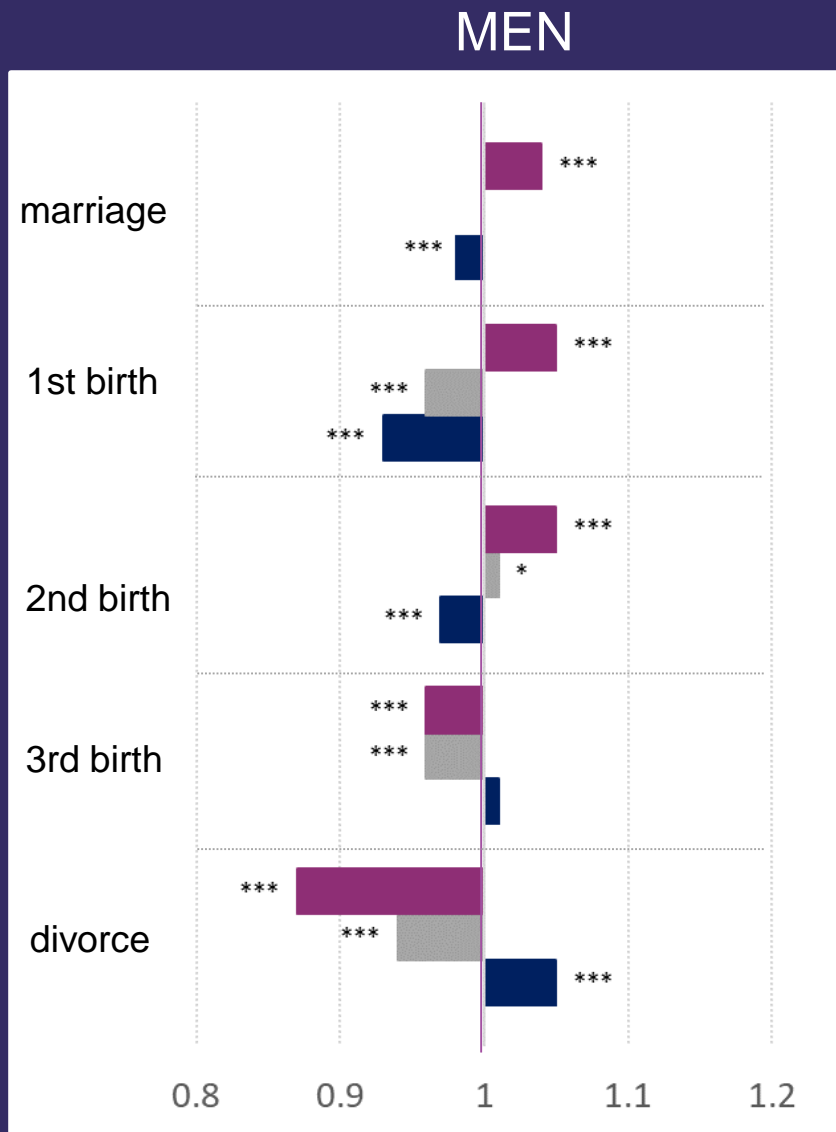


WOMEN

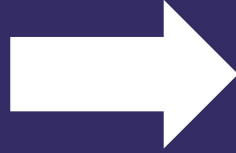


Note: Association between a change in 1st dev in robot adoption in an industry and risk of event

# Fertility effects of automation, Sweden



Note: Association between a change in 1 st dev in robot adoption in an industry and risk of event



- Working in a sector with high automation hampers family formation of low / middle skilled workers

# STUDY 3. Work from home and fertility

WORK FROM HOME



Co-authors: B. Osiewalska

Countries: UK

Data:

- UKHLS 2009-2019

Sample

- partnered women aged 18-44  2,125

Method:

- Discrete-time EHA

 2,143

Controls:

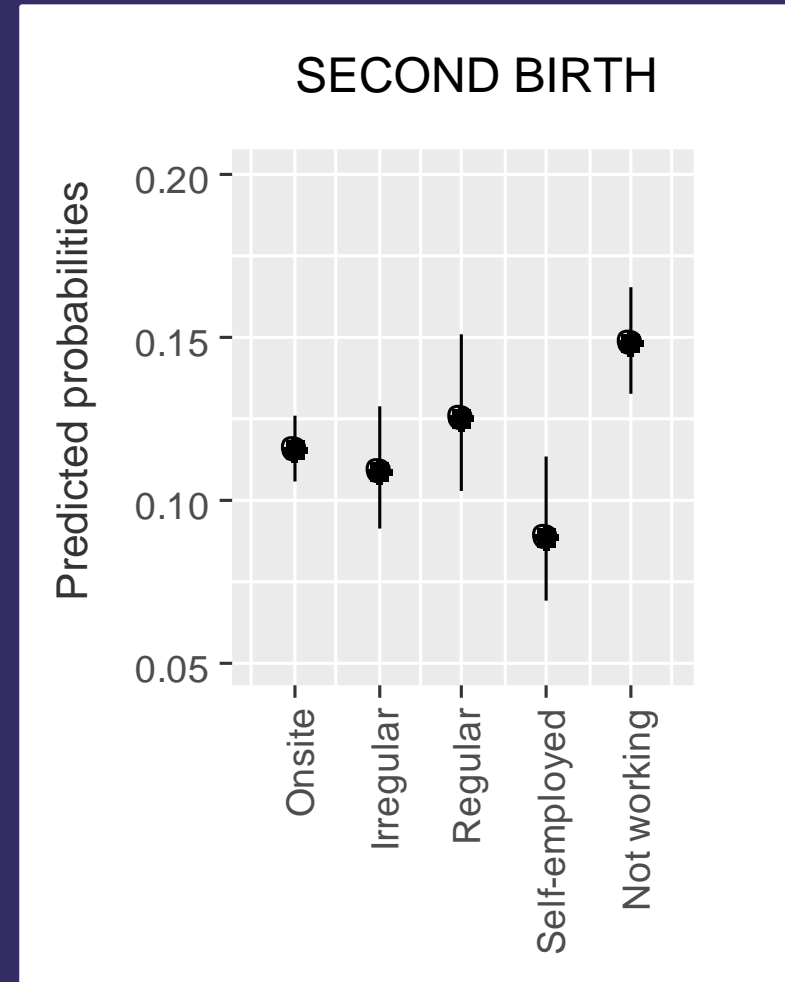
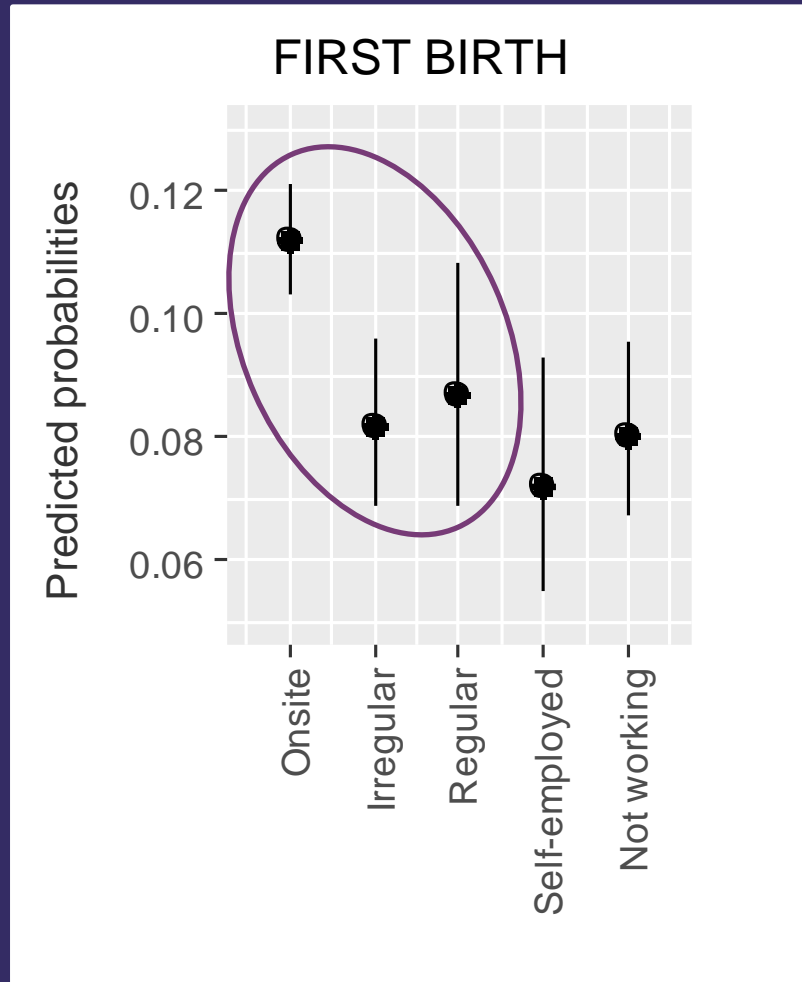
- Woman's age, ethnicity, health status, family orientation, partnership status, education, men's income, calendar time



Measures:

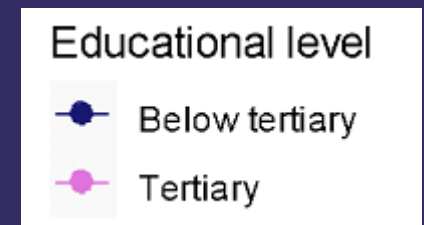
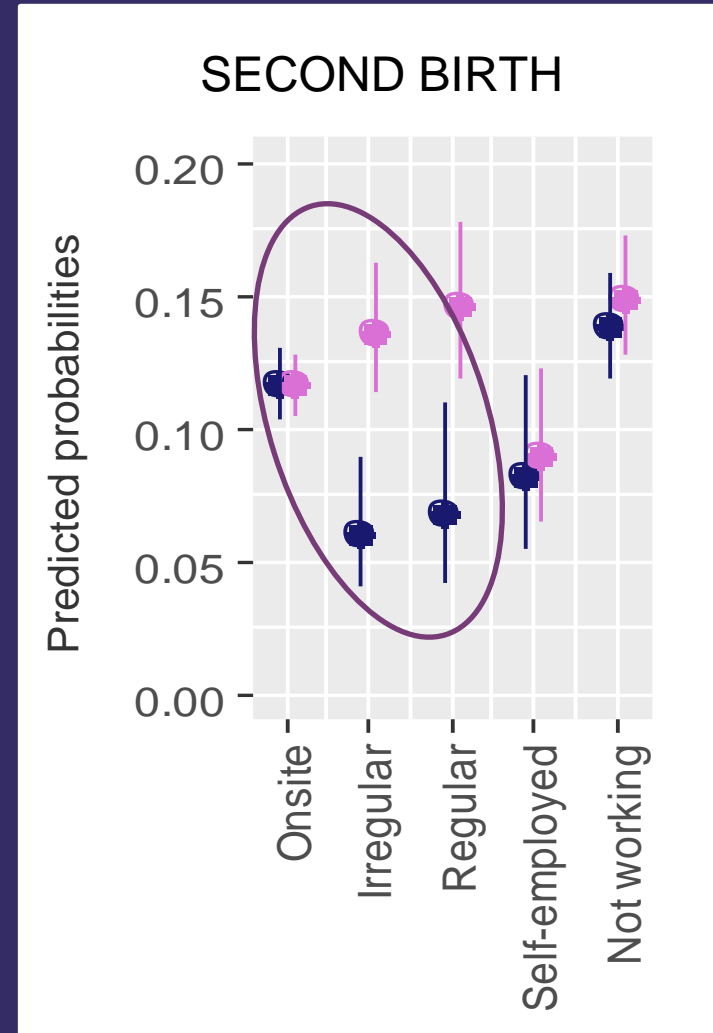
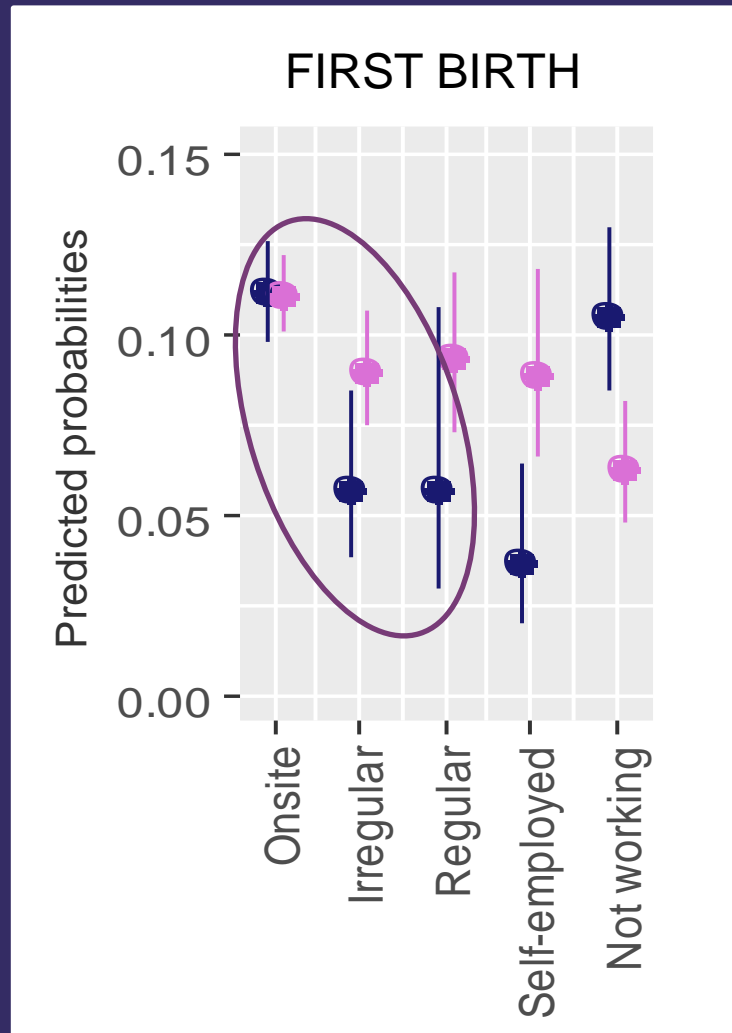
- Regular use of WfH
- Irregular use / access to WfH

# Work from home and fertility





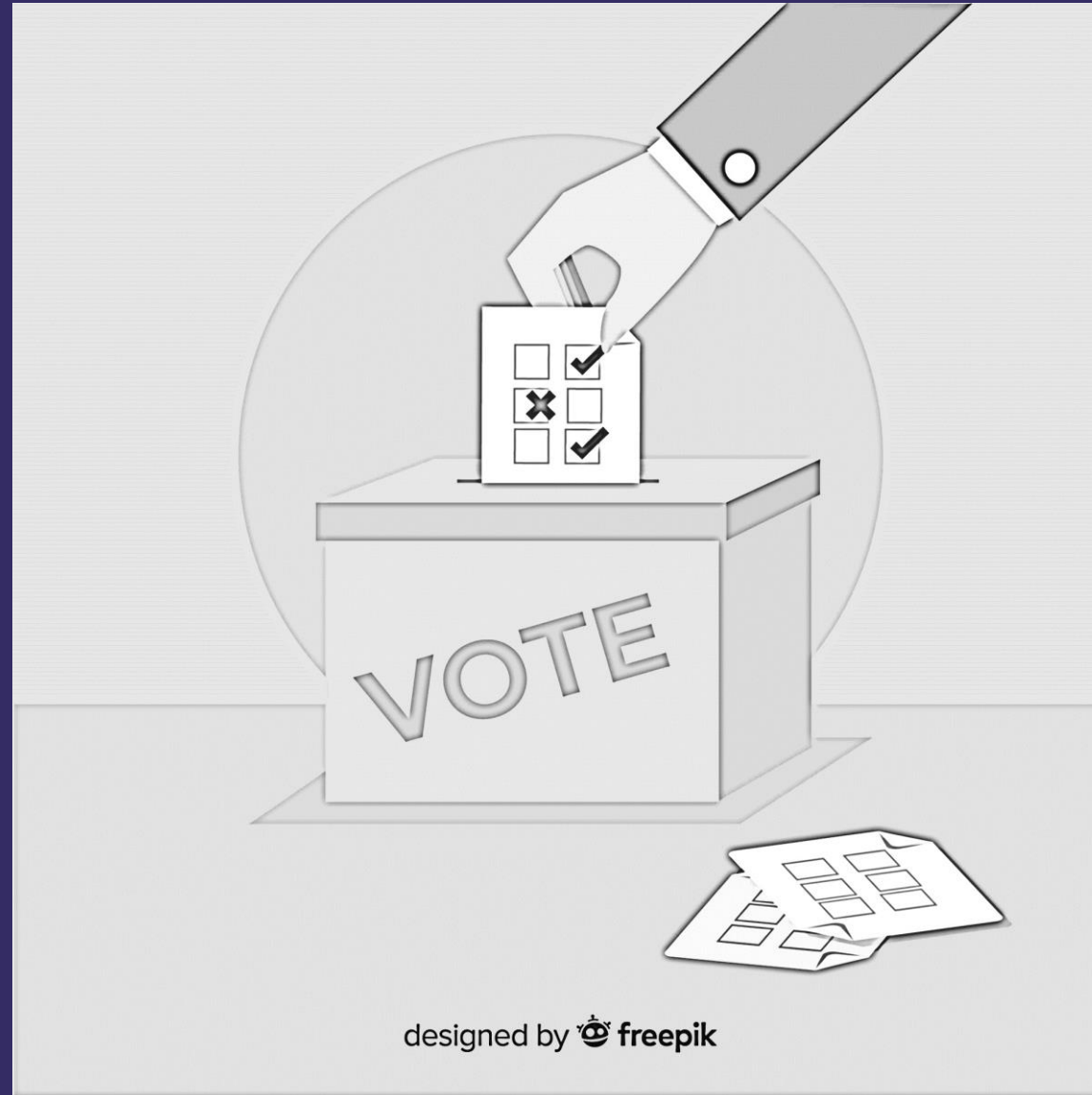
# Work from home and fertility



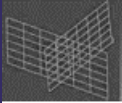


- Signs of positive relationship between workplace autonomy and second birth risks
- But only among the highly educated!





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ORIGINAL ARTICLE

### Globalization, robotization, and electoral outcomes: Evidence from spatial regressions for Italy

Mauro Caselli, Andrea Fracasso, Silvio Traverso

First published: 08 June 2020 | <https://doi.org/10.1111/jors.12503> | Citations: 12

- Effects of flows of migrants, foreign competition in international trade, and diffusion of robots on local electoral outcomes in 2001, 2008 and 2013
  - All increase in far-right votes in 2001 and 2008
  - Only robotization continues to have such an impact in 2013 (immigration increased votes for Far Star Movement at the expense of far right)

### Political machinery: did robots swing the 2016 US presidential election?

Carl Benedikt Frey, Thor Berger, Chinchih Chen

*Oxford Review of Economic Policy*, Volume 34, Issue 3, Autumn 2018, Pages 418–442, <https://doi.org/10.1093/oxrep/gry007>

Published: 02 July 2018

positive and significant effect of workers' exposure to robot adoption on the change in the regional share of votes in favour of the Republican candidate (2016 vs 2012 elections; Trump vs Romney)

### Comparative Political Studies

Impact Factor: 5.0 / 5-Year Impact Factor: 5.7

Available access | Research article | First published online March 3, 2021

### Voting for Populism in Europe: Globalization, Technological Change, and the Extreme Right

Helen V. Milner, View all authors and affiliations

### Western Europe 1990-2018

Import competition, automation and financial crisis positively related to support for populist parties

THANK YOU!



POLSKIE POWROTY  
POLISH RETURNS

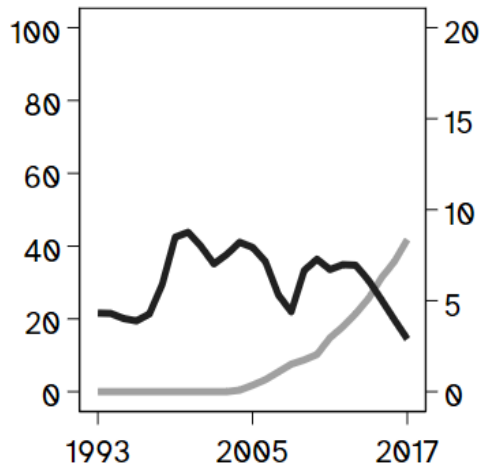


European  
Research  
Council

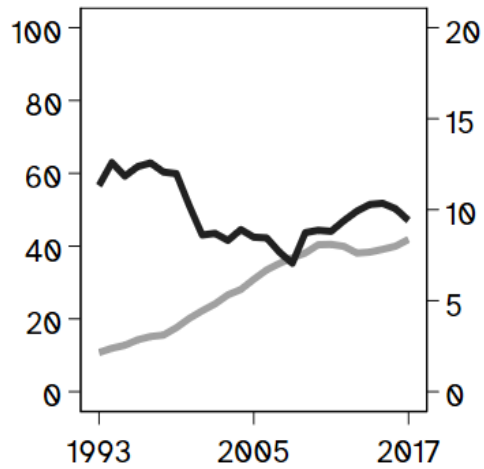
 LabFer

 LabFam

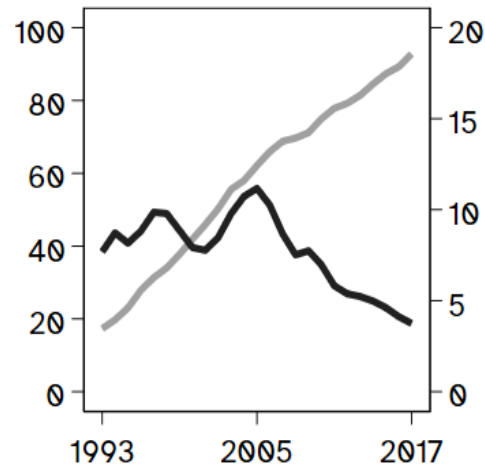
Czechia



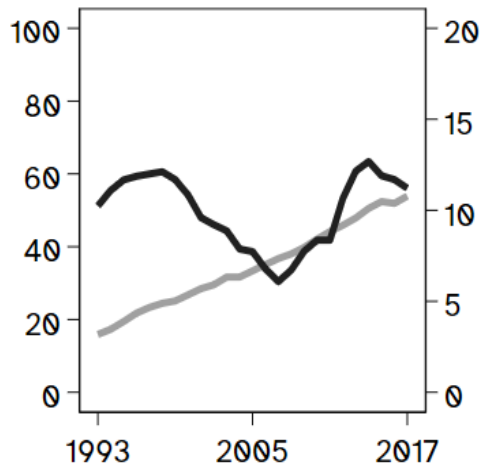
France



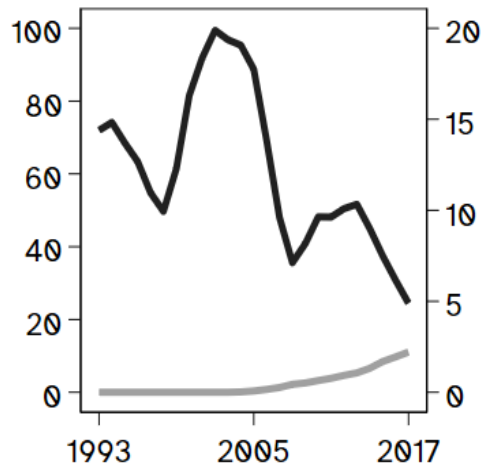
Germany



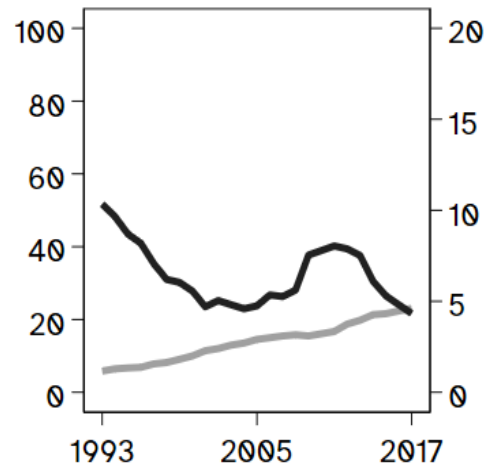
Italy



Poland



United Kingdom

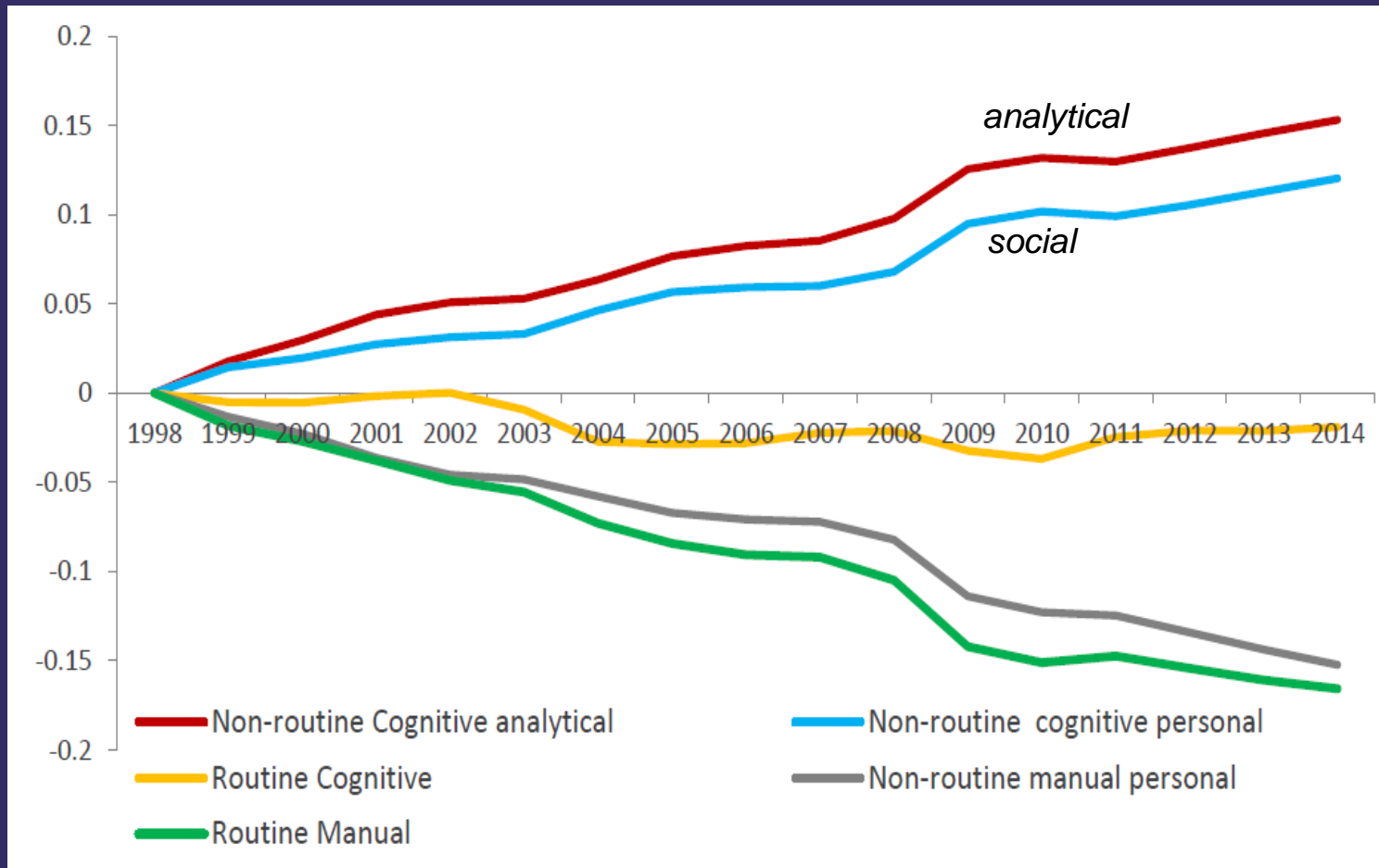


— Robots per 10.000 Workers    — Unemployment Rate

# Structural labour market change

Robots (trends)  
Decoupling (wages decouple from productivity) :  
stagnant wages

Changing task content of jobs, EU 1998-2014



non-routine cognitive / abstract

routine cognitive

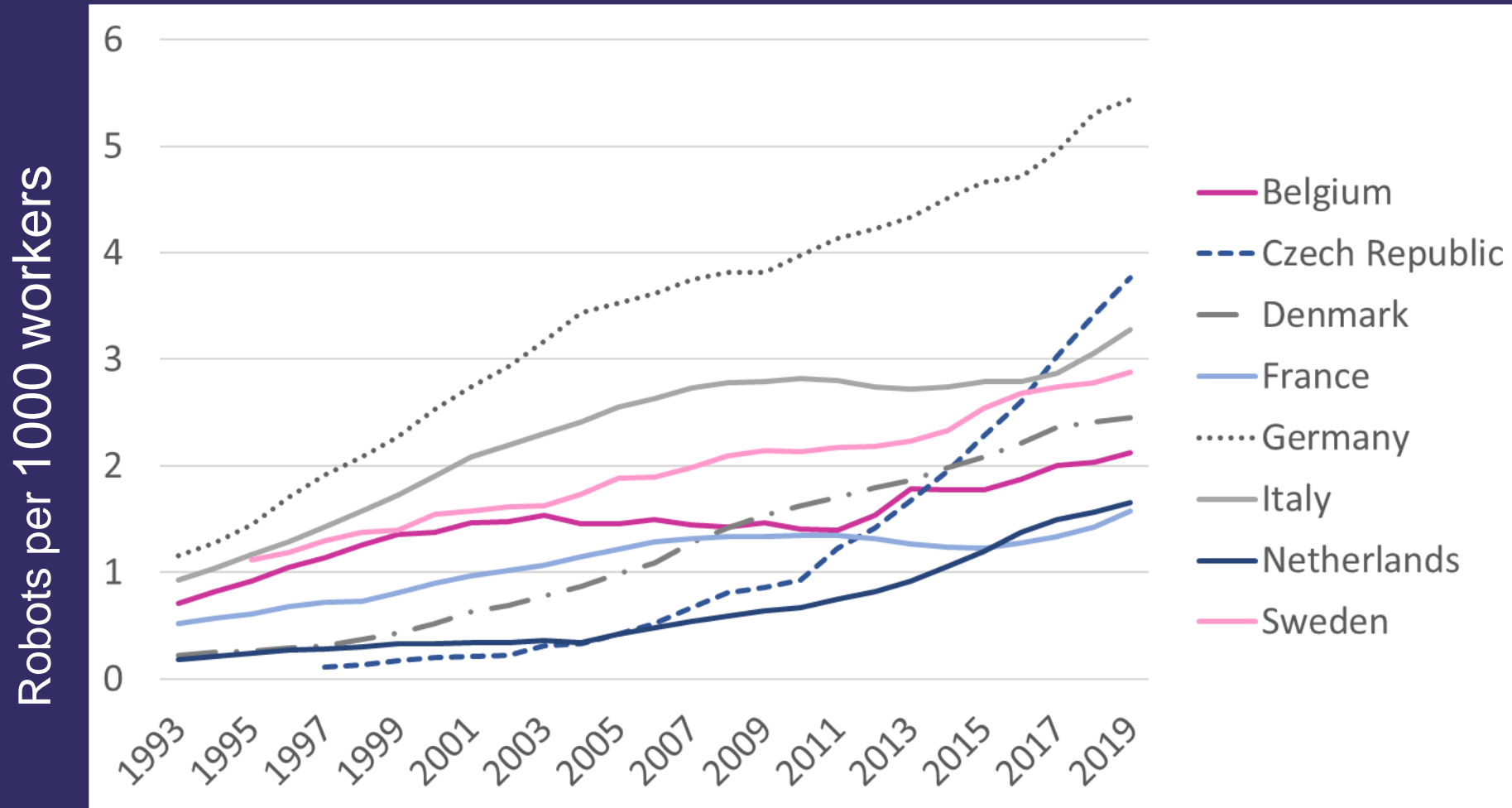
non-routine manual

routine manual

Source: Górká et al. (2017)

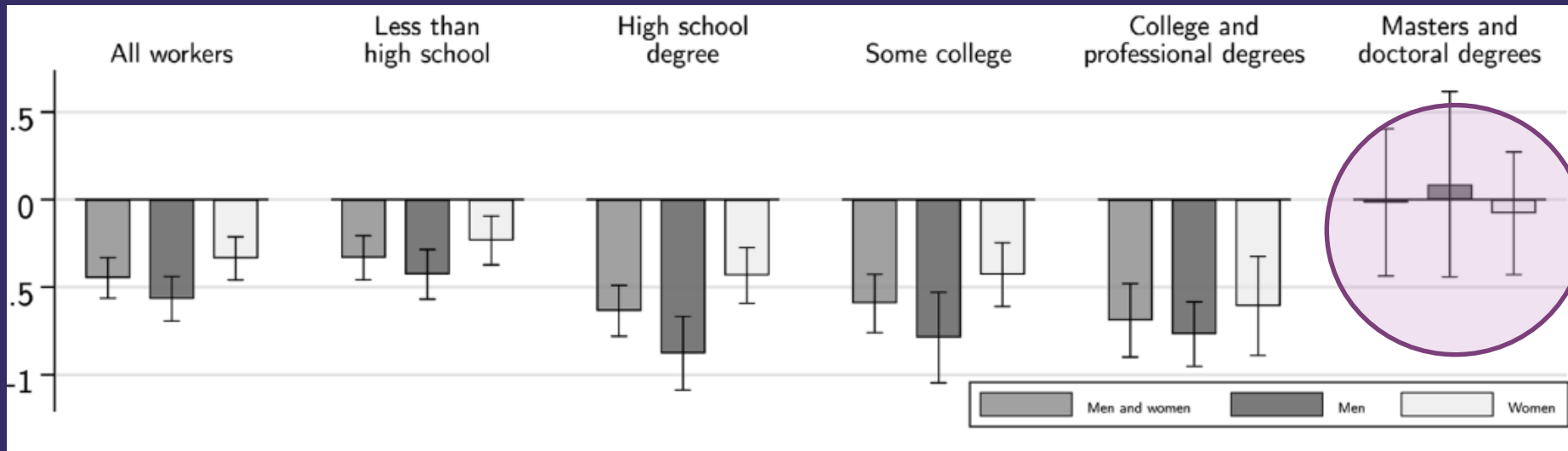


# Automation



# Employment effects of robots

- **US:** 1 robot / 1000 workers reduces the employment rate by 0.2 pp. and wages by about 0.42% (Acemoglu and Restrepo 2020)

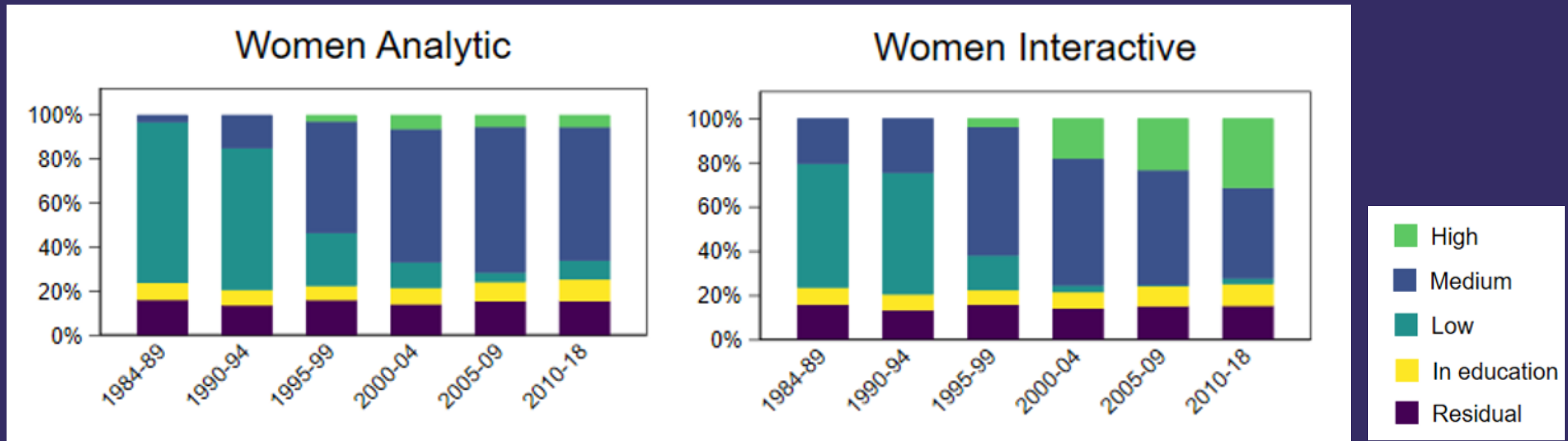


Source: Acemoglu and Restrepo 2020

- **Europe:** null overall effect, but negative effects on employment of low and middle educated workers (Graetz and Michaels 2018)

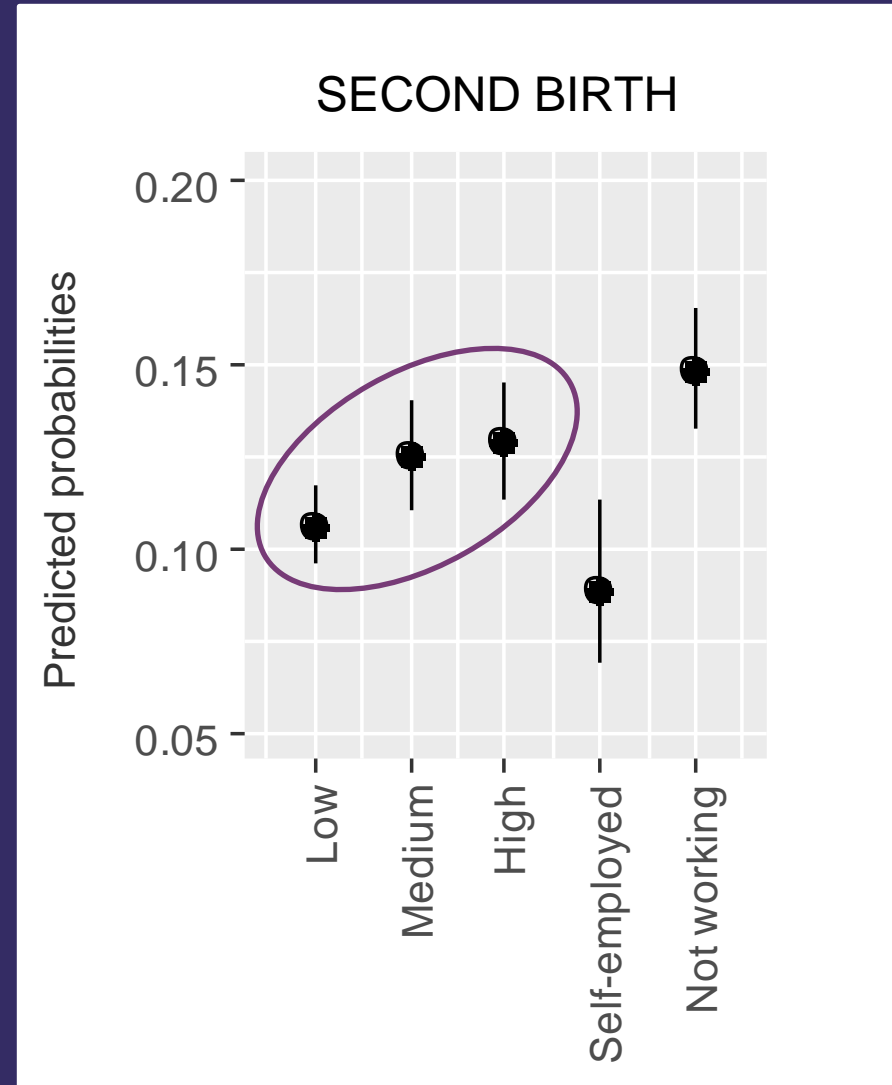
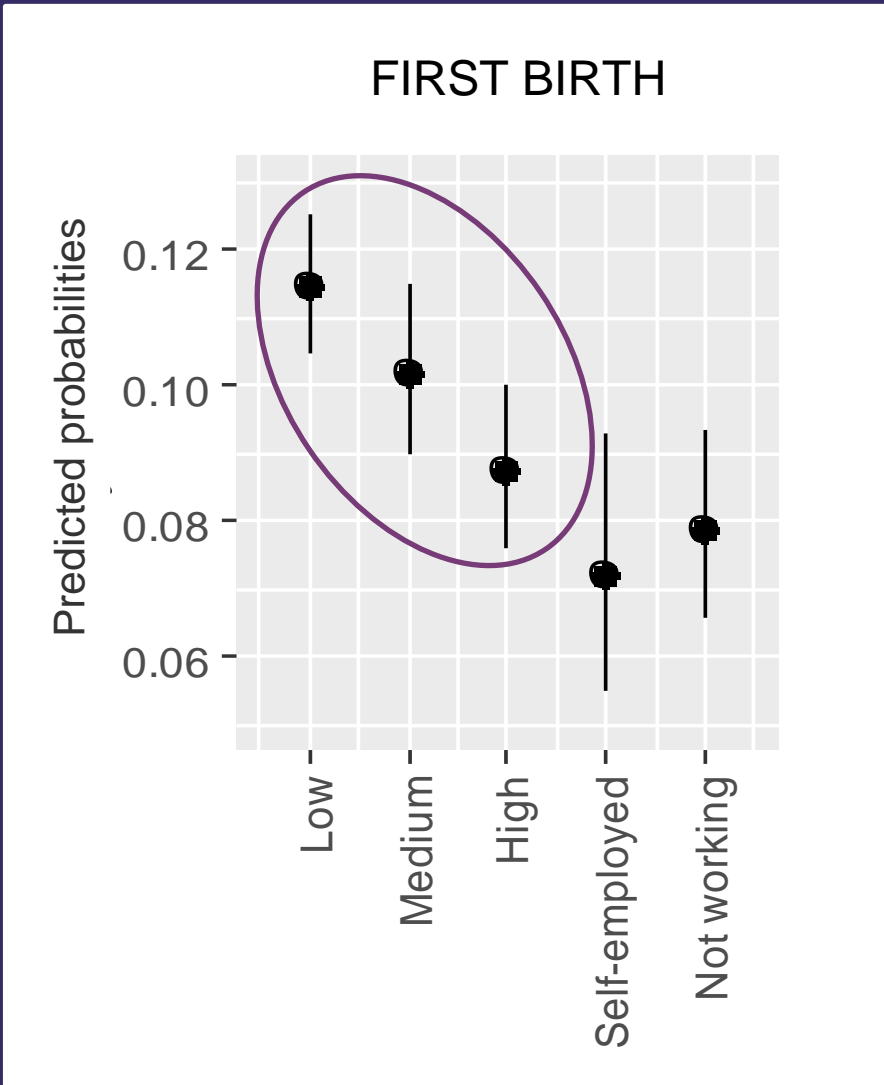


## Cognitive work in Germany, 1984-2018



Source: Bogusz, Matysiak, Kreyenfeld, forthcoming

# WHEN?



# WHEN?

