

Gendered wage effects of changes in job tasks

Evidence from Germany

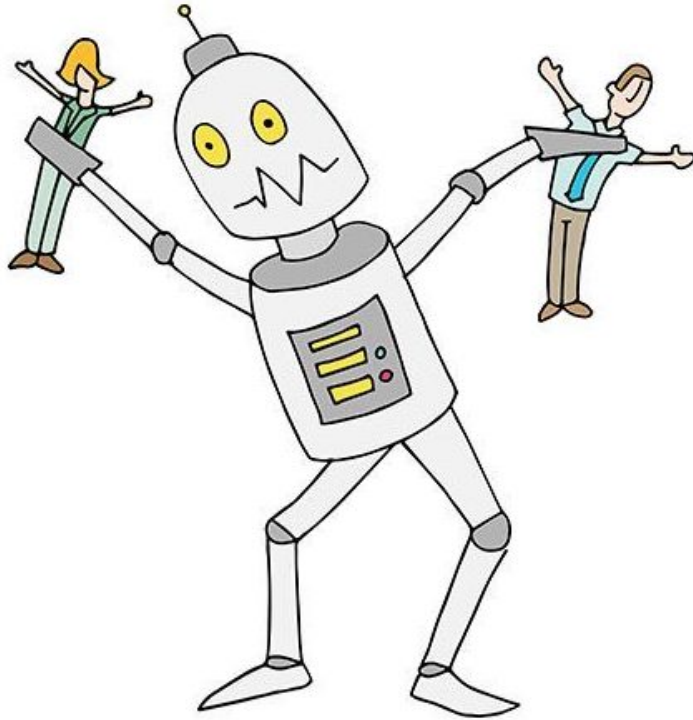
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New Work – New Problems? Gender Perspectives on the Transformation of Work

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Motivation

What we already know



- Routine tasks are replaced by machines and non-routine tasks complement machines, polarizing employment and wages ([Autor, Levy, and Murnane 2003](#)). Job tasks of men and women have become more similar throughout digitalization ([Black and Spitz-Oener 2010](#); [Yamaguchi 2018](#)).
- Gender wage gap has narrowed over time ([Campbell and Pearlman 2013](#); [Weinberger and Kuhn 2010](#)). Within occupations, a gender wage gap still exists to the disadvantage of females ([Cobb-Clark and Tan 2011](#); [Goldin 2014](#)).

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Motivation

Shortcomings

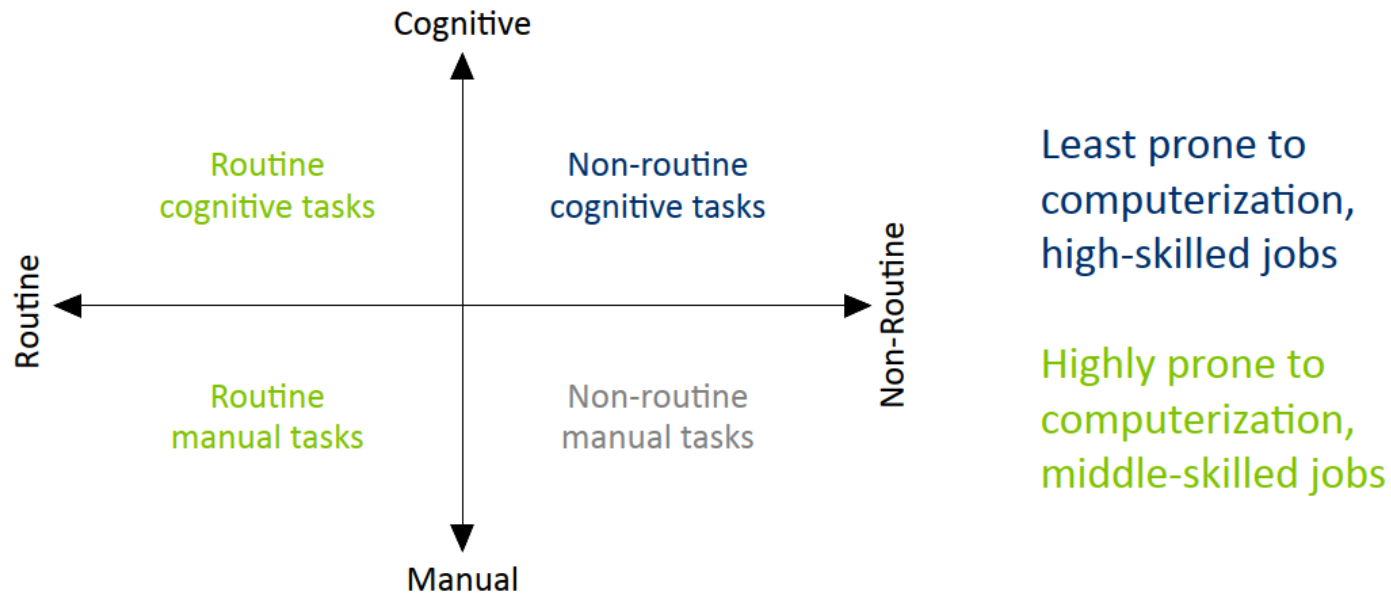
- Only (repeated) cross-sectional studies. Lacking evidence based on longitudinal data.
- Lacking evidence on whether men and women equally profit (or suffer) from changes in job tasks.

Research Questions

1. Does engaging in non-routine tasks lead to higher wages?
2. Do women and men profit equally?

Theory

Routine biased technological change



Autor et al. 2003.

Routine workers' wages decrease due to reduced demand, while non-routine (cognitive) workers experience wage growth.

Theory

Gender wage gap

- Gender differences in monetary rewards for job tasks may be one reason for the persisting gender wage gap within occupations.
- Different mechanisms can be assumed:
 - (anticipated) pay discrimination
 - non-cognitive skills (e.g., negotiation behavior, agreeableness)
 - motives and decisions regarding work
 - acceptance of lower wages for non-monetary benefits (e.g., flexible work)
- **The monetary returns of taking on more non-routine tasks are higher among males than females.**

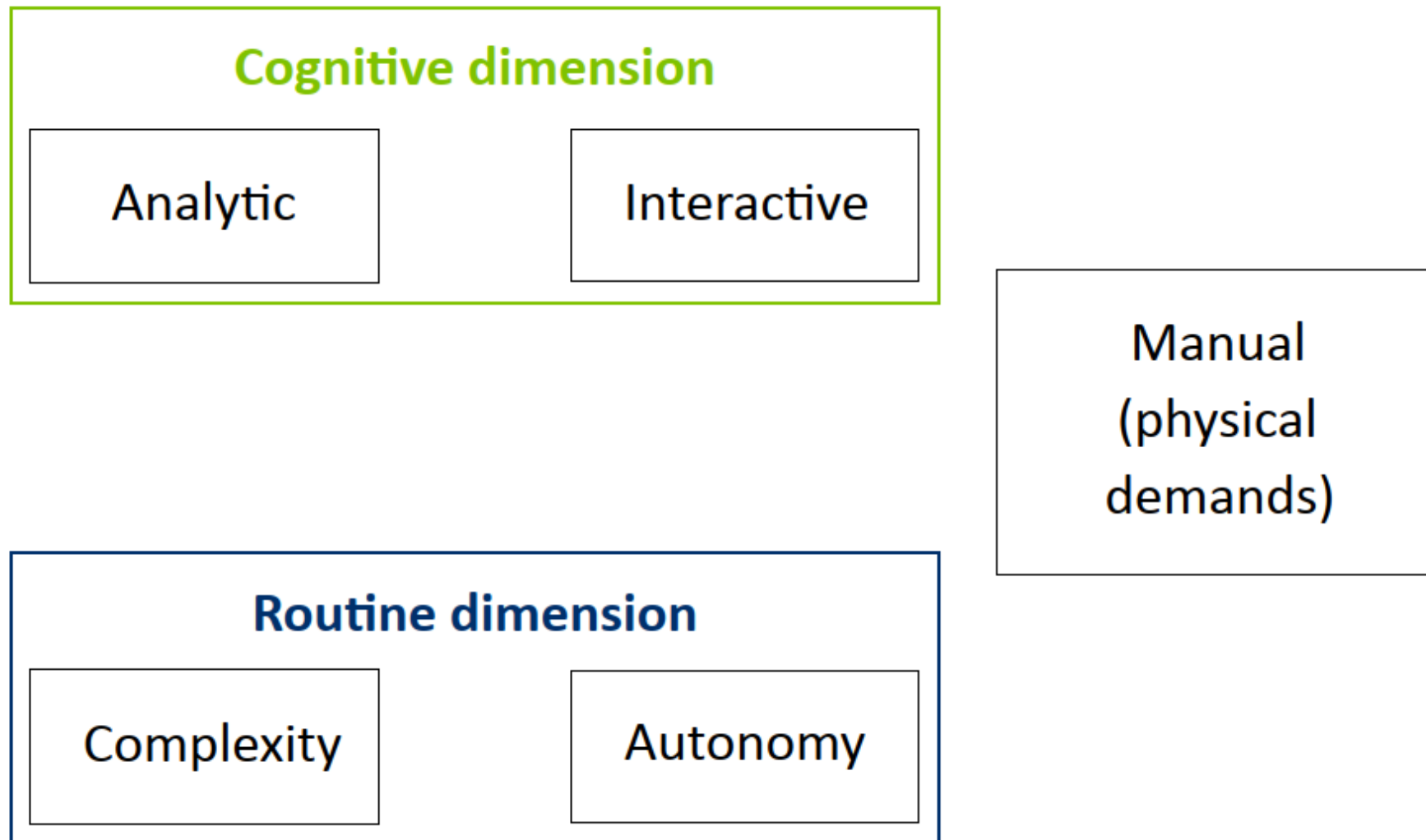
Hypotheses

	Males	Females
Increasing non-routine tasks	Wage premium	Wage premium, but lower than males
Additional job change	Reinforced wage premium	No interaction

Data and variables

- **Data:** representative 3-wave panel data from the German National Educational Panel Study (NEPS; SC 6), ~ 9 years
- **Sample:** dependently employed within the same occupational segment in at least two consecutive waves, aged 25-55, N=3,247
- **Dependent variable:** log-transformed gross monthly wages (top 1% of the distribution, and income below €450 truncated)
- **Independent variable:** (non-)routine job tasks (std.)

Job tasks in the NEPS data



Matthes et al. 2014.

Job tasks in the NEPS data

Operationalization of (non-)routine job tasks

(Matthes et al. 2014)

Autonomy

- 1) Scheduling work activities
- 2) Choosing new task assignments
- 3) Choosing pace of work
- 4) Decision involvement

- *Cronbachs alpha .64*

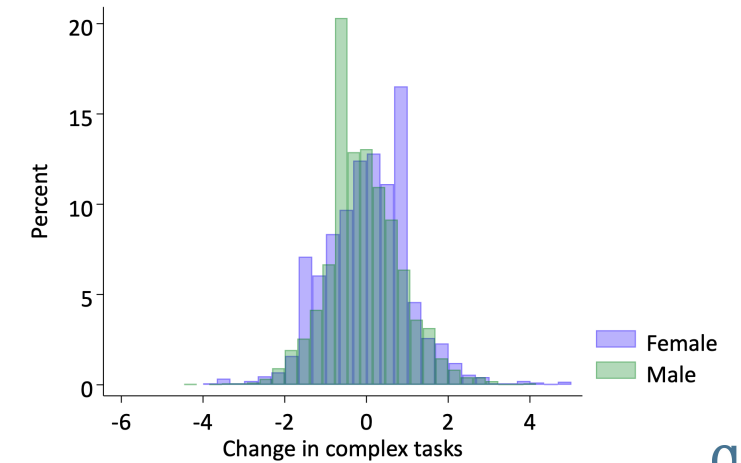
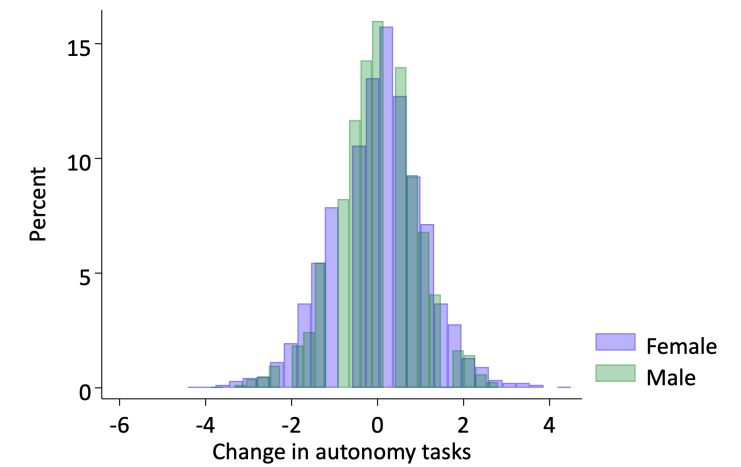
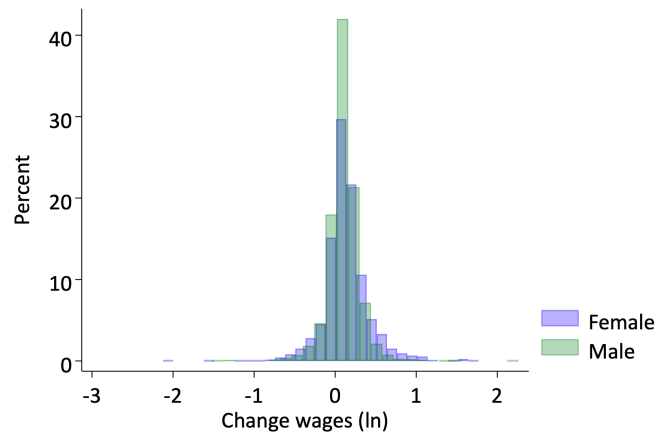
Complexity

- 1) Solving difficult problems
- 2) Learning new things
- 3) Getting acquainted with tasks
- 4) Dealing with unanticipated situations
- 5) Changing work assignments
- 6) Performing new tasks

- *Cronbachs alpha .80*

Descriptives

Distribution of relevant variables

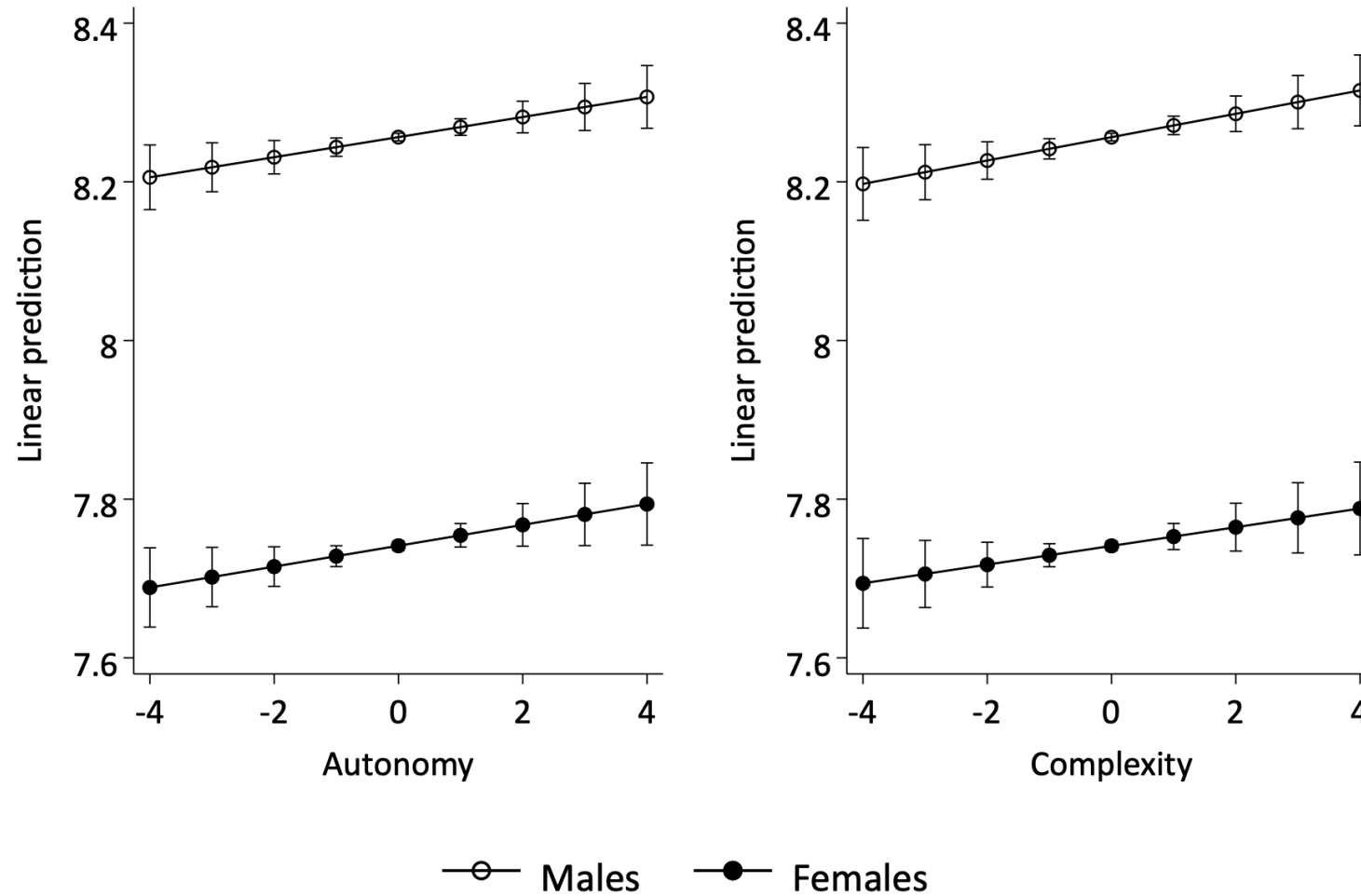


Method

- **Fixed-effects panel regression** of wages on (non-)routine job tasks with the advantage of eliminating potential bias due to time-constant confounders
- Separate models for **females and males**
- Interaction with **job change**
- **Control variables** are age, age², weekly working hours, children under six in the household, cognitive and manual job tasks

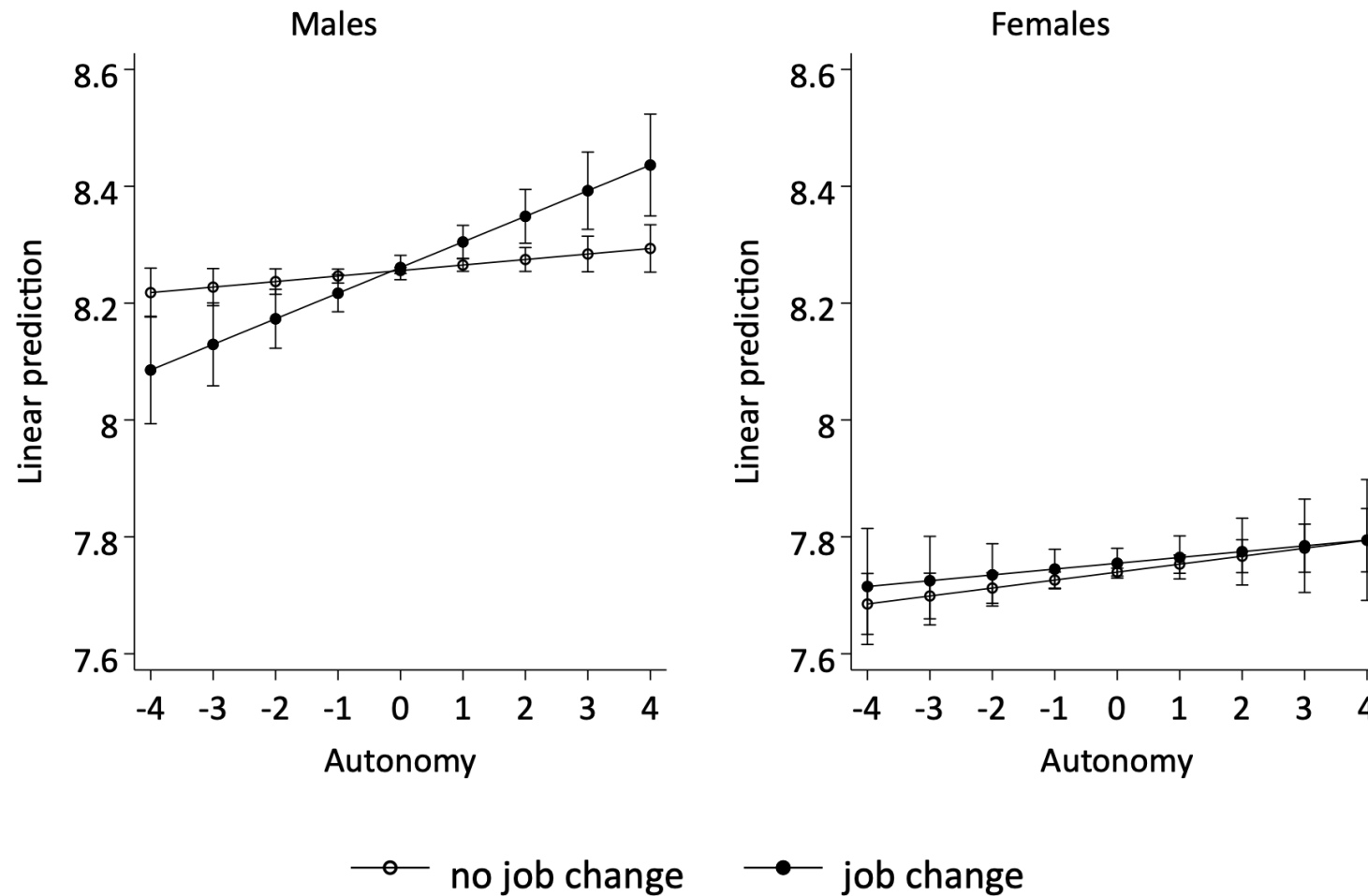
Results: Job tasks and wages

Wages regressed on non-routine tasks



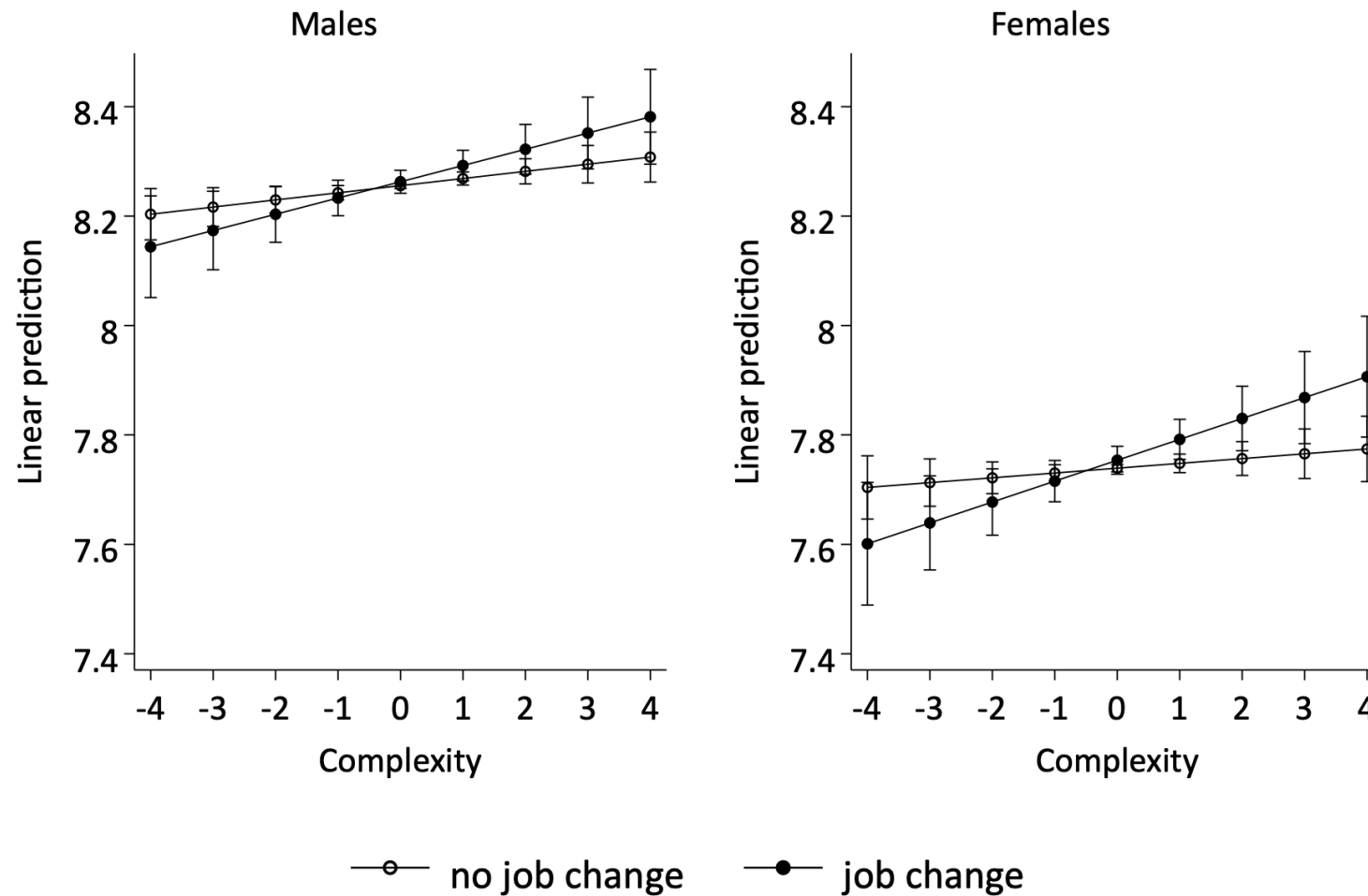
Results: Interaction autonomy

Differences in returns to autonomous tasks by job change



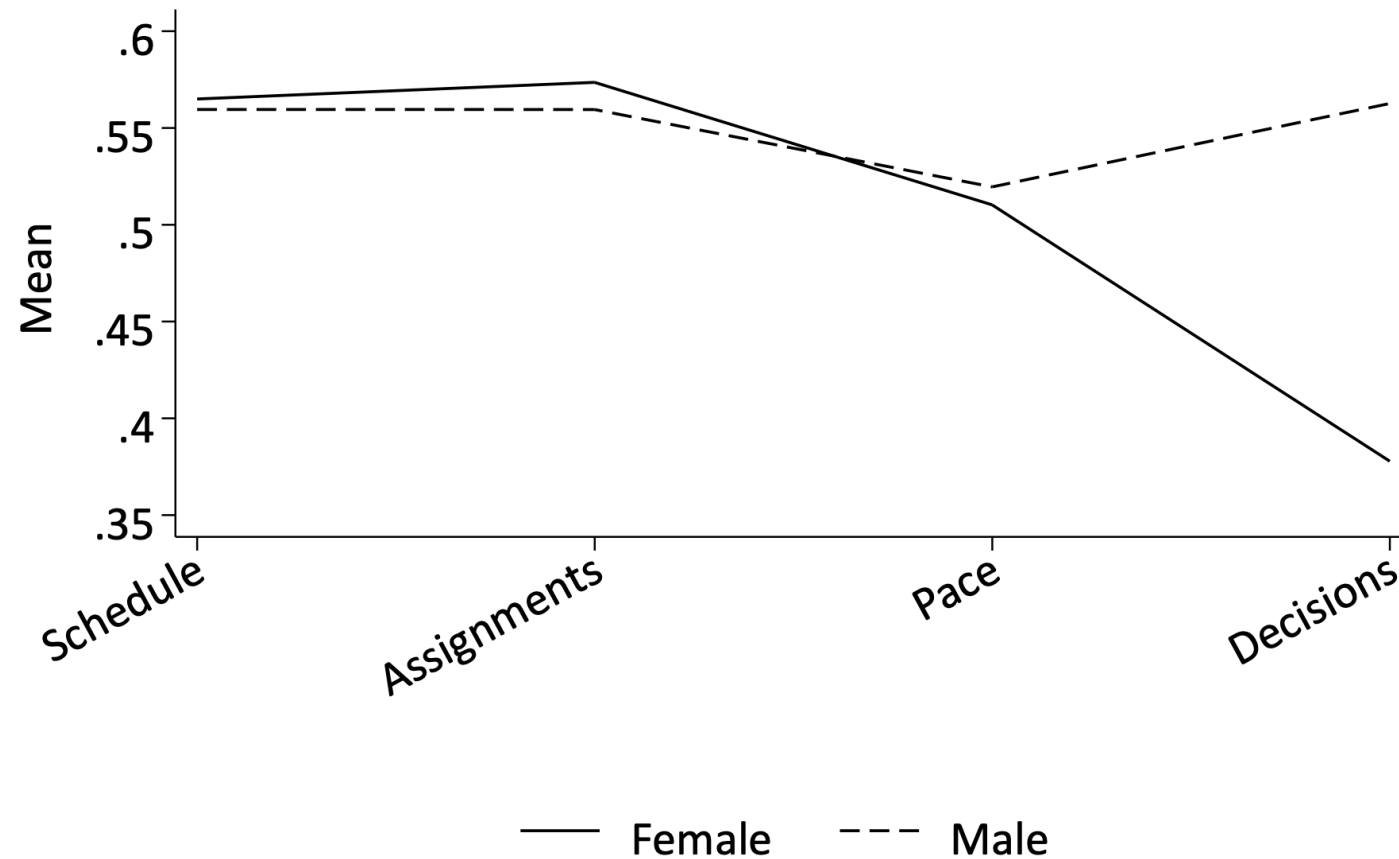
Results: Interaction complexity

Differences in returns to autonomous tasks by job change



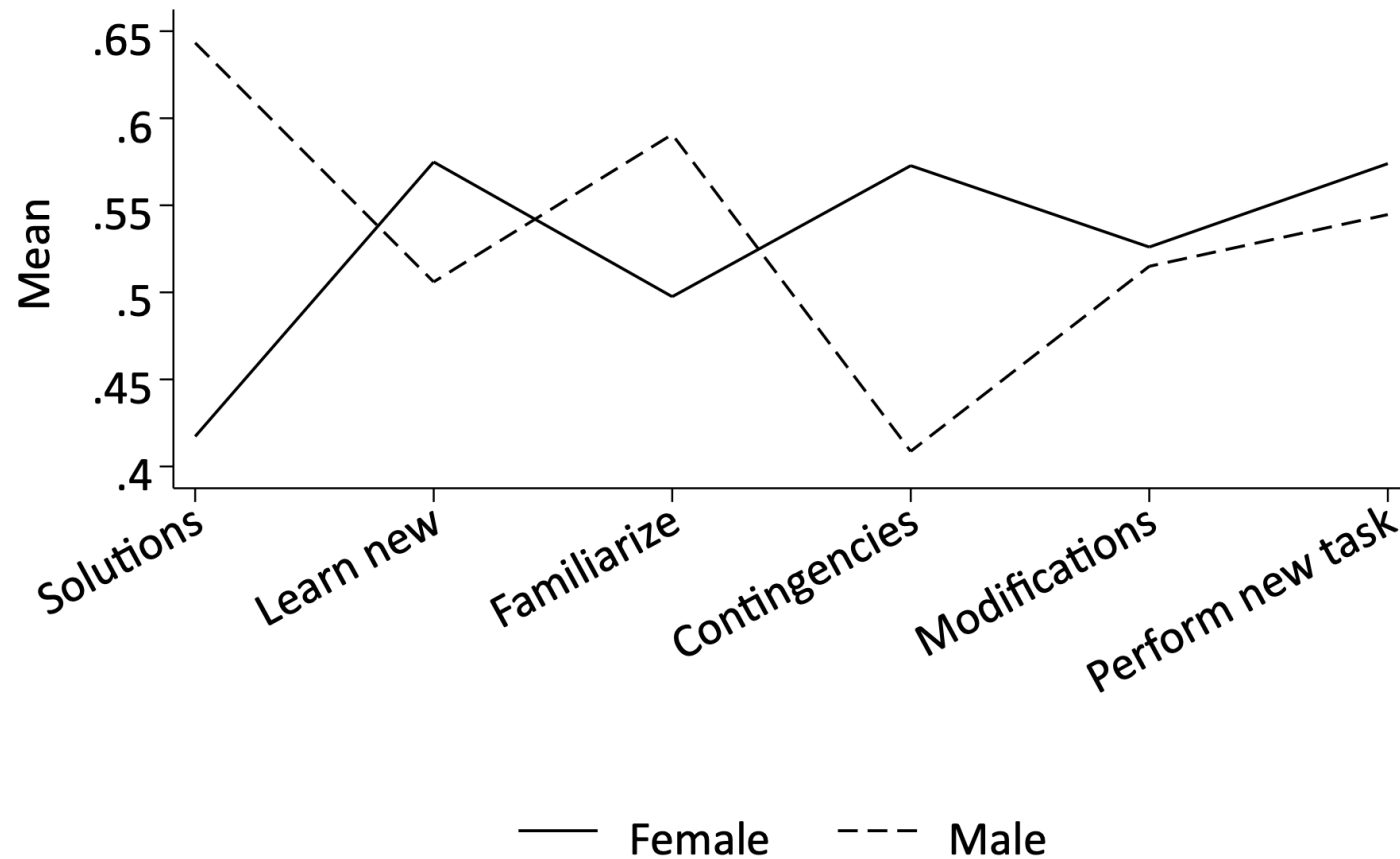
Additional results: autonomy

Role of facets of autonomous tasks by gender



Additional results: complexity

Role of facets of complex tasks by gender



Summary

- **Returns to non-routine tasks:** Both genders benefit from taking on non-routine tasks, but males do so more.
- **Job change gets it done:** The link between non-routine tasks and wage growth is most evident in individuals who change jobs.
- **Gender segregation in returns:** Both genders benefit from increasing task complexity in job changes, with males showing high returns from autonomous tasks (up to 35%)
- **Gendered task facets:** Autonomous and complex tasks are not consistent for both genders, possibly explaining results.

Conclusion

- **Closing gender gap:** Women who change jobs and take on more complex tasks slowly converge on the wages of men who do the same. The wage gap is still serious.
- **Widening gender gap:** Only job-changing men benefit from increased autonomy, possibly due to subtle forms of horizontal gender segregation in non-routine task adoption (leading man).

I look forward to your feedback.

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