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Share of women and the gender productivity gap in economic research

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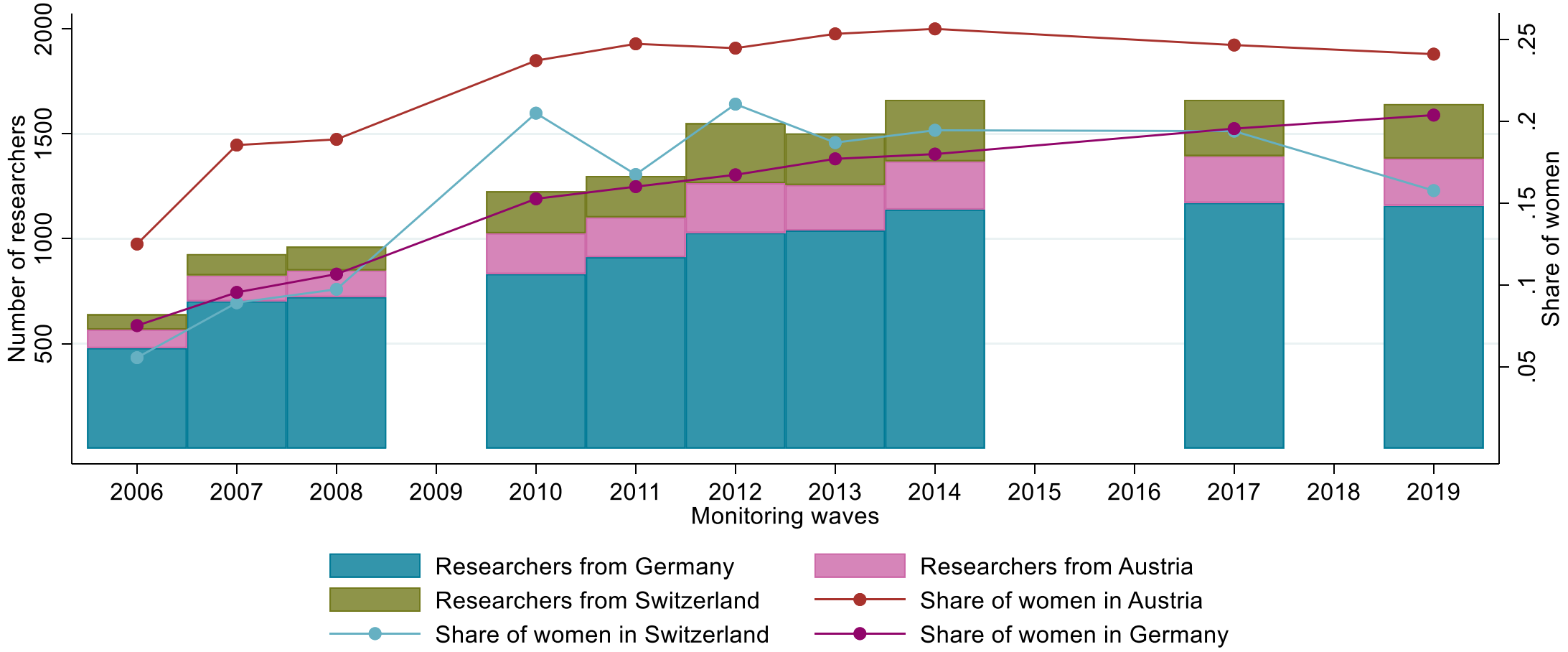
Research questions and data used

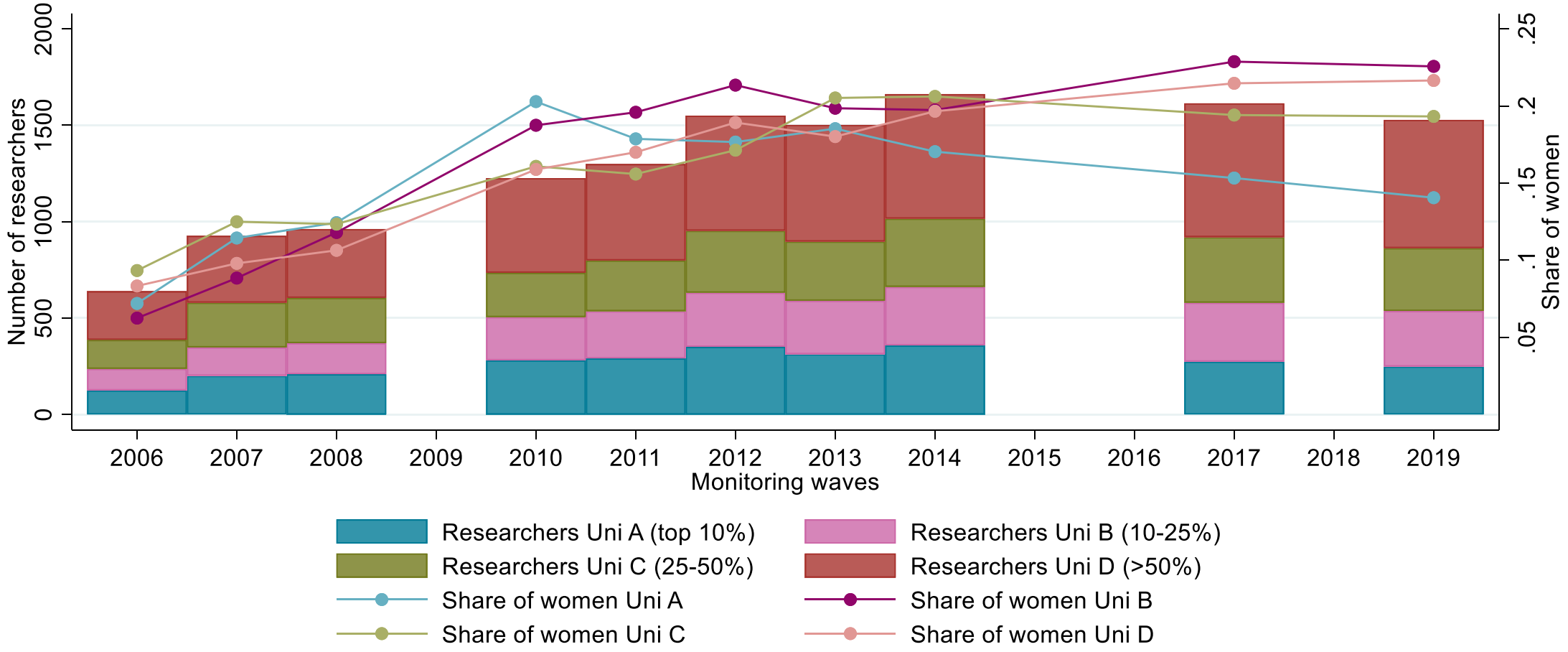
- Within the field of economics, covering the German-speaking research area, we
  - document the development of the share of women over time, countries and university classes
  - measure the gender-specific productivity gap in economic research
- Our data is taken from the *Forschungmonitoring* Database hosted at KOF, ETH Zurich
  - It is based on 10 waves of data collection and surveys starting 2006 and ending 2019
- Our population consists of 71 economics departments in Germany, Austria and Switzerland, with a total of 3,212 researchers, and 73,770 unique publications in EconLit journals
  - Full sample: Researchers with PhD and at most 25 years since and publications from 1970 onward
  - Small sample: Publications & year of PhD from 2005 onward
- The study is essentially of a descriptive nature
  - We give no causal explanations for the gender differences found
  - Our descriptive statistics are intended to encourage a more research in this area

Share of women across data waves in Austria, Germany and Switzerland



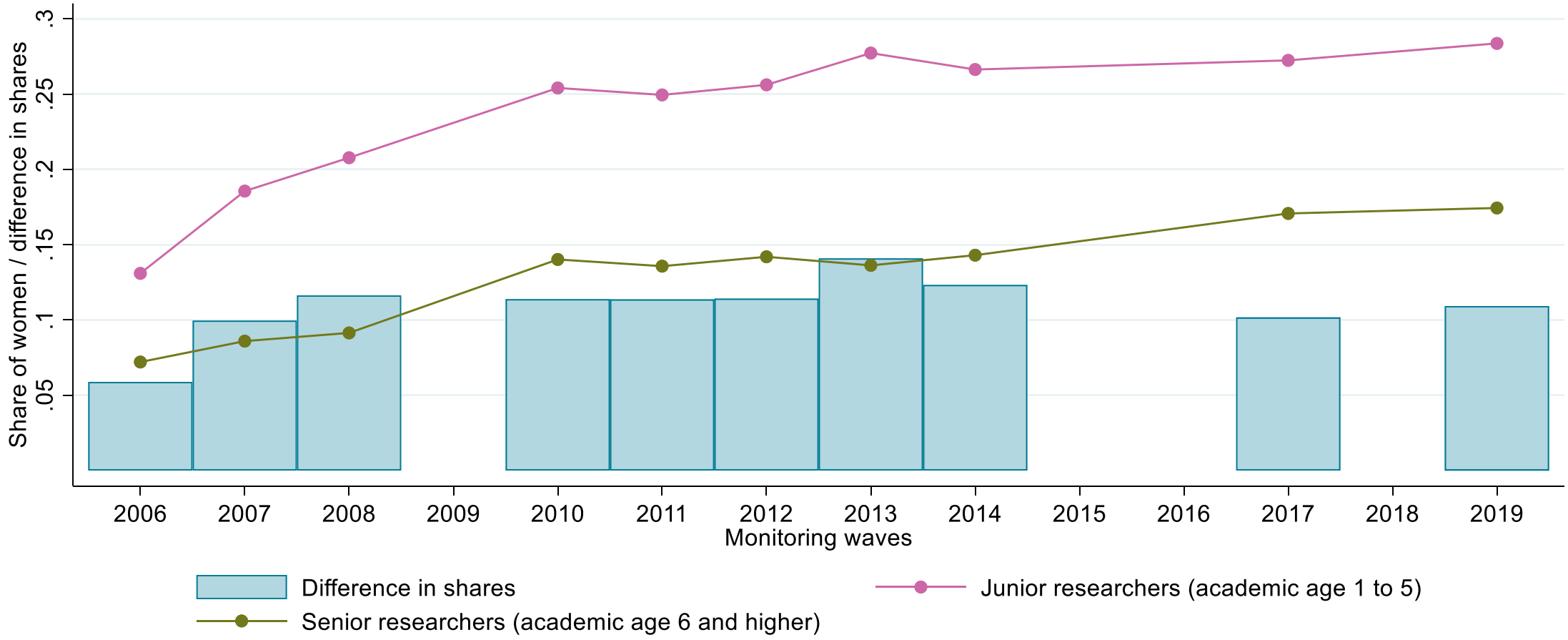
Source: Forschungsmonitoring

Share of women across different university classes



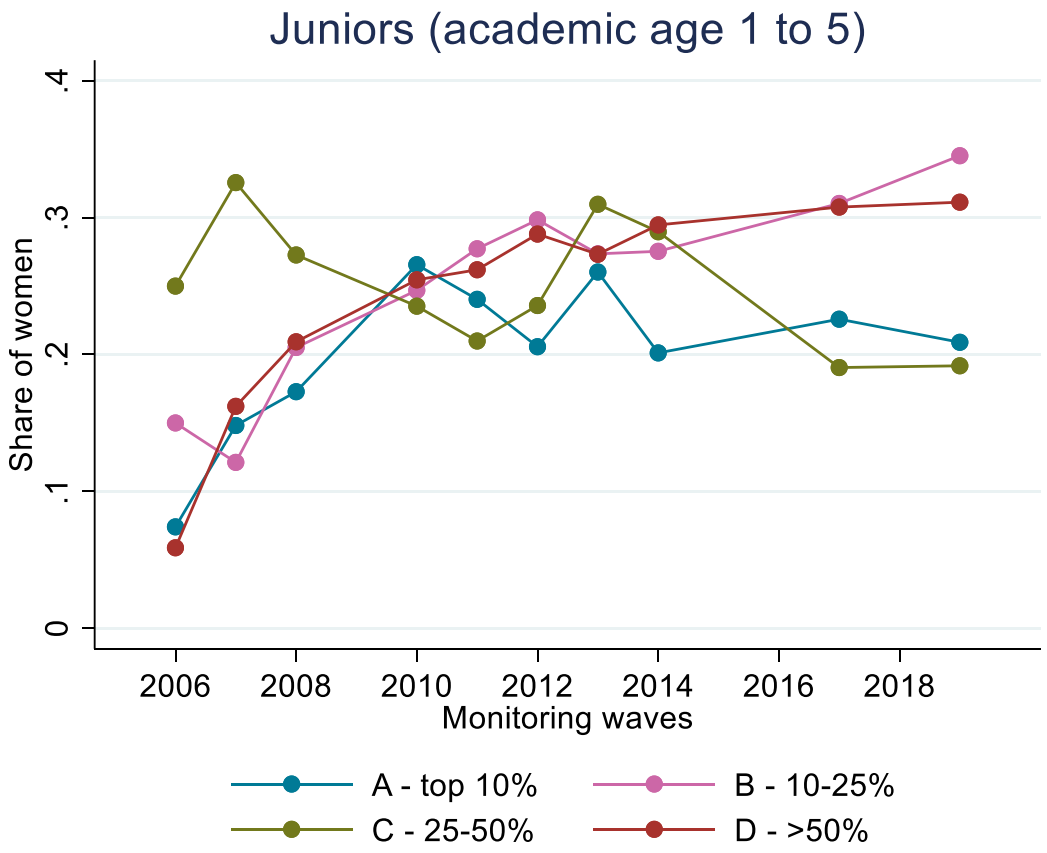
Source: Forschungsmonitoring

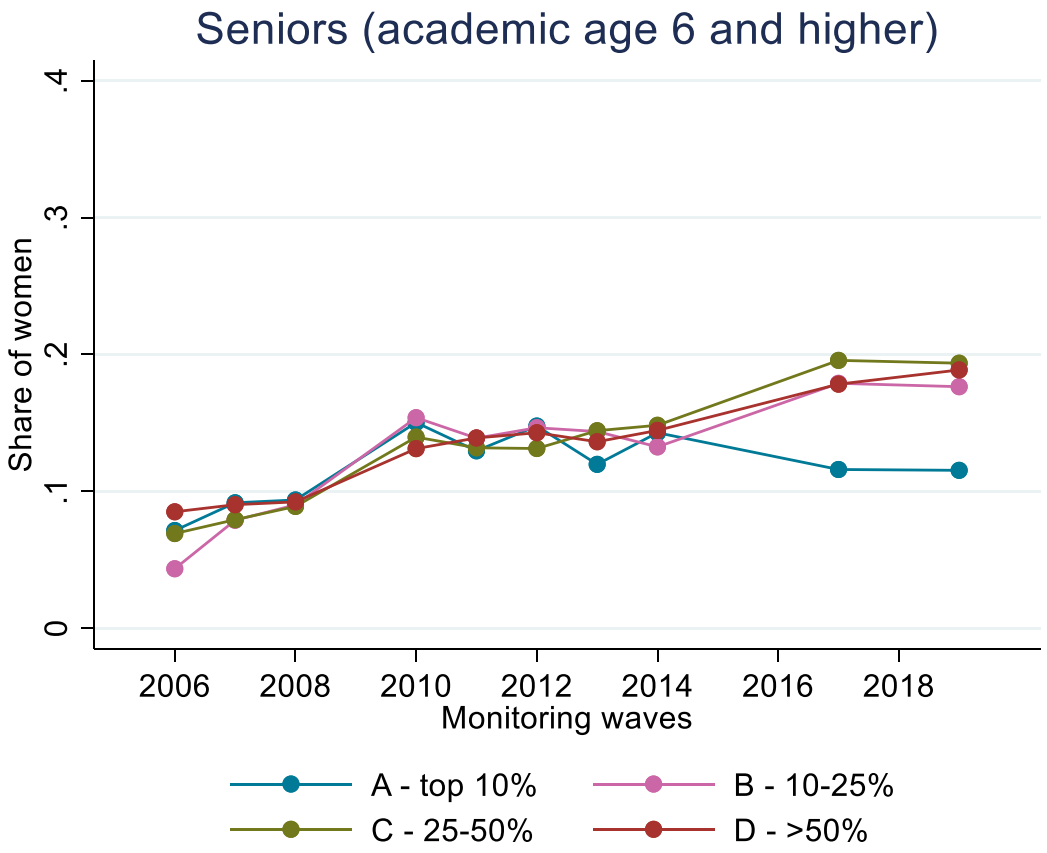
The leaking pipeline across data waves – Share of women



Source: Forschungsmonitoring

Share of women across different university classes





Source: Forschungsmonitoring

Taking an output perspective

- The total research performance of individual researchers is based on journal articles
- Articles are weighted with the quality of the publishing journal and corrected for the number of authors:

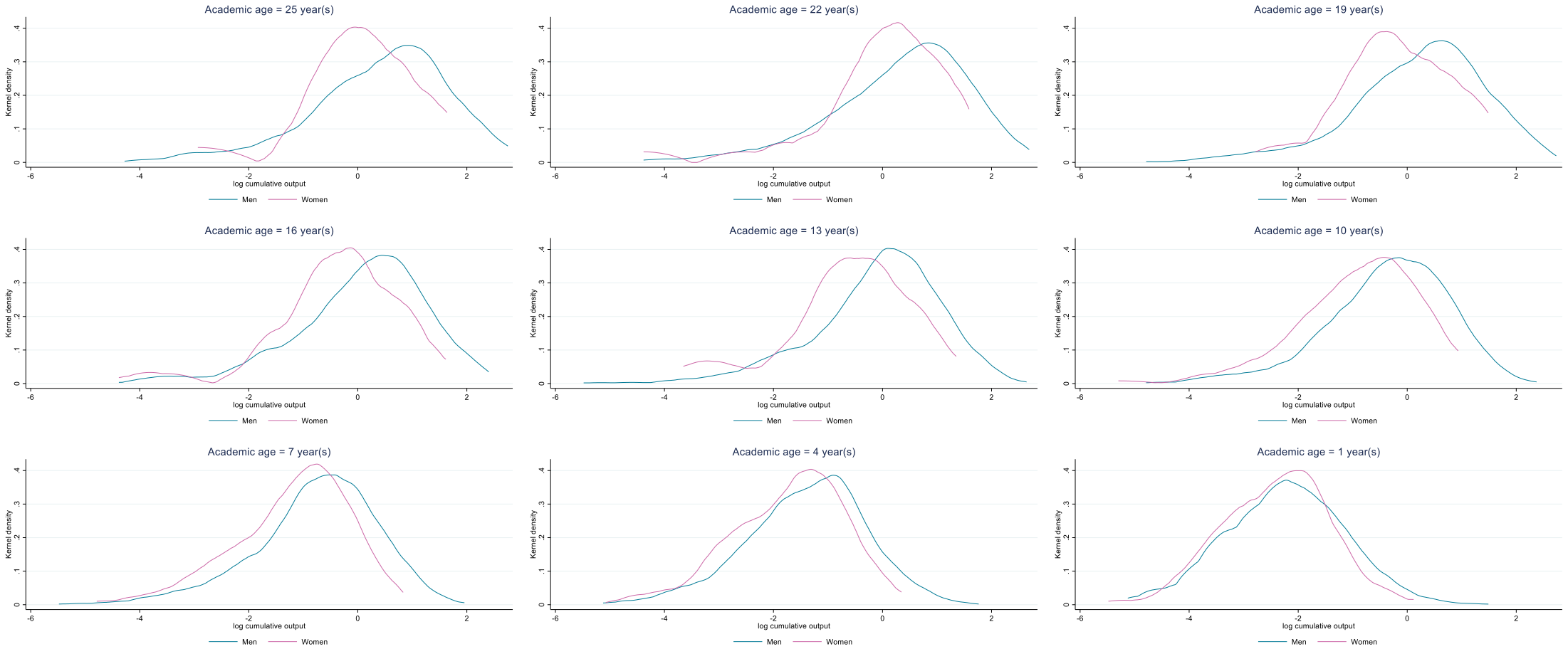
$$R_i(T) = \sum_{t=-\infty}^{T} \frac{w_{k(t)}}{n_k}$$

  - where $w_{k(t)}$ is a quality weighting of the journal in which article k was published in year t, based on the *SCImago Journal Rank*
  - The denominator n_k corresponds to the number of authors of article k
- We use the log of $R_i(T)$

Histogram of cumulative output by gender

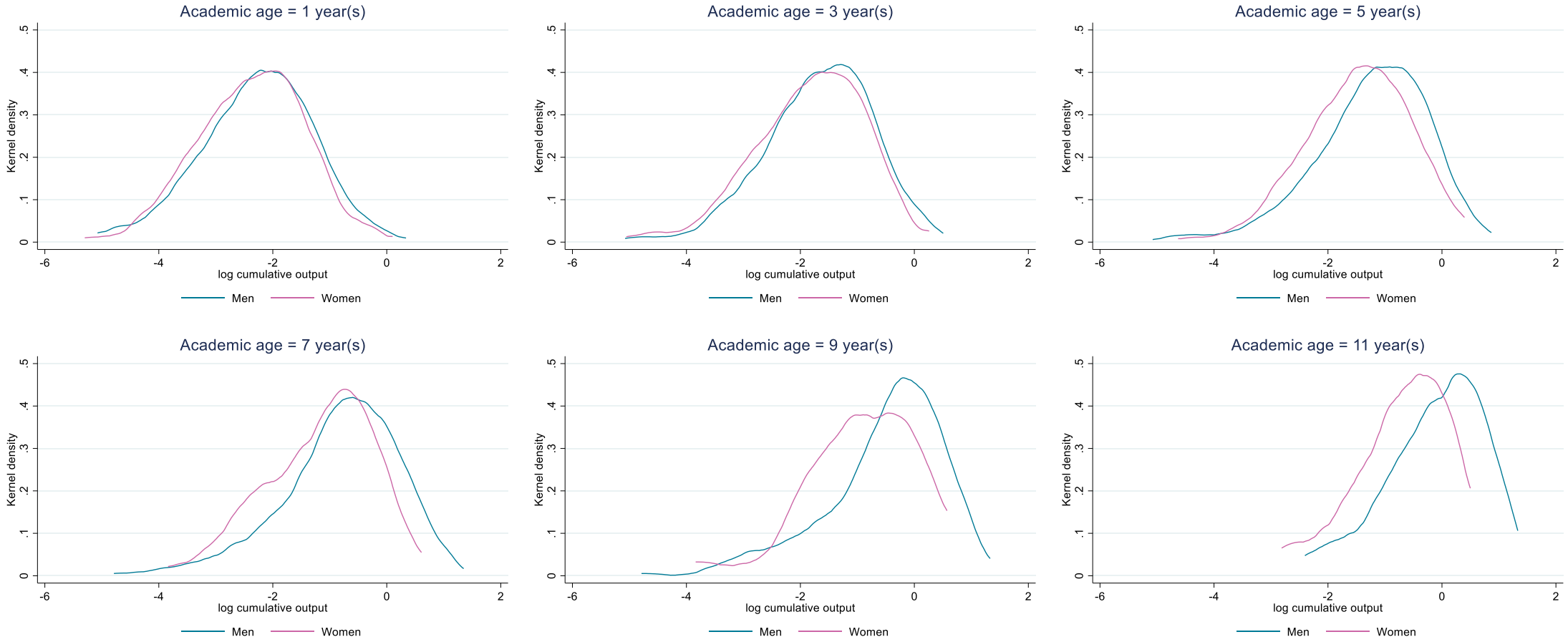
Source: Forschungsmonitoring

Kernel density plots for different academic ages by gender



Source: Forschungsmonitoring

Kernel density plots for different academic ages by gender – Small sample



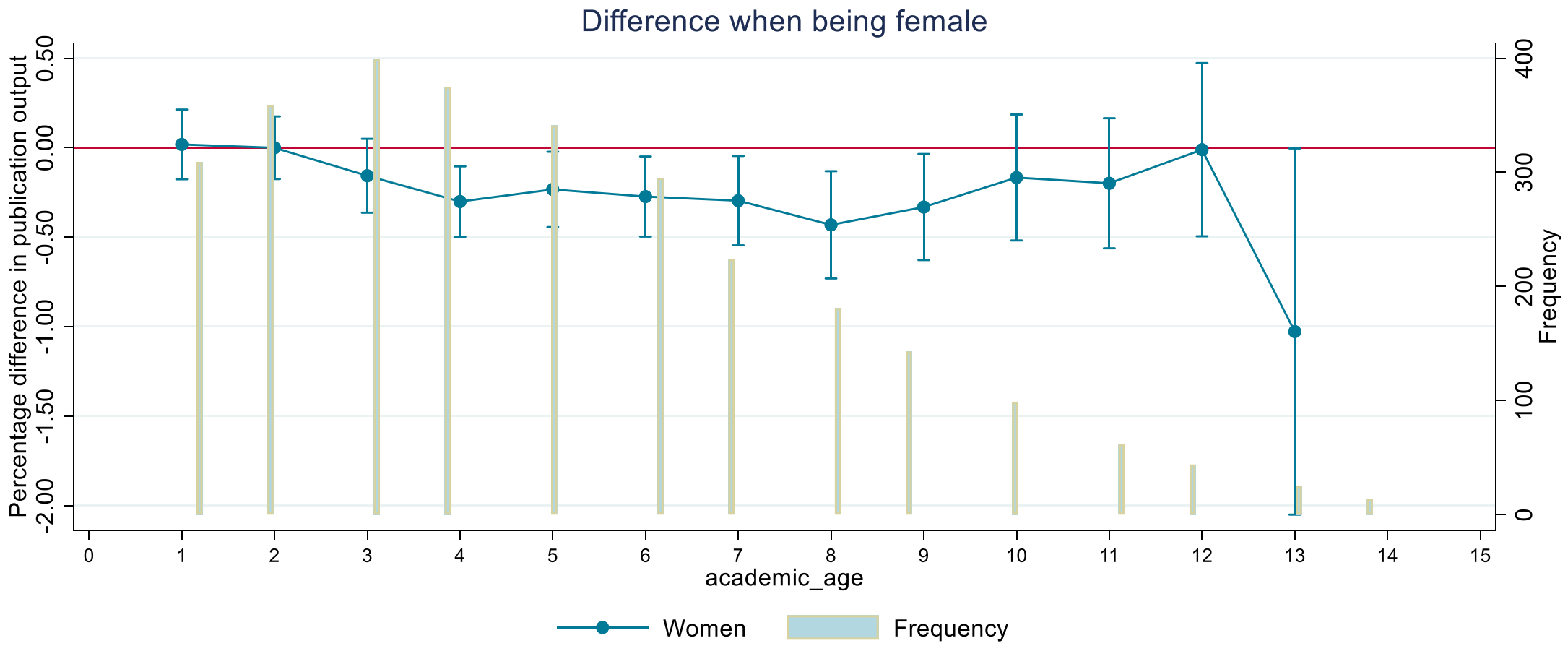
Source: Forschungsmonitoring

Putting this into a regression framework

- Explain cumulative research performance by
  - Academic age
  - University class
  - Country
  - Publication year
  - Gender
- Allow gender to interact which each of the other set of variables

- Full sample (while controlling for the above): women have on average a 40% lower score than men
- Small sample (while controlling for the above): women have on average a 20% lower score than men

Marginal effect by academic age – Small sample



Source: Forschungsmonitoring

Conclusions

- There is no difference in when men and women receive their PhD or publish their first paper
- About 20% of current economic researchers with a PhD are women
  - The female share of junior researchers is approaching 30%
  - The female share of senior researchers is still below 20%
  - The share of female researchers at top universities is around 15%
    - The share of ***senior*** female researchers is – with close to 10% - low at top universities
- With academic age the average output of women reduces relative to that of men
  - There is basically no difference in output for junior researchers
  - At an academic age of 8, it approaches an average difference of 50%

- What explains the observed lower productivity of women and the observed leaking pipeline?