

# Gender-based differences in German language publications

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## Introduction

Previous research showed that there are often significant differences between male and female scientists concerning publication output, self citations, and citation impact (e.g. Larivière et al., 2013; Maliniak, Powers, & Walter, 2013; West et al. 2013).

So far, not much is known about differences in the chosen language of a publication. A previous study showed that women are more likely to publish in Russian, but results were obtained without controlling for the discipline/field (Paul-Hus et al., 2015).

Aim → analyze the impact of gender on own-language publications, controlling for confounders such as discipline, authorship type, and career length.

## Data and Operationalisation

The dataset contains all publications with at least one author with a German address (N= 132,604 papers / 632,589 authors) and publication year 2013 that are available in the Web of Science database (doc.types: Article, Letter, and Review).

Gender identification:

R package “gender” → data from the US Social Security Administration with 1,000 most common first names by year and package “gender.c” → 40,000 most common first names world wide. 198,676 author first names only initials, 36,500 could not be matched. Final dataset contains 113,936 papers with 397,413 authors; 9.0 % papers are written by female-only, 40.8 % mixed and 50.2 % by all male-only authors.

Academic field

OECD fields of knowledge using the mapping provided by Thomson Reuters. Agricultural Sciences, Engineering and Technology, Medical and Health Sciences, Natural Sciences, Social Sciences (1,729 / 16,345 / 33,401 / 52,069 / 10,392), 4,358 paper belong to more than one discipline. Humanities are excluded.

Authorship type

Number of authors and countries per paper → Single author (7.7 %), national (41.7 %), and international cooperation (50.6 %) possible.

Academic career length

Roughly approximated by first publication available in WoS. Mean of career length of all authors was calculated. Biased: name changes after marriages more likely for women / author disambiguation still missing. Average career age of all authors per paper: 3.87 years. Regrouped into mean < 1 year, 1-5 years and >5 years.

## Results

Papers by female-only authors are 60 % more likely to be written in German than those of all male teams (7.9 to 4.8 percent).

Female-only authors have higher share of German language publications than male-only authors in AS, MHS, and SoSc. Other way round in E & T and NS. Differences for female- and male-only authors significant ( $p < 0.001$ ) for MHS and SoSc.

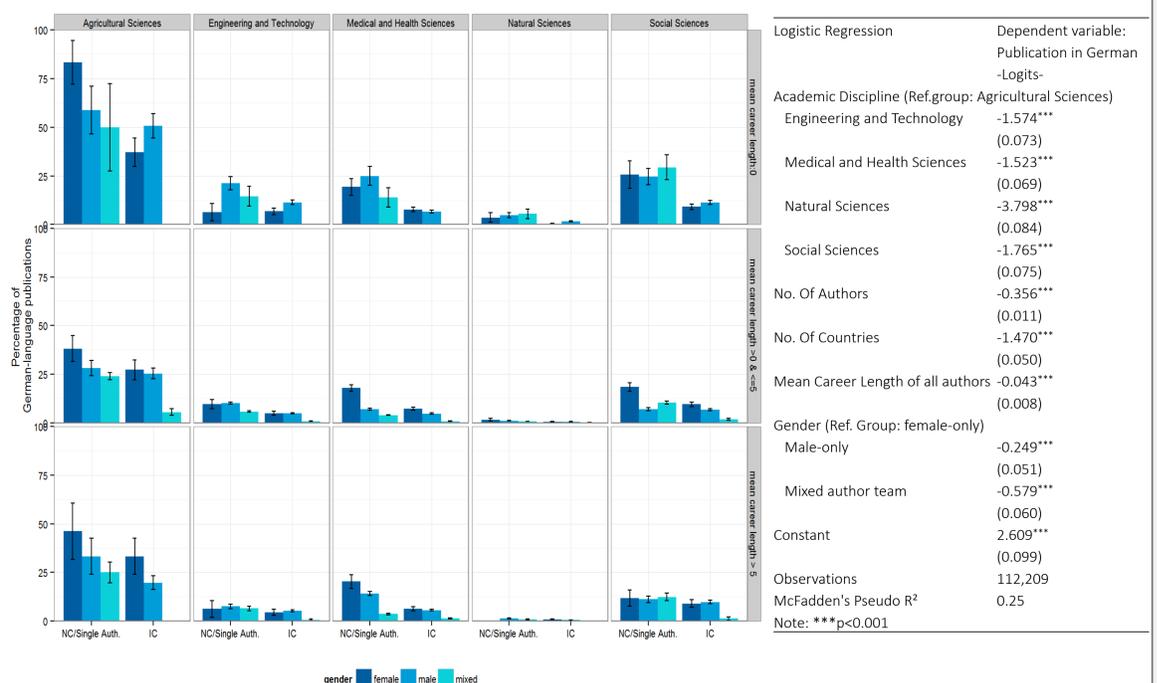
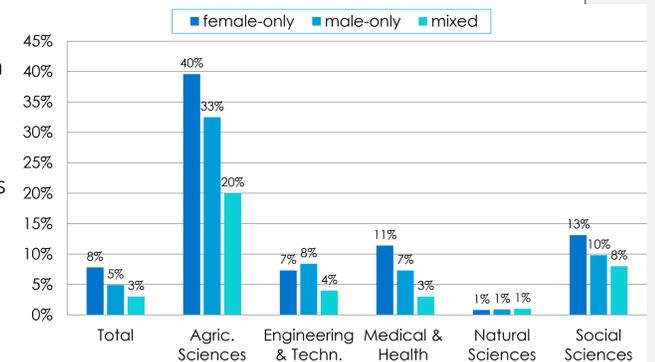
→ Significant differences only for two disciplines

Share for German publications differ significantly by gender for single authors and national collaborating author teams (26 vs. 21 % and 14 vs. 6.4 %,  $p < 0.001$ ). However, no significant difference was found for internationally co-written publications.

→ Significant differences only for national collaborations and single authors

No difference in German publication rates was found for author (teams) with less than one year of average career length. Female-only author teams and single authors have a 1.5 to 3 percentage points higher share of German language publications than male-only teams ( $p < 0.01$ ).

→ Significant differences only for papers with a mean career length of all authors > 1 year



All three confounders matter and have significant effects on the probability of publishing in German. However, the effect of the gender set-up of a publication team persists, even when other variables are controlled for.

## Discussion

Gender-based differences still persist when other factors are controlled for. However, the effect of gender decreases when other predictors are considered, not including them would draw a wrong picture of the linkages. Career length is an important factor, so it is probably better to use a rather rough approximation, than not include it at all. The persisting gender difference could be linked back to differences in motivational structures and “academic self-esteem”; one could suppose that men are more likely to try to publish in higher ranking journals and tend to build more international networks – however, for a more thorough exploration, further analyses with survey data are need.

## References

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