

The interplay between scholarly migration, gender, career stages, and citations: Evidence on German-affiliated researchers from 8 million Scopus publications

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Germany has become one of the major countries for immigration, as well as a research powerhouse. Using an exhaustive set of over 8 million Scopus publications, this paper studies the international migration of published researchers to and from Germany over the past 24 years. The detailed metadata covering approximately 1.4 million researchers who have published with a German affiliation address at some point during 1996-2020, allows us to incorporate characteristics of researchers including gender, country of first publication, citation-based performance, and years of academic experience into the study of scholarly migration. We determine migration events based on changes in affiliation addresses over different years which alter the mode country of affiliation. After the pre-process of the raw data with the help of a neural network for predicting missing countries and an author name disambiguation algorithm, we observe that 13.91% of these researchers are internationally mobile. This small minority group has made a disproportionately large contribution to the German science system in terms of publications produced and citations received. More specifically, we observe that internationally mobile researchers outperform stationary researchers in annual citation rates for most fields. Through inferring gender from first names of over 1 million published researchers, we quantify the level of gender imbalance in all disciplines which indicate the physical sciences as the field with the largest disparities. Notably, the gender imbalance is less pronounced among migrant researchers. We also document the differences between the age and gender composition of migrant researchers and stationary researchers. Our substantive results reveal new aspects of international mobility in academia and its impact on a national science system which speak directly to policy development. Methodologically, our computational approach of processing and analyzing large-scale bibliometric data can be adopted as a framework of analysis for studying scholarly migration in other countries.