Gendered trajectories in (early-career) international research mobility: mobility prospects and career impact

Keywords: Research Mobility, Gender Gap, Bibliometric Data, Research Careers, Stratification in Science

Extended Abstract

International mobility has become a rite of passage in science[1]. Early-career researchers are increasingly expected to be on the move and evaluators in hiring and funding committees see international experience as a signal of ambition and excellence[2,3]. Transnational research mobility can also boost career opportunities by providing access to critical research infrastructure[4] and by widening international collaboration networks[5,6]. Academics who move abroad tend to experience an increases in publication rates, citation impact and papers published in high-impact journals[7–10]. However, research suggests that the current 'mobility imperative'[1], may actually exacerbate existing inequalities in career outcomes.

Qualitative studies suggest that family and personal relationships make it more difficult for women than for men to pursue career-advancing opportunities abroad [2–4]. Mobility-related policies and funding schemes are rarely tailored to support the needs of individuals in dual-career couples and primary caregivers– two group characteristics more typical for women than men scientists[5]. Moreover, women's opportunities for international mobility may be further constrained by a lack of institutional support with respect to funding and flexible moving arrangements[3].

The issue of gender remains underexposed in international mobility statistics[4]. Cross-national surveys, and country-based questionnaires show slightly lower mobility rates for women than for men[12–14]. While informative, most of these studies are limited by low response rates, self-reported measures of mobility and selective cross-national coverage. Recent studies adopting a longitudinal perspective, also reveal a persistent gender gap in the global migration of scholars, although female scientists are increasingly mobile compared to the past[15].

Despite the importance of international research mobility for academic careers, research on gender differences in the performance returns to international mobility is scant. Given existing gender disparities in science, one might expect that the women who move abroad may not benefit from mobility as much as their male counterparts. This highlights the need to examine gender differences in performance returns to mobility as potential drivers of career-related disparities.

Inferring mobility using publication metadata from Clarivate's Web of Science (WoS), this paper traces the careers of the global population of early-career researchers who published their first research article between 2008 and 2010.

First, the study follows researchers' career movements to estimate gender variations in the likelihood of moving abroad. Preliminary results show that differences in the proportion of women and men moving abroad are largely comparable across European regions. The magnitude of the difference shows greater variation across disciplines, with Biomedicine displaying the largest gender difference, while Engineering and Health the smallest.

Since publications with affiliations to institutions based in a country other than the country of origin are used as a signal for mobility, we estimated the odds of moving for different combinations of mobility calculations, to get rid of any possible confounding (Table 1). Results

are consistent across estimates, showing a lower likelihood of moving for woman compared to their male colleagues, regardless of the method used to calculate mobility.
This study builds on this evidence and focuses on the gender gap in performance returns to international mobility. Since international research is said to boost career opportunities[2,3], our research investigates whether returns to mobility are distributed differently between genders. Furthermore, we aim to determine if the observed gender gap in mobility perpetuates disparities in scientific career advancement.
The second section of the study adopts a quasi-experimental design in a sample of scientific migrants who moved to Europe and to the United States and quantifies gender variations in the absolute performance advantage associated with international mobility. This estimation is based on fixed-effects panel models measuring the individual-level change over time in the publication output, citation rates, journal impact scores, and numbers of top-journal and top-cited publications of men and women movers. While these performance measures represent quite narrow indicators of how transnational mobility may matter for scientific careers, they are positively correlated with important career related factors such as future funding rates, salary levels and promotions.

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Alternative mobility calculations	Total movers	Any mobility event	Movers 1y	Prop.	Prop. diff.	Odds ratio
Total Movers (F)	161975	21131	NA	0,1305	-4.73% [-4.96%,-4.50%]	**0.69 [0.68,0.71]**
Total Movers (M)	223722	39774	NA	0,1778		
1 paper in a new insitution (F)	161975	NA	14950	0,0923	-4.21% [-4.41%,-4.01%]	**0.65 [0.64,0.67]**
1 paper in a new insitution (M)	223722	NA	30075	0,1344		
1- year movers of all movers (F)	NA	21131	14950	0,7075	-4.87% [-5.61%,-4.12%]	**0.78 [0.75,0.81]**
1- year movers of all movers (M)	NA	39774	30075	0,7561		
Gender balanced sample (F)	120397	18208	NA	0,1512	-3.27% [-3.57%,-2.97%]	**0.79 [0.77,0.81]**
Gender balanced sample (M)	120397	22147	NA	0,1839		

Table 1. Gender gap in the likelihood of moving. 1) **Total movers:** The total number (and proportions) of male and female researchers moving. 2) **1 year at new institution:** Researchers who published at least one paper per year (across two years) with an institutional affiliation in a different country than the institution of origin. 3) **1-year movers of all movers:** The subset of total movers who published at least one paper per year (across two years) with an institutional affiliation in a different country than the institution of origin. 4) **Gender balanced sample:** Matched sample of male and female movers with equivalent publication numbers, enabling a comparison of mobility likelihood while accounting for the gender-productivity gap.