

Internal versus international scholarly mobility and migration worldwide

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Introduction, Goals & Data

- Theoretical impressions
 - Internal versus international migration¹
 - Research Trails^{2,3}
- Methodological impressions
 - Using bibliometric data alongside demographic life events⁴
 - Repurposing bibliometric data for migration research^{5,6,7}
 - Repurposing bibliometric data for knowledge transfer^{8,9}
- **Our proposal:** repurposing bibliometric data for:
 - **Internal** versus **international** scholarly mobility and migration

- **Data:** All *article* and *review* publications (36 million, 16 million scholars) from Scopus 1996-2020, provided by German Competence Centre for Bibliometrics via MPDL
- **Measures:** Net Migration Rate, Crude Migration Intensity, Migration Effectiveness Index, Aggregate Net Migration Rate^{5,10}:

$$NMR_{i,t} = 1000 \times \frac{I_{i,t} - E_{i,t}}{N_{i,t}}$$

$$CMI_{i,t} = 100 \times \frac{M_{i,t}}{\sum_i N_{i,t}}$$

$$MEI_{i,t} = 100 \times \frac{\sum_i |I_{i,t} - E_{i,t}|}{\sum_i (I_{i,t} + E_{i,t})}$$

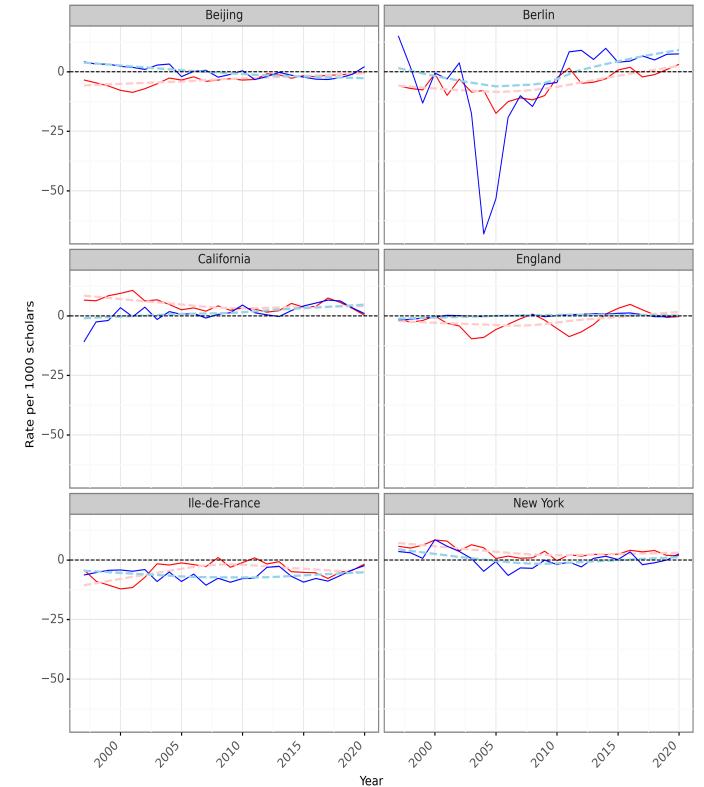
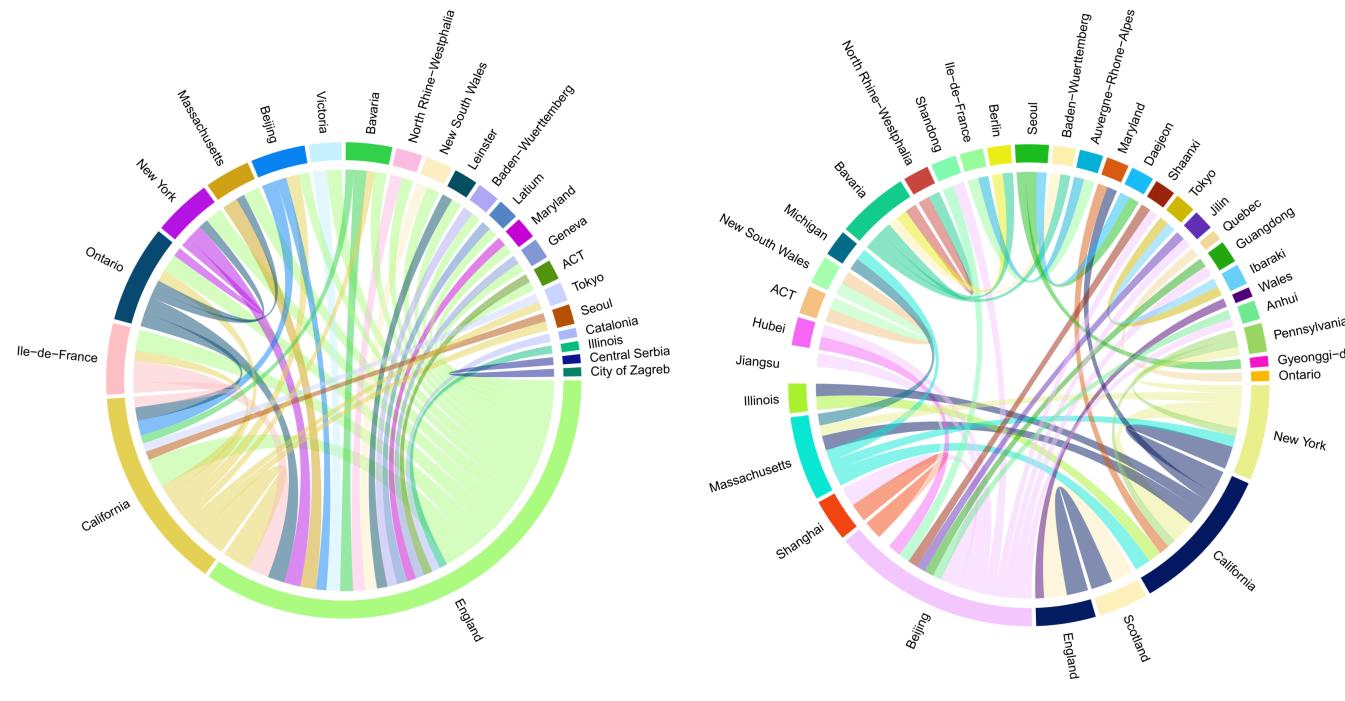
$$ANMR_{i,t} = 100 \times \frac{0.5 \sum_i |I_{i,t} - E_{i,t}|}{\sum_i N_{i,t}}$$

$$CMI_{i,t} = 100 \times \frac{ANMR_{i,t}}{MEI_{i,t}}$$

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A new database of internal and international migration of scientists

- England region in the UK has the highest count of sending/receiving scholars
- Internal trend is dominated by Beijing and California
- NMR: California and New York are receiving international scholars

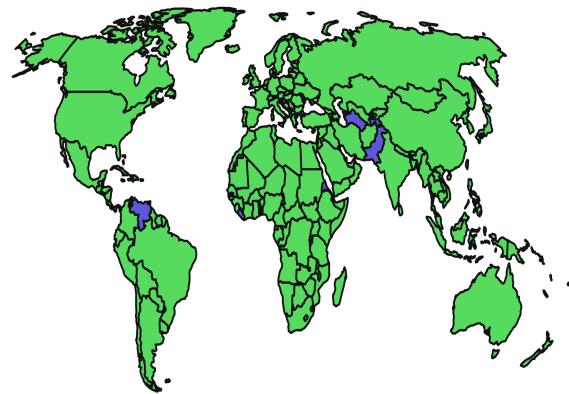


- A **macro** and **micro** global database of scholarly mobility
- Region level, international (left), internal (middle), NMR (right)
- NMR (right): international (red), internal (blue)

Global trends for internal and internation migration

- Most countries had negative emigration slope for CMI
- 21/203 countries had positive slope in international (8 match on map data)
- 44/132 countries had positive slope in internal (42 match on map data)

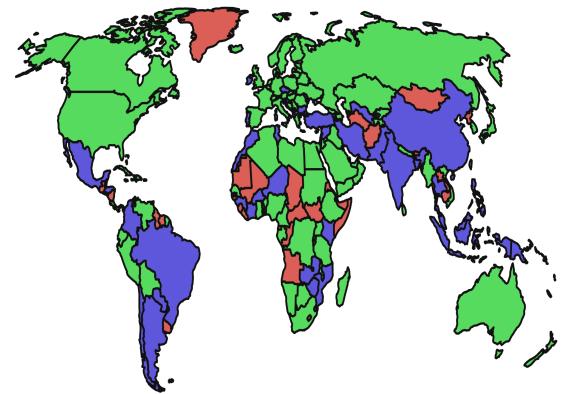
Beta for CMI international



Sign of slope

- 0 or missing
- Negative slope
- Positive slope

Beta for CMI internal



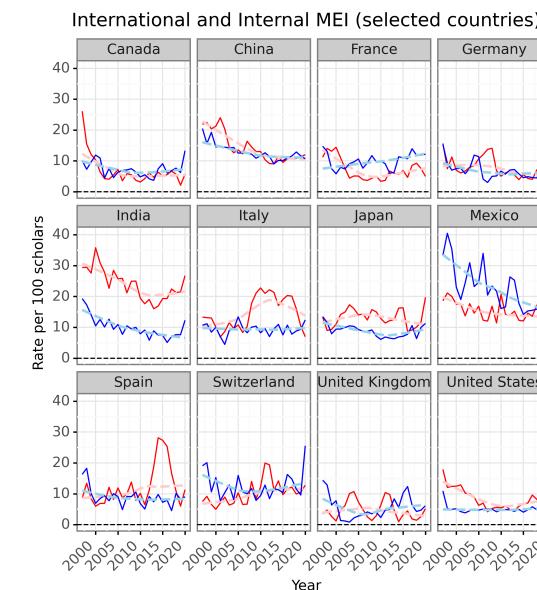
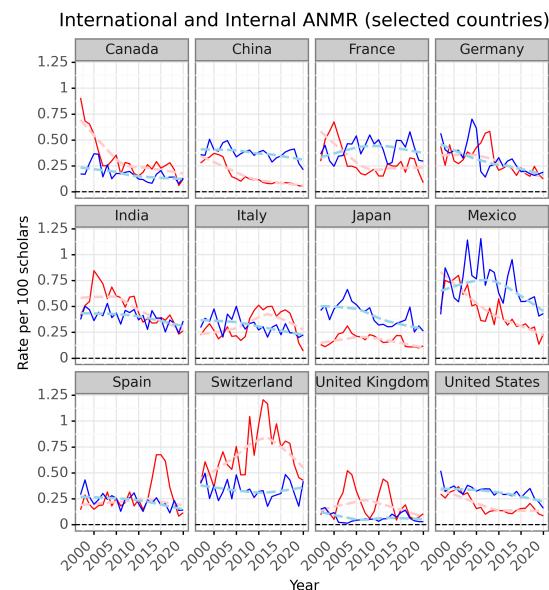
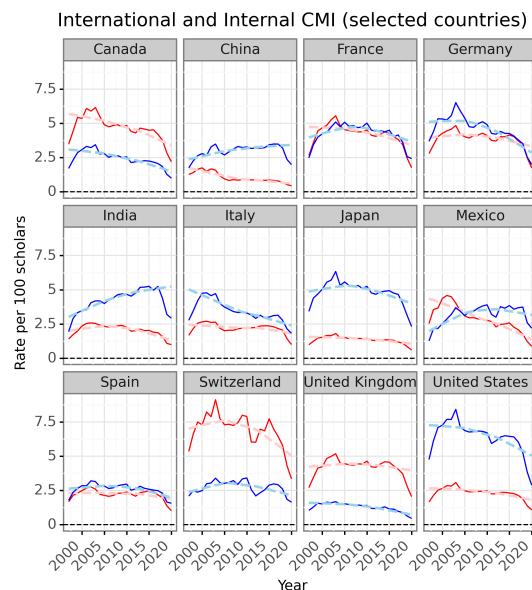
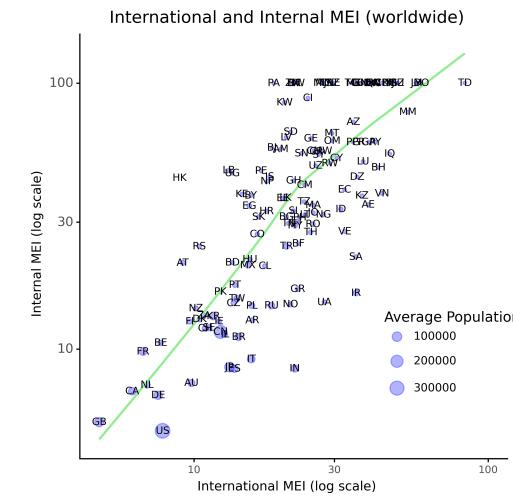
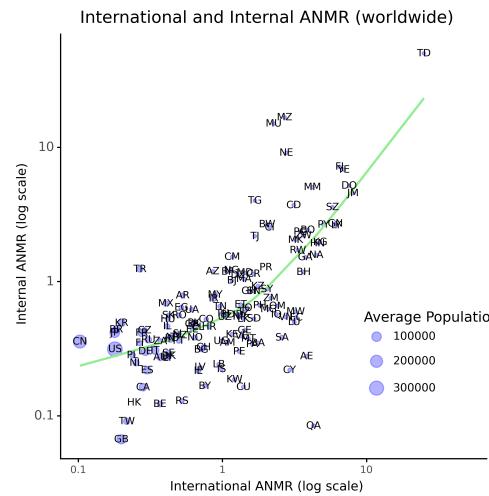
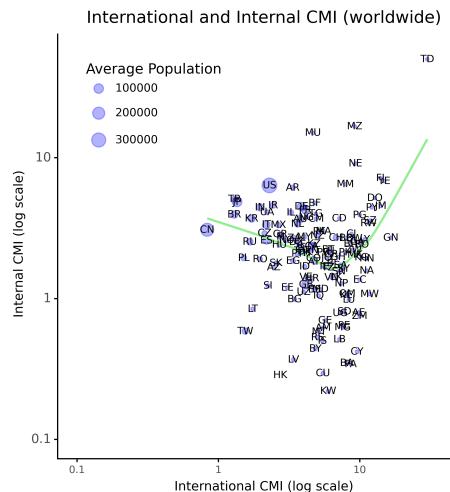
Sign of slope

- 0 or missing
- Negative slope
- Positive slope

- Region level, international (left), region level internal (right)
- One OLS per country over 25 years to evaluate slope of change in CMI in emigration trend (left) and within a country (right)

The relationship between internal and international migration

- Higher intensity does not always mean higher effectiveness
- Scholarly migration is clearly more an internal phenomenon than international



To summarize (and next steps):

- A **macro** and **micro** global database of scholarly mobility
- **Internal** and/or/**versus international** scholarly mobility
- **Disambiguation** of authors and organization names (and addresses)
- **Collaboration** and **internationalization**
- **Gender** and **Disciplinary** differences
- Individual level comparison of CV profiles using ORCID vs. Scopus

Thank you for your attention

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USA, Region level NMR, international (red), internal (blue)

- Larger range of internal mobility
- Sending states, internally: Alabama, Connecticut, Delaware, Iowa, Kansas, Louisiana and Missouri
- Receiving states, internally: Colorado, Nevada, New Mexico, Oregon, South Dakota, Virginia, Washington and Washington, D.C.
- Receiving states, internationally: Alaska, North Dakota and South Dakota
- High variation in attractiveness: Nevada

