Rising Dispersion in Country-Level Academic Mobility Rankings from ORCID-Derived Flow Networks

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We study whether the global academic mobility system has become more stratified in recent years by constructing country-to-country mobility flow networks from longitudinal affiliation episodes in the ORCID Public Data File (2025 release). From ORCID affiliation transitions, we build directed weighted networks where edge weights represent cross-border mobility volume between countries (country codes normalized via ISO 3166-1 mappings). To quantify structural position in these mobility networks, we compute country scores using SpringRank, a generative, flow-based ranking method for directed networks. We then perform a temporal analysis using centered sliding windows (e.g., 3-year windows centered at each year) to obtain yearly distributions of country SpringRank scores. To summarize system-level inequality, we track the weighted dispersion (weighted standard deviation) of country scores in each window, using total mobility volume as weights.

Across the observation period (2007–2025), we observe a marked increase in score dispersion beginning around 2020, indicating a widening separation between countries that consistently occupy high-ranked positions in global mobility flows and those that remain peripheral. Because the dispersion metric aggregates over all countries, it provides a compact view of system-level stratification beyond individual country trajectories. These findings are consistent with an increasingly uneven mobility landscape, where a smaller set of countries concentrates a growing share of high-rank positions and mobility influence. Our dataset release and end-to-end pipeline enable independent verification and extension of the analysis.

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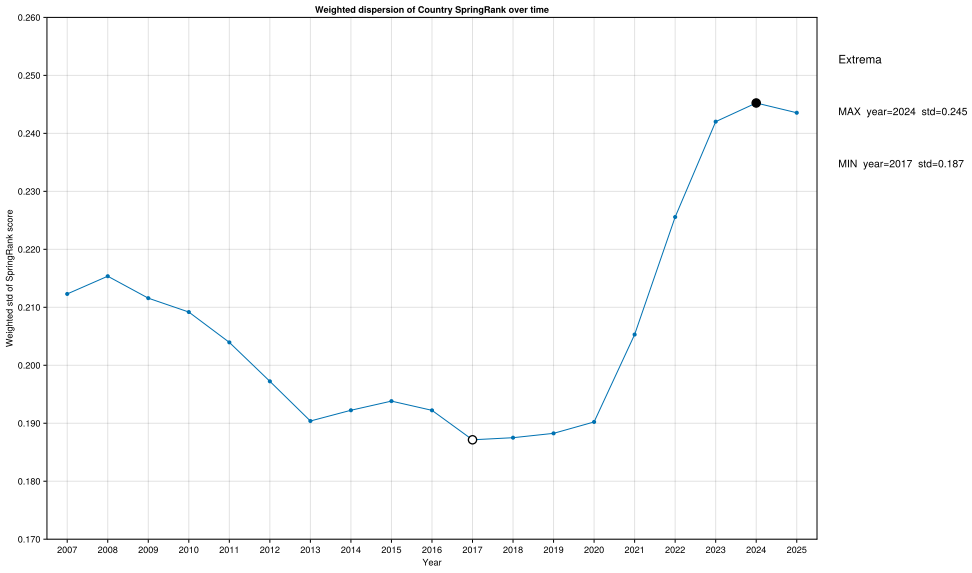

Figure 1: **Rising dispersion in country SpringRank scores.** Weighted standard deviation of country SpringRank scores computed on centered sliding windows of ORCID-derived mobility flow networks. Weights are proportional to total mobility volume in each window. A sustained rise after 2020 indicates increasing stratification in the country-level mobility ranking distribution.