Supplementary Information for

Global Citation Inequality is on the Rise

Mathias Wullum Nielsen[1*], Jens Peter Andersen[2].

[1]Department of Sociology, University of Copenhagen, Øster Farimagsgade 6, 1353 Copenhagen, Denmark.

[2]Danish Centre for Studies in Research and Research Policy, Department of Political Science, Aarhus University, Bartholins Allé 7, 8000 Aarhus C, Denmark.

* To whom correspondence should be addressed: mwn@soc.ku.dk

This PDF file includes:

Figures S1 to S6

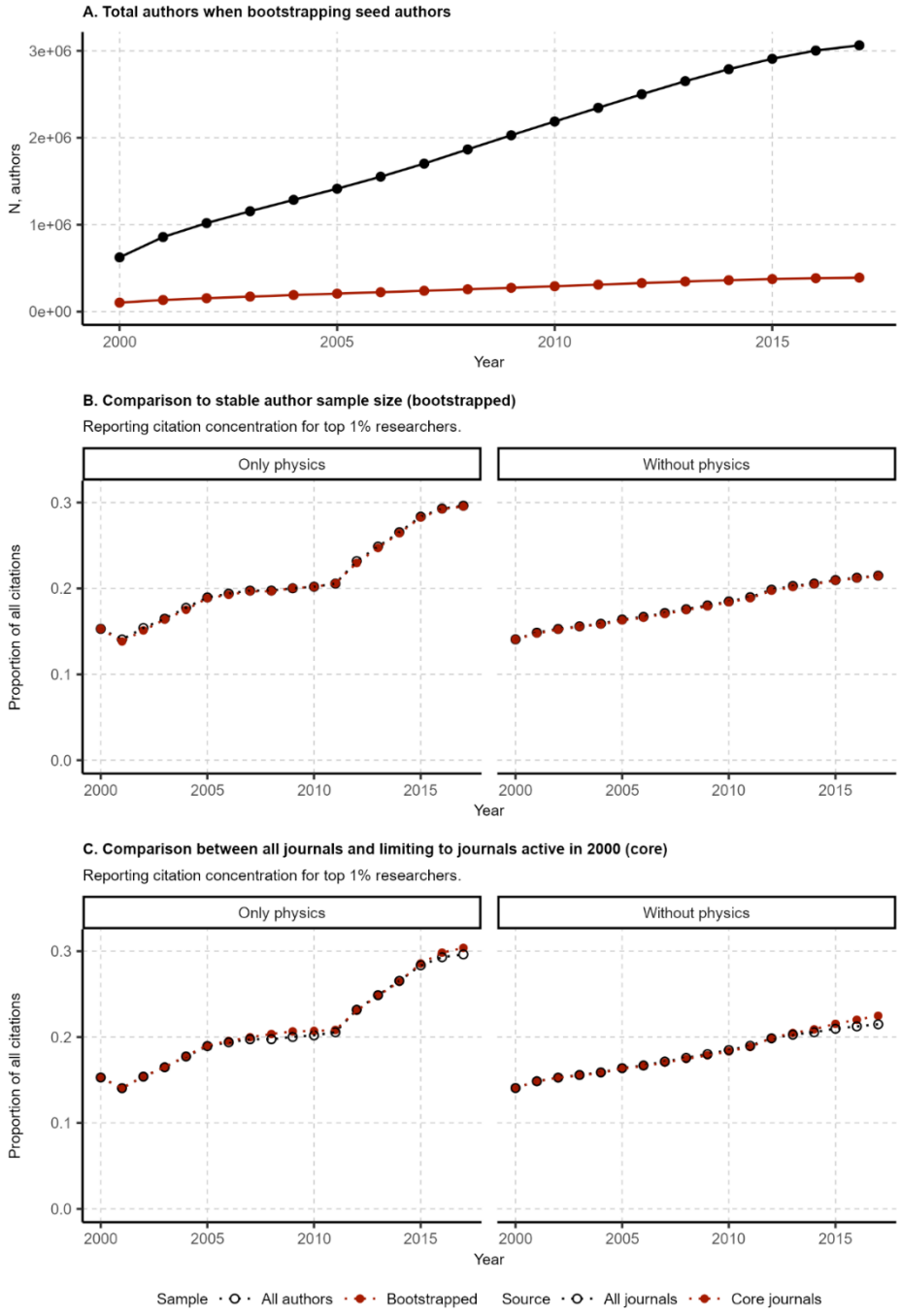

Fig. S1. The top panel shows the development in active researchers by year. The middle and lower panels show the cumulative proportion of all citations given to the top 1% researchers per year for physics and astronomy (left) and for all other disciplines (right), as total, inflation-adjusted citations (*nics*) cumulated per year from 2000 to 2015. In the middle panel the black circles plot the concentration trend for all authors, while the solid red circles plot the concentration trend in a bootstrapped sample, where the annual observations are resampled to match the sample size in year 2000. Resampling was repeated 1,000 times to calculate robust results. In the lower panel, the black circles also plot the concentration trend for all authors, while the solid red circles plot the concentration trend for a fixed set of journals throughout the period.

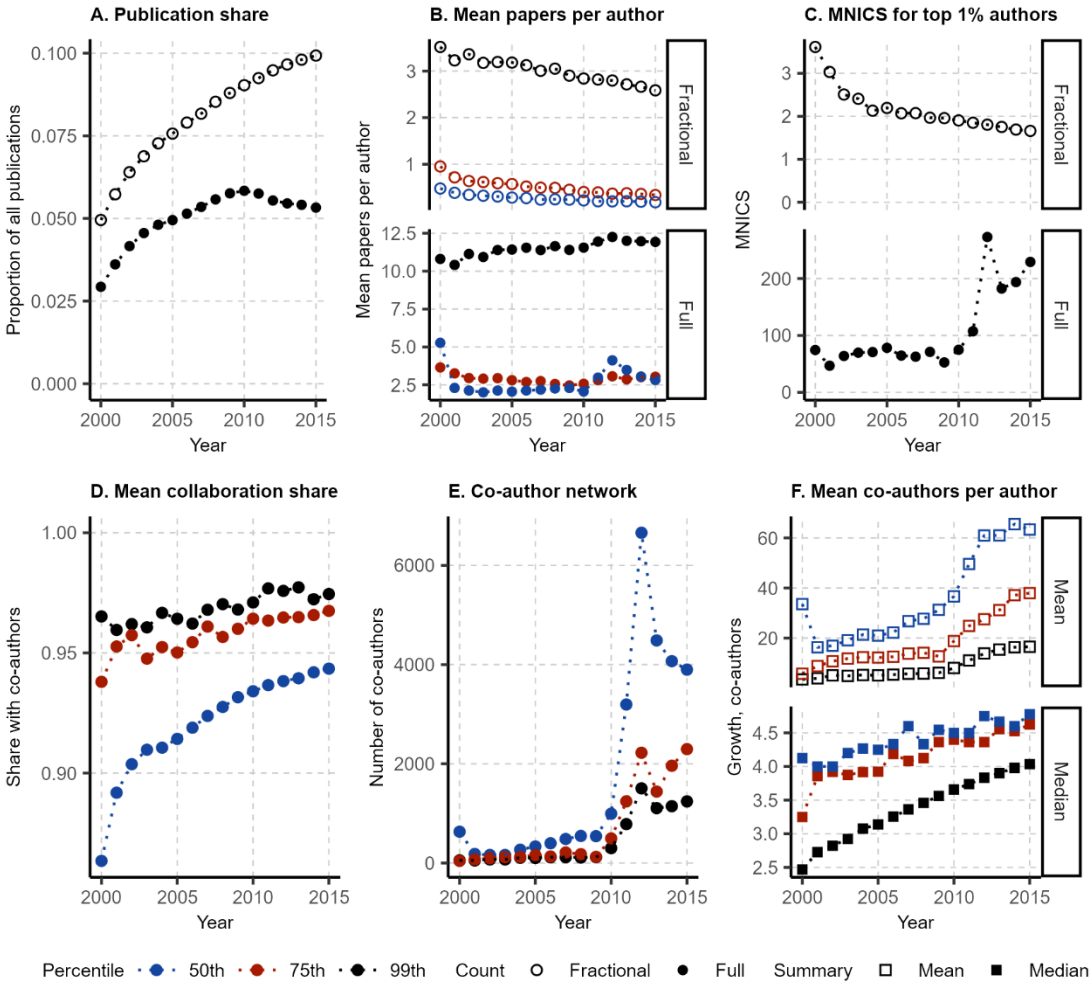

Fig. S2. Publication, citation and collaboration trends in physics and astronomy. (*A*) plots changes over time in the share of total papers accrued by the top 1% (99th percentile), 75th and 50th percentile from 2000-2015. (*B*) plots the relative growth in average publication output per year (per author) for the top 99th, 75th and 50th percentile based on a full and fractional counting of papers. (*C*) presents the mean citation rate per paper (per year) for the 99th percentile. (*D*) shows the mean proportion of papers with at least one co-author for the 99th, 75th and 50th percentile. (*E*) displays the average number of coauthors per year for the 50th, 75th and 99th percentile. (*F*) plots the annual mean and median number of co-authors per paper for authors in the three percentile bins. In all panels, the black lines and dots show the 99th percentile, red shows the 75th percentile and blue shows the 50th percentile. Solid dots show the scores by full count and hollow dots show fractional counts. Solid squares show the median and hollow squares show the mean. (*B*), (*C*) and (*F*) are split into two facets with common x-axes and individual y-axes.

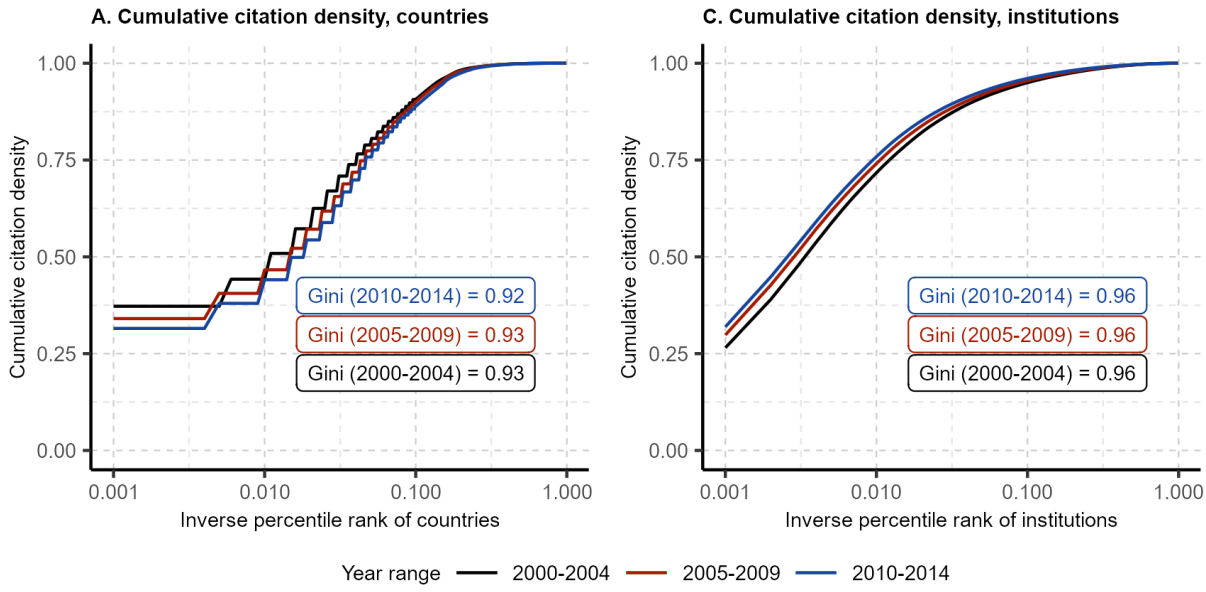

Fig. S3. Cumulative citation density distributions for countries (S3A) and institutions (S3B), using the inverted rank quantiles on the *x*-axes, corresponding to Fig. 3A. The curves show the same time intervals as in Fig. 3.

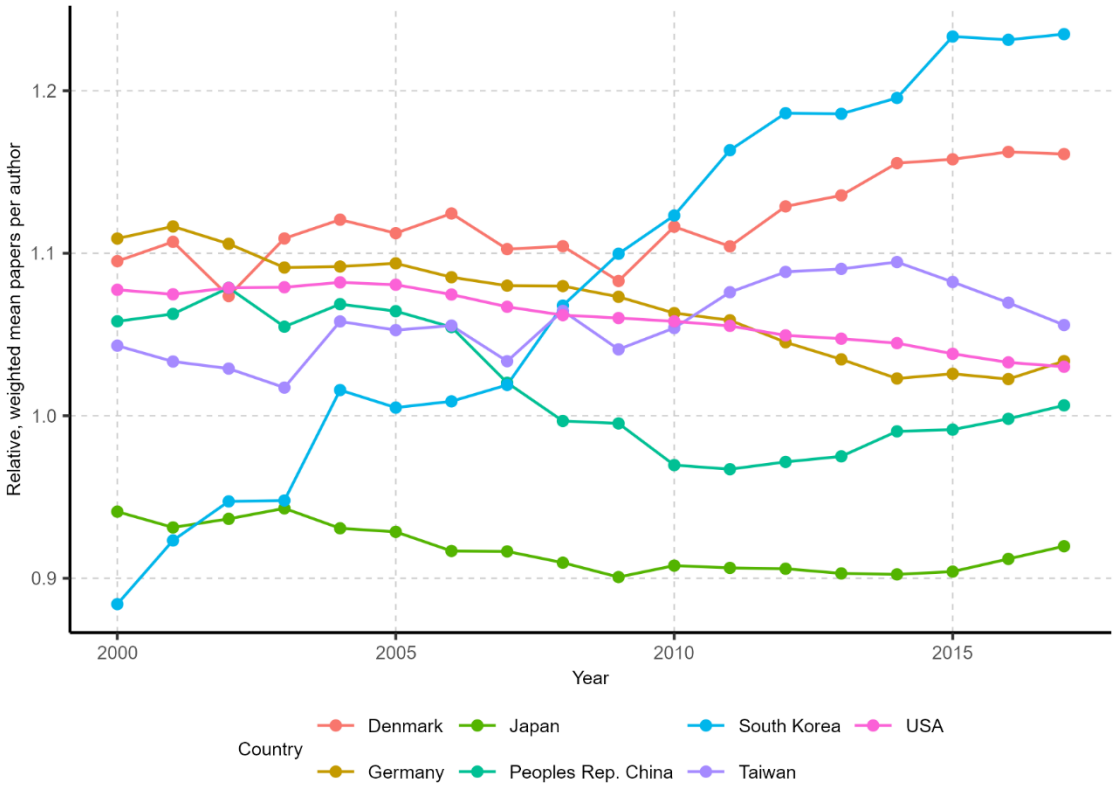

Fig. S4. Mean papers per author for a select set of countries, using fractional paper counts. Scores are first weighted by the number of papers per field and then by the number of authors of that field in the respective country. This removes the influence of different field profiles for countries. All countries, except for South Korea are stable during the entire period, with only small changes. South Korea grows from a lower to a higher than expected number of papers per author, which aligns well with the country's large economic growth and upsurge in R&D investments over the past two decades. If the algorithm were systematically more likely to bundle East-Asian authors with similar names, we would expect to see higher (and increasing) mean number of papers per author in China and Taiwan compared to the reference countries, but this is not the case.

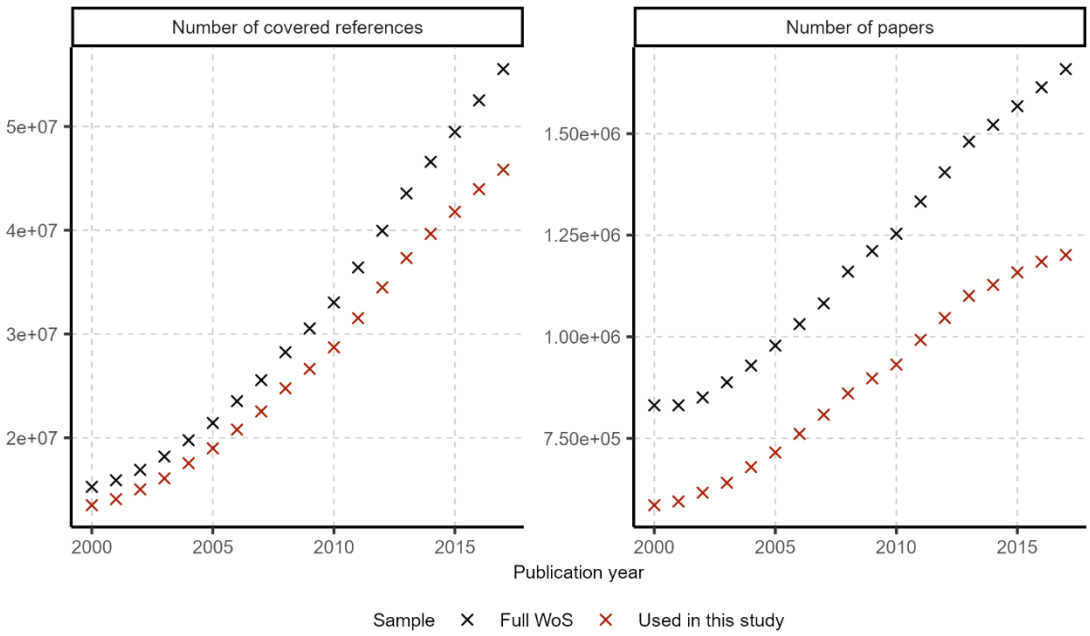

Fig. S5. The growth in covered references (left) and publications (right) in WoS, for the period 2000-2015. The black crosses show the results for the entire database, while the red crosses show the results for papers and references included in this study.

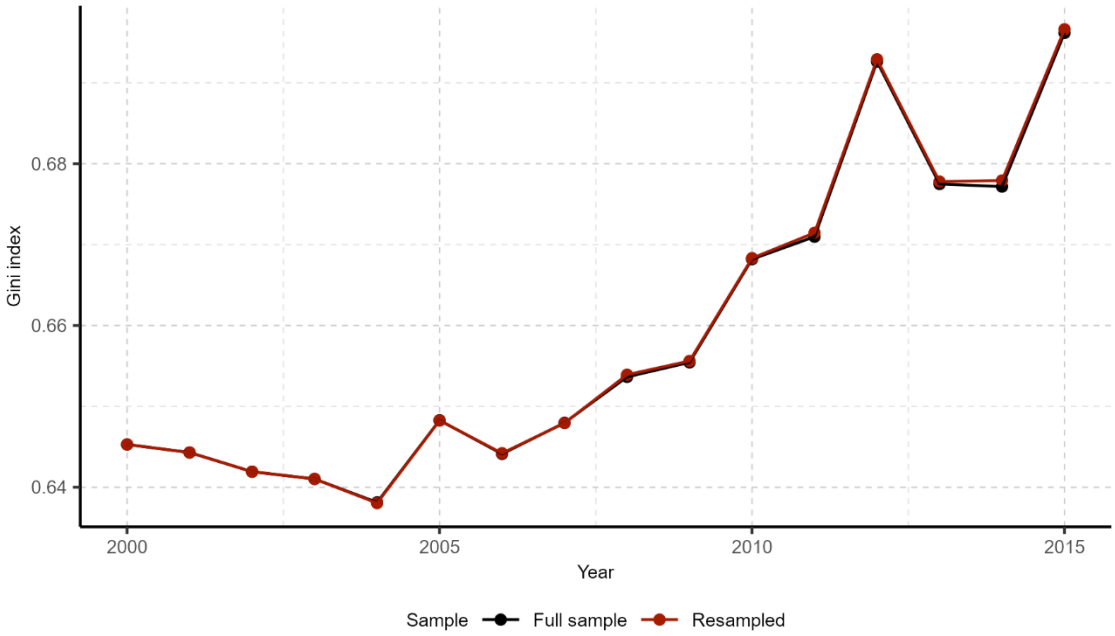

Fig. S6. Annual developments in the Gini coefficients for citation imbalance in the full sample (same as Fig. 3B in the manuscript) and a bootstrapped sample, where the annual observations are resampled to match the sample size in year 2000.