

LIS-Bibliometrics Conference, 2024

# BIBLIOMETRICS INFORMING SECURITY MONITORING

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# Measures and their role

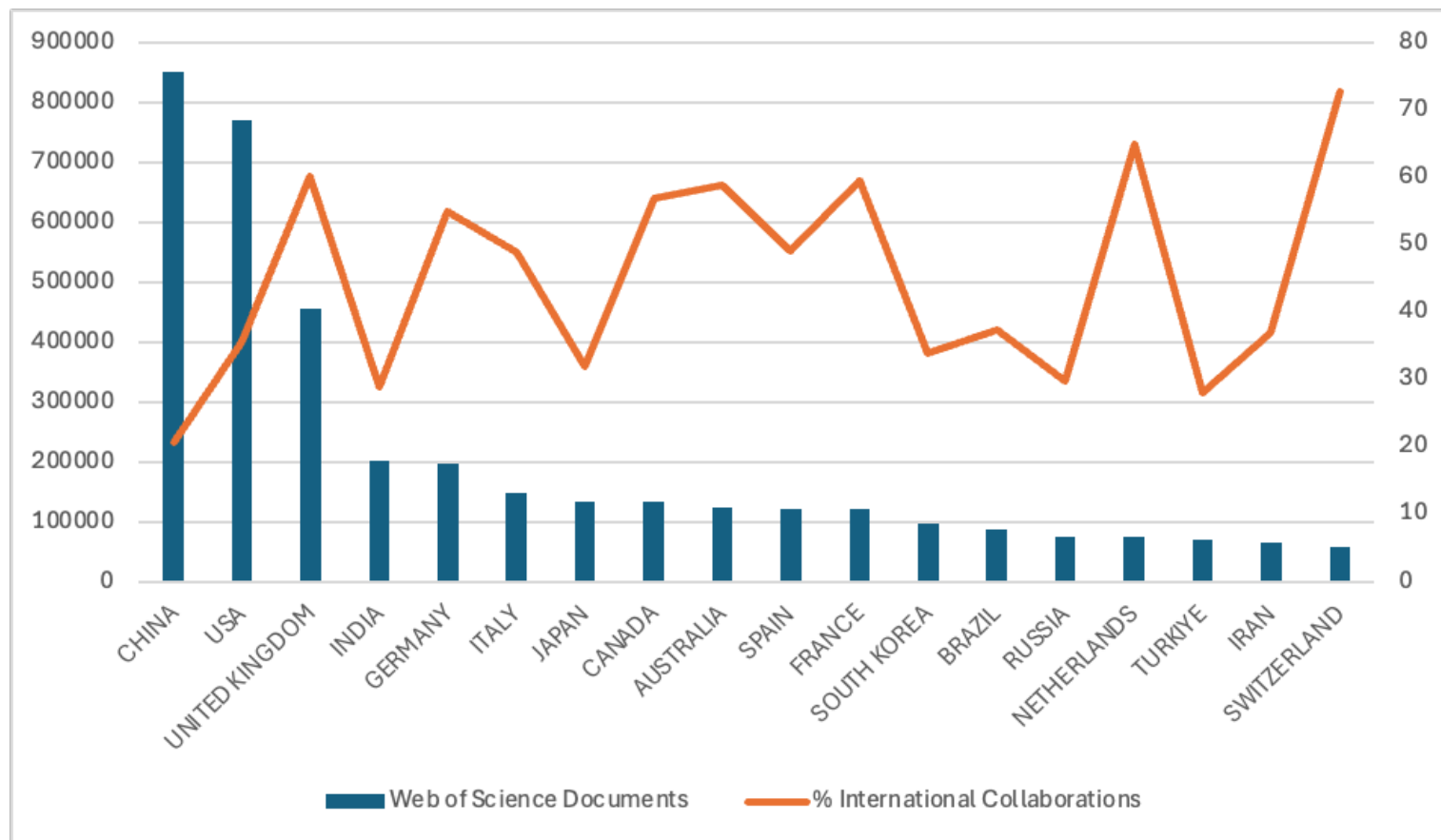
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- Measures are theory-informed
  - ▣ Systems operate with expected patterns
  - ▣ Networks have universal properties
  - ▣ Communications theory tells us about flows
  - ▣ Discovery and novelty patterns are understood
- The choice of measures must be theory-informed
- Measures can be crafted to fit problem
  - ▣ As long as it draws from theory and known facts

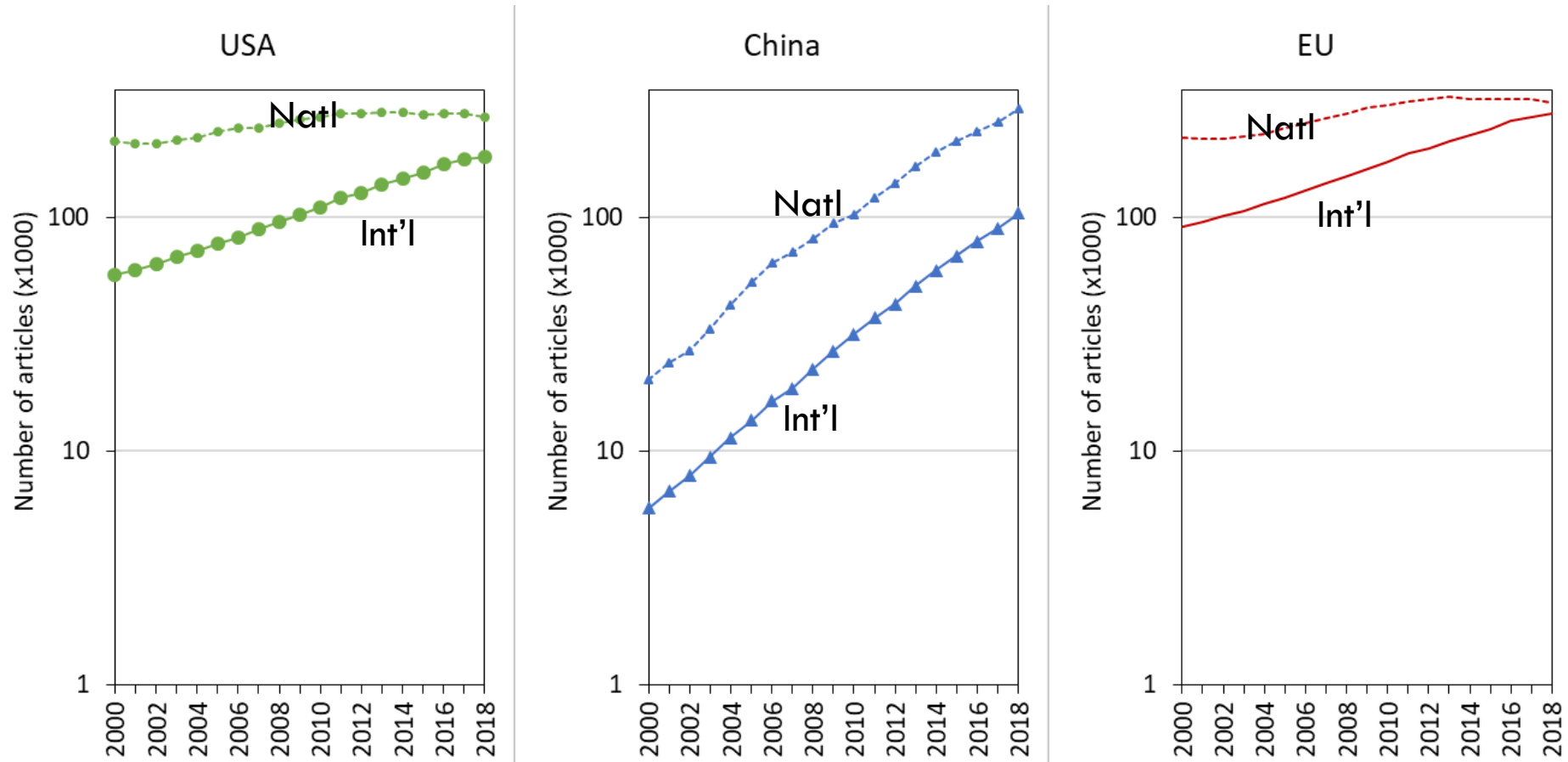
# Output and International Engagement

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Top 20 World Scientific Producers, 2022



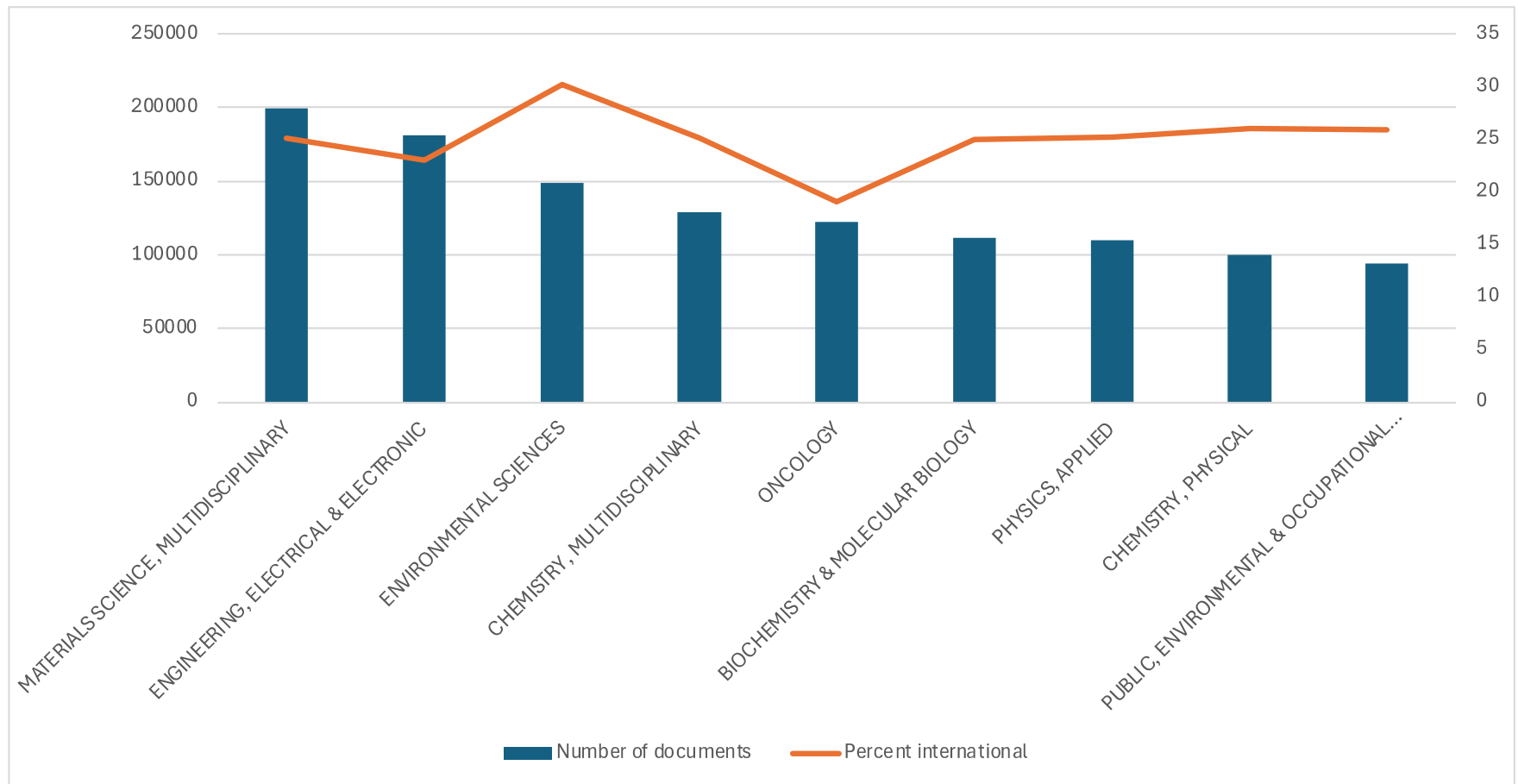
# Number of Articles by National/Int'l



Data source: Incites.

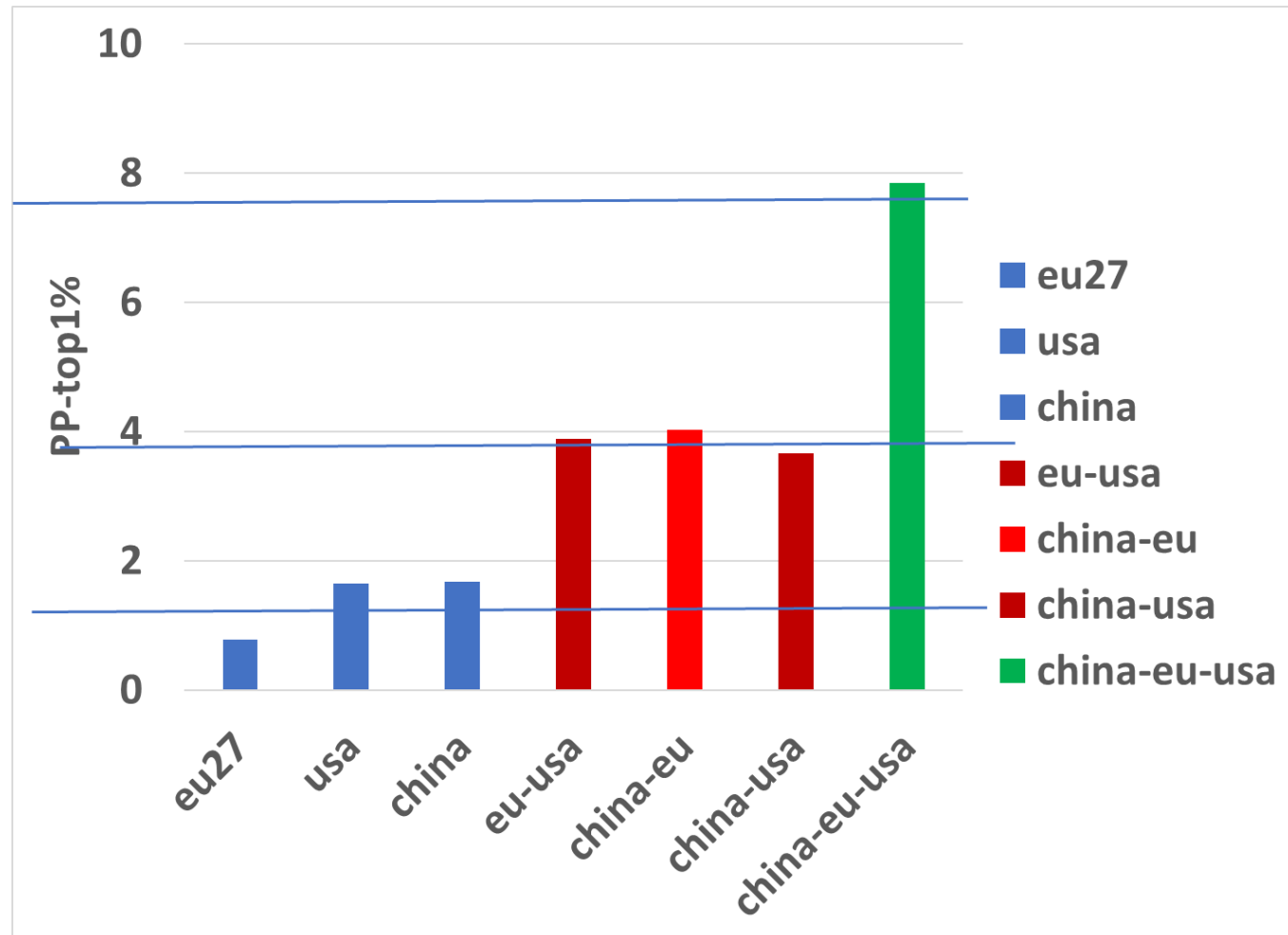
# Top international fields, % international

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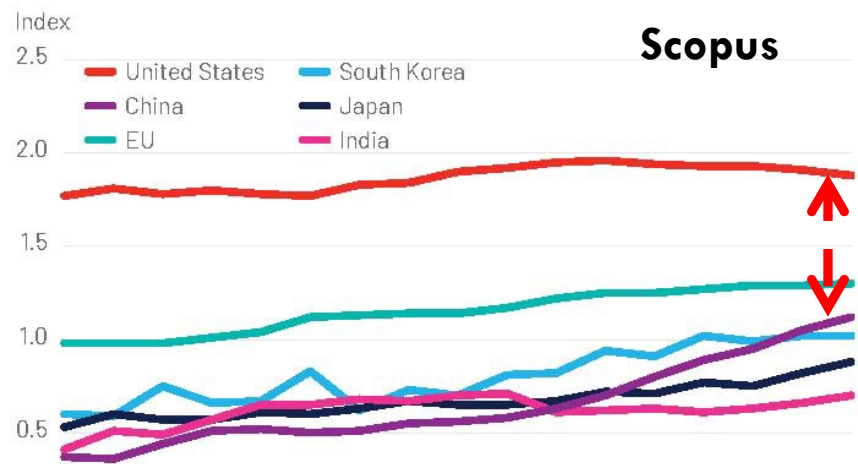
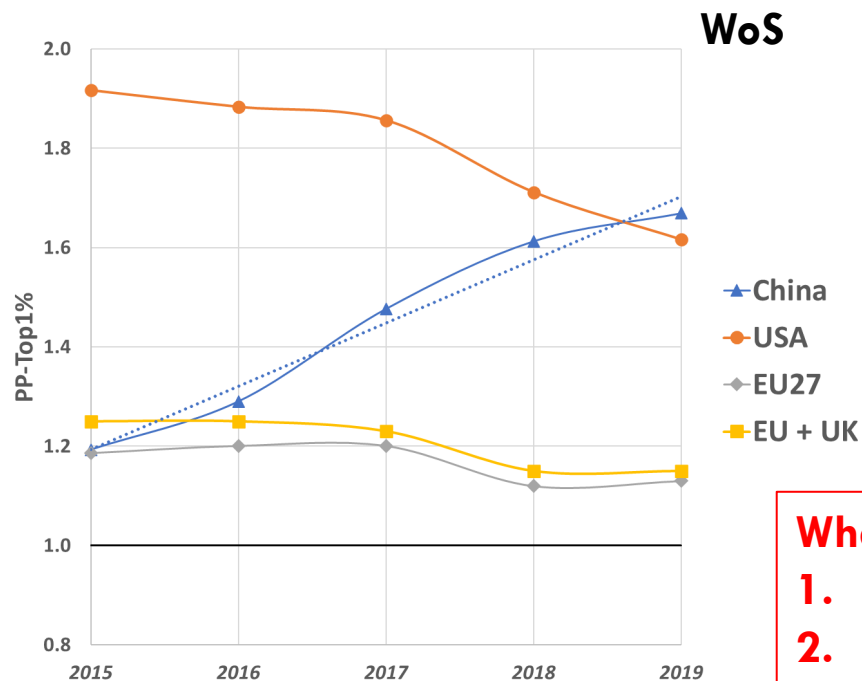


# International collaboration is more highly cited

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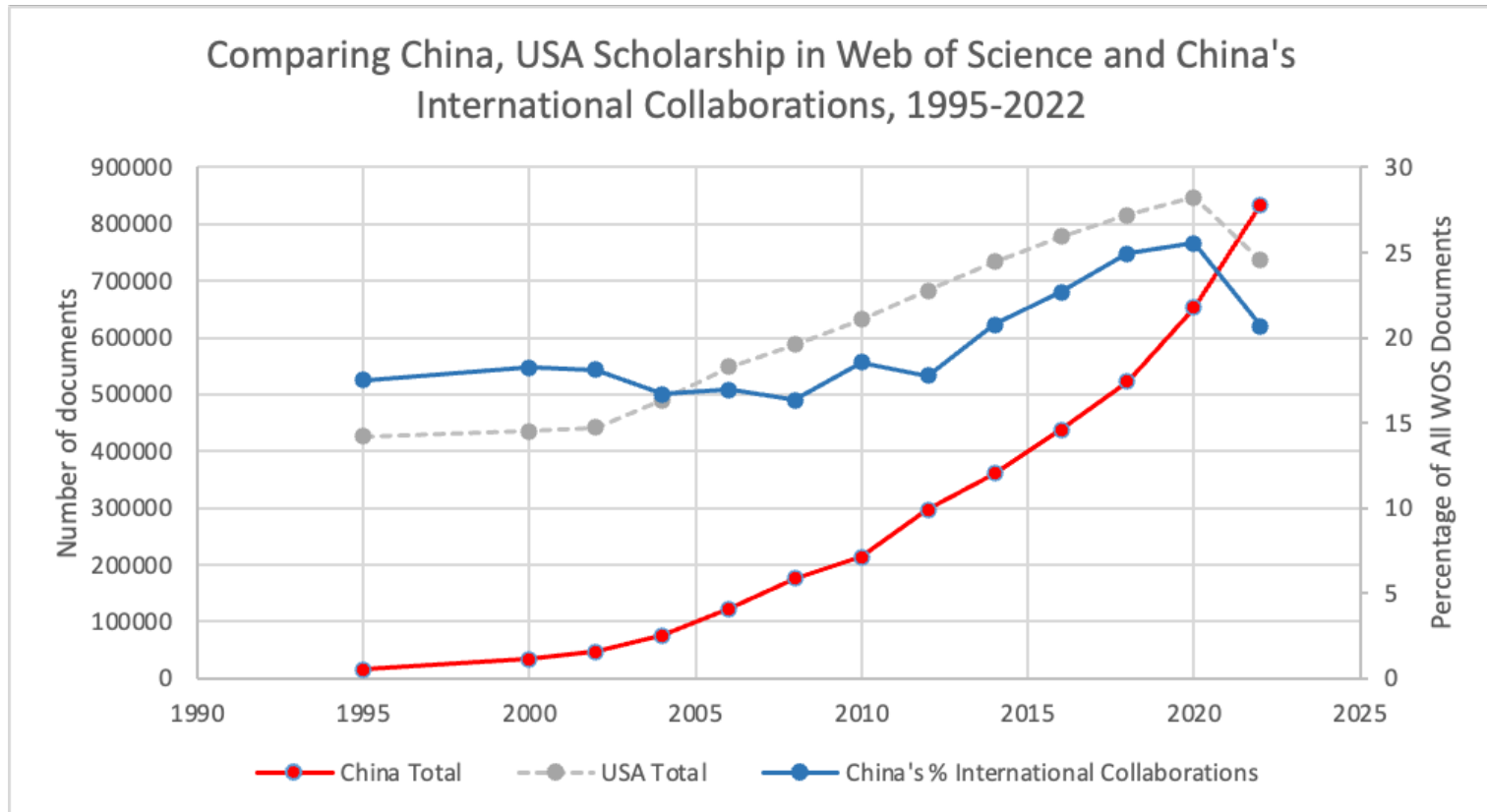
Top-1% most highly cited papers as a percentage of national outputs after normalization. Source: NSB, 2020, p. V-12, Fig. 22.



**What makes the difference?**

1. Normalizations by ScienceMetrix/SciVal
2. Our online data: ties, fractional counting , etc.?

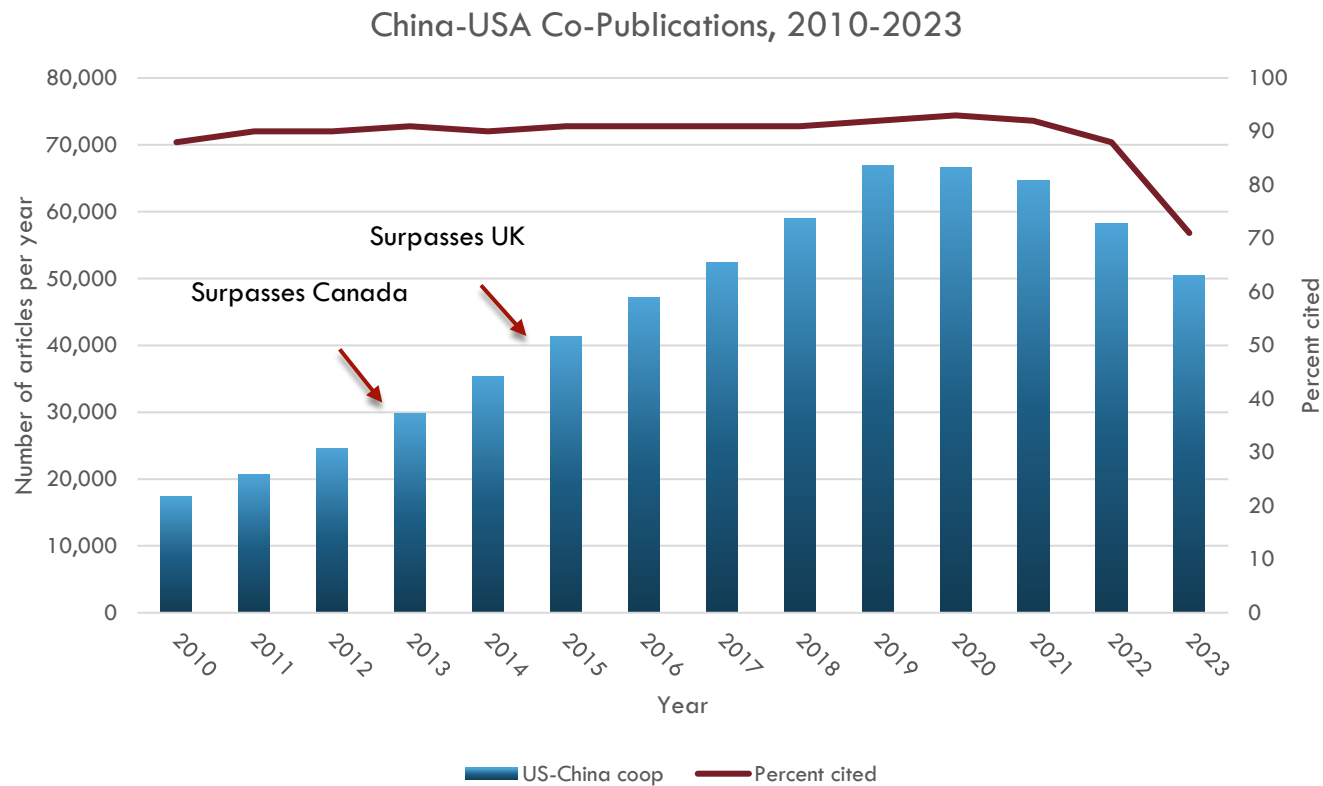
# China Compared to USA





# China-USA Co-Publications, 2010-2023

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# Basics of international collaboration

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- About 30-40% of all work is international
- People connect face-to-face
- Reputation-based selection mechanism
- More elite – more likely international
- Cannot follow the money....
- Can be traced and tracked with theory-based indicators
- Highly ‘informal’ and relationship-based



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Thank you!

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# References

- Wagner, C. S., Zhang, L., & Leydesdorff, L. (2022). A discussion of measuring the top-1% most-highly cited publications: quality and impact of Chinese papers. *Scientometrics*, 127(4), 1825-1839.
- Leydesdorff, L., Wagner, C. S., & Bornmann, L. (2014). The European Union, China, and the United States in the top-1% and top-10% layers of most-frequently cited publications: Competition and collaborations. *Journal of Informetrics*, 8(3), 606-617.