

PANEL DYSKUSYJNY

Global perspectives on the transformation of the Polish higher education



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GLOBAL PERSPECTIVES ON THE TRANSFORMATION OF THE POLISH HIGHER EDUCATION



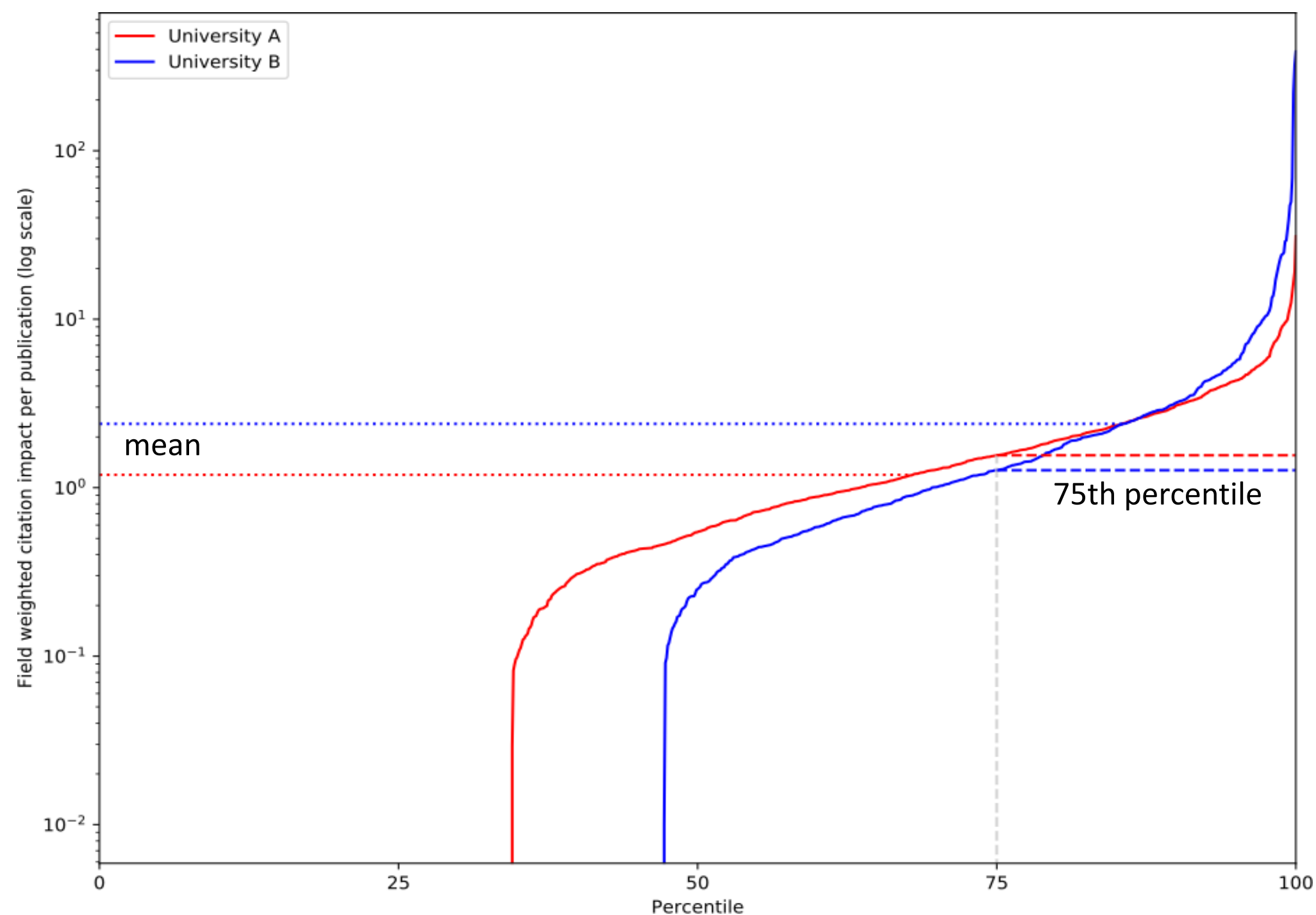
- 1 **Quality and Effectiveness** in Science and Education
- 2 **Internationalization of HEIs**
- 3 **Sustainability and Responsibility**
- 4 **Strengthening Industry - Academia Partnerships**



Global perspectives on the transformation of the Polish Higher Education

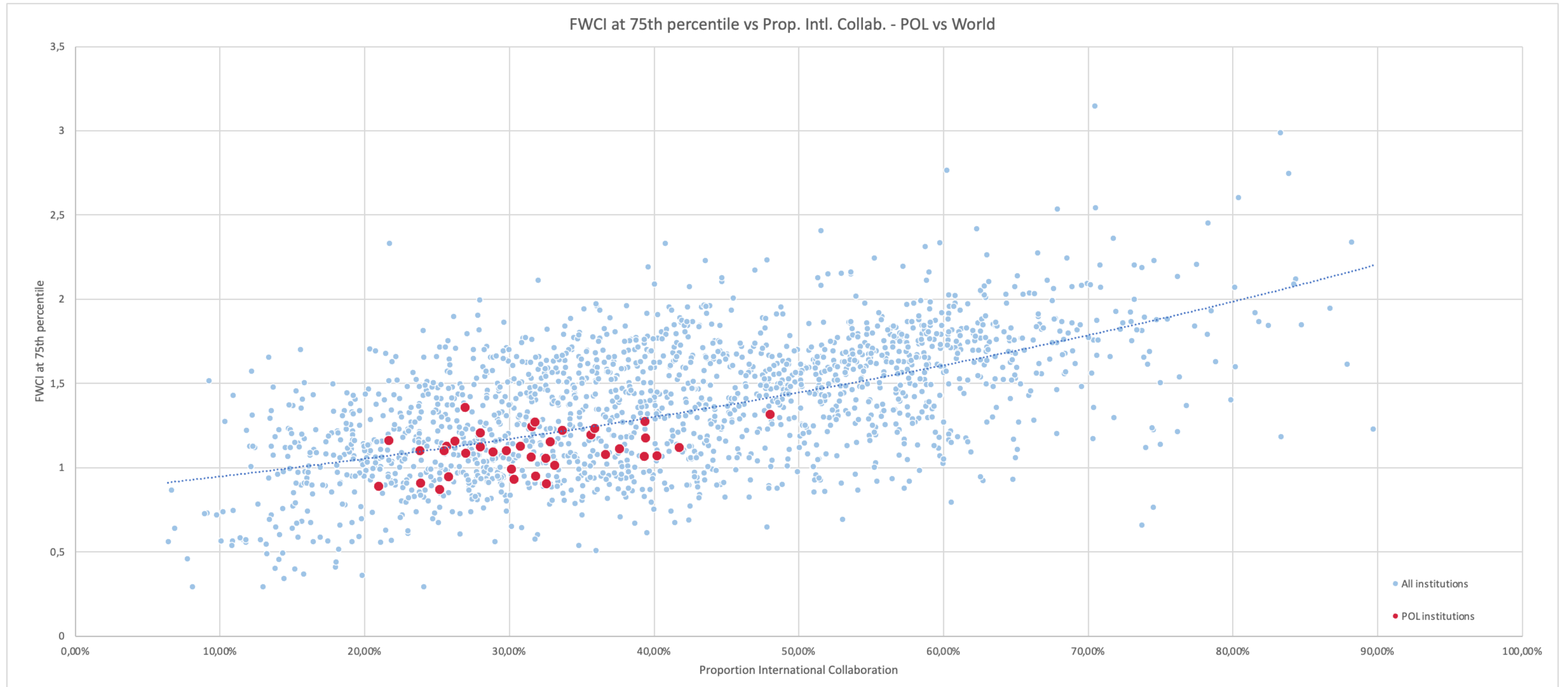


Research Quality: Research Strength

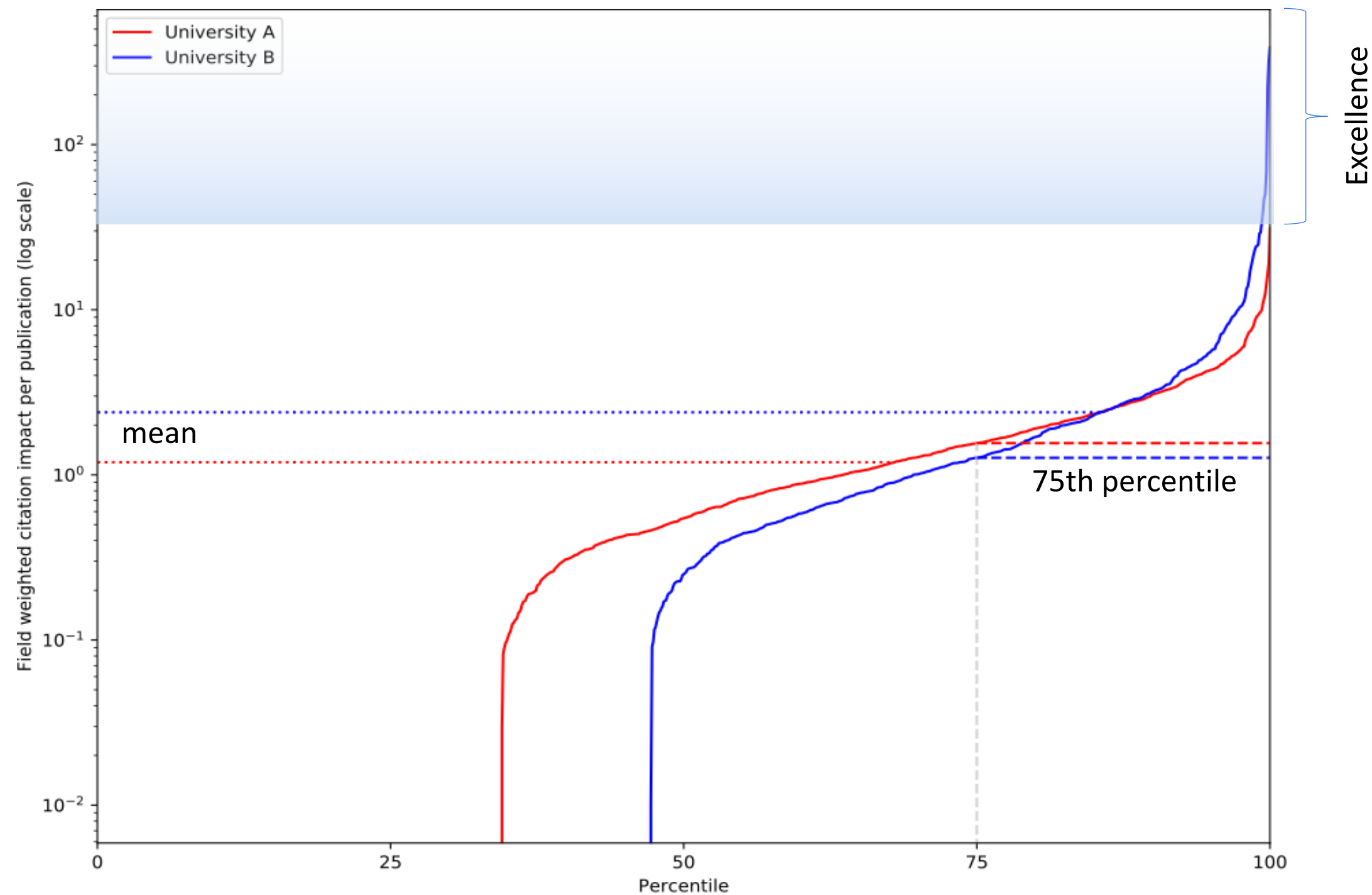


- FWCI at the 75th percentile for all publications for a university
- Avoids extreme papers having detrimental effect
- Removes the need for some fixes
 - Kilo author papers
 - Country normalisation

Research is a highly international pursuit

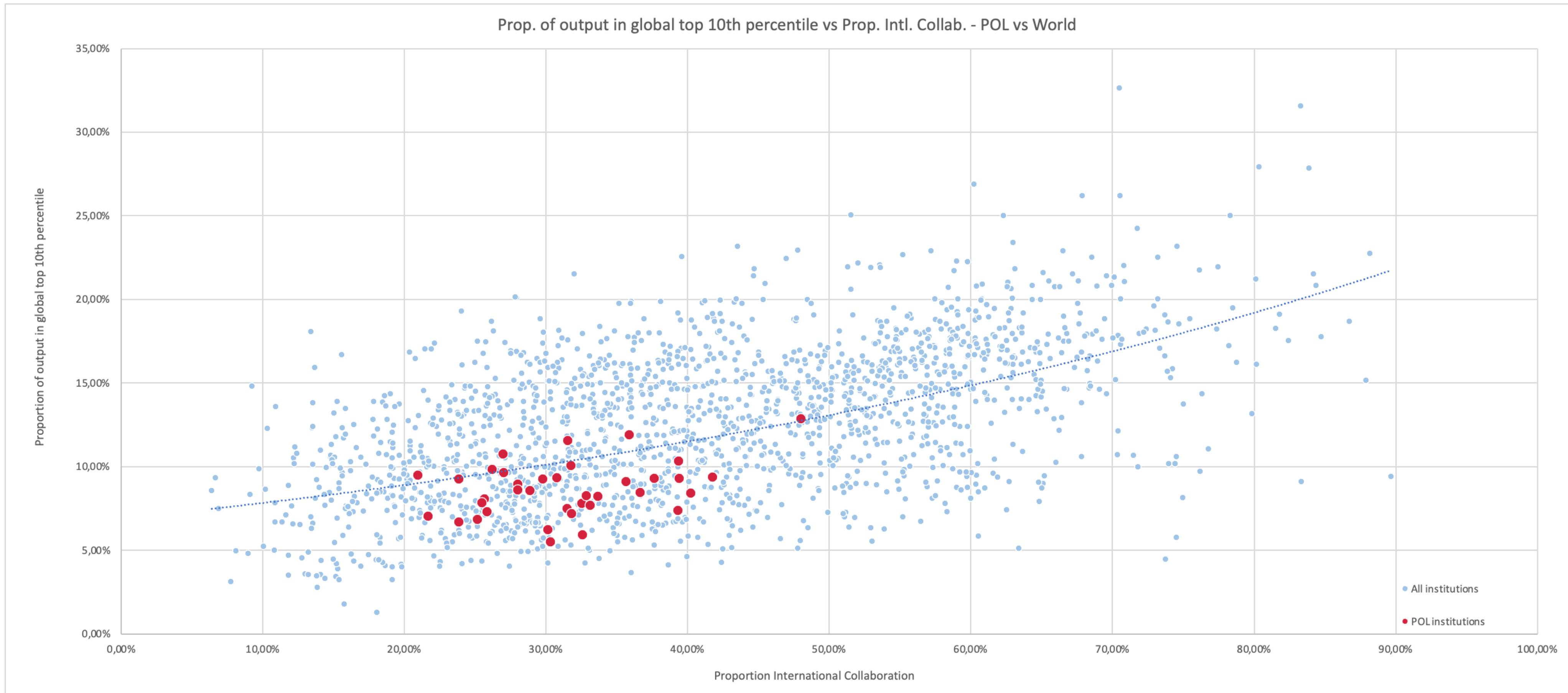


Research Quality: Research Excellence

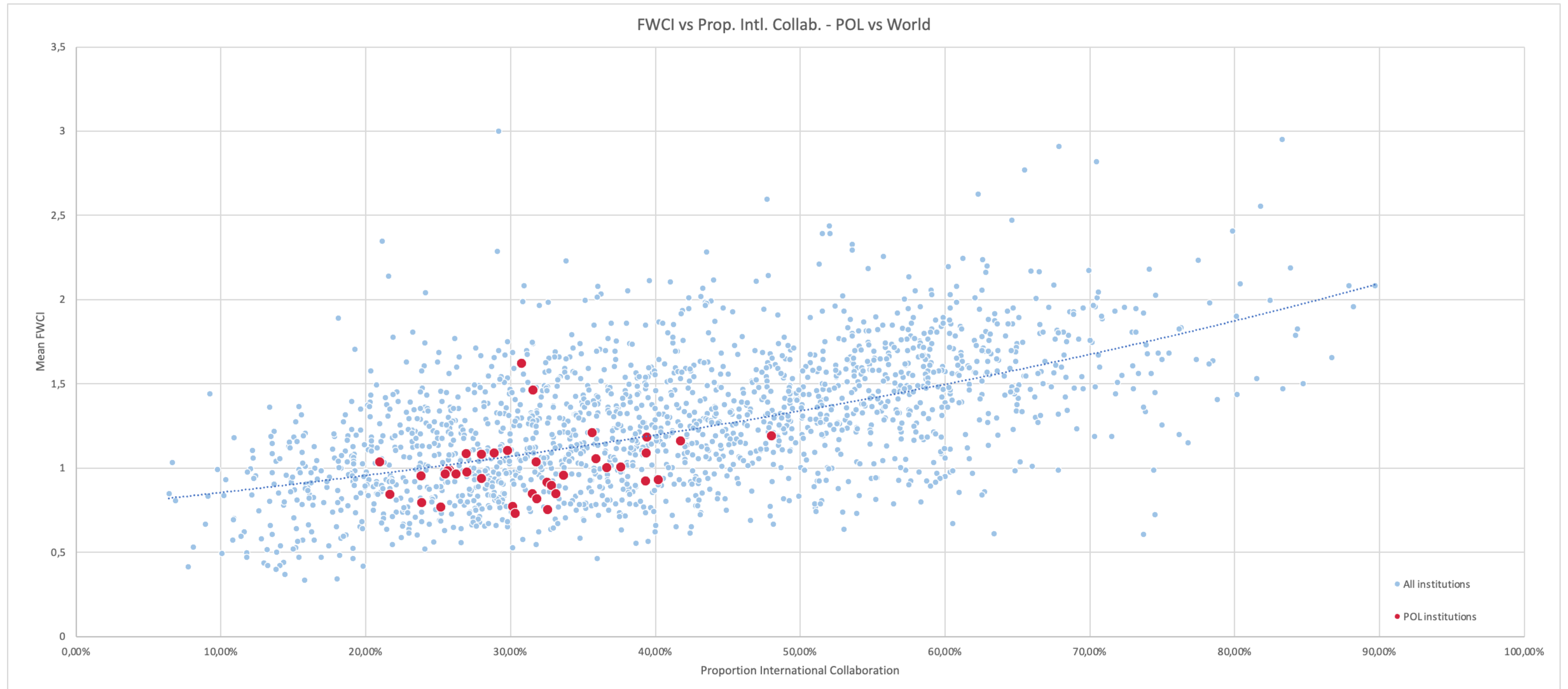


- Number of papers in the top 10% worldwide
 - Based on FWCI
 - Normalised by year, subject, and staff numbers
- Recognises the institutions contribution to the best research in each subject, and overall
- NOT the top 10% of universities papers, but the number of papers they contribute to the top 10% of research by subject

Research is a highly international pursuit



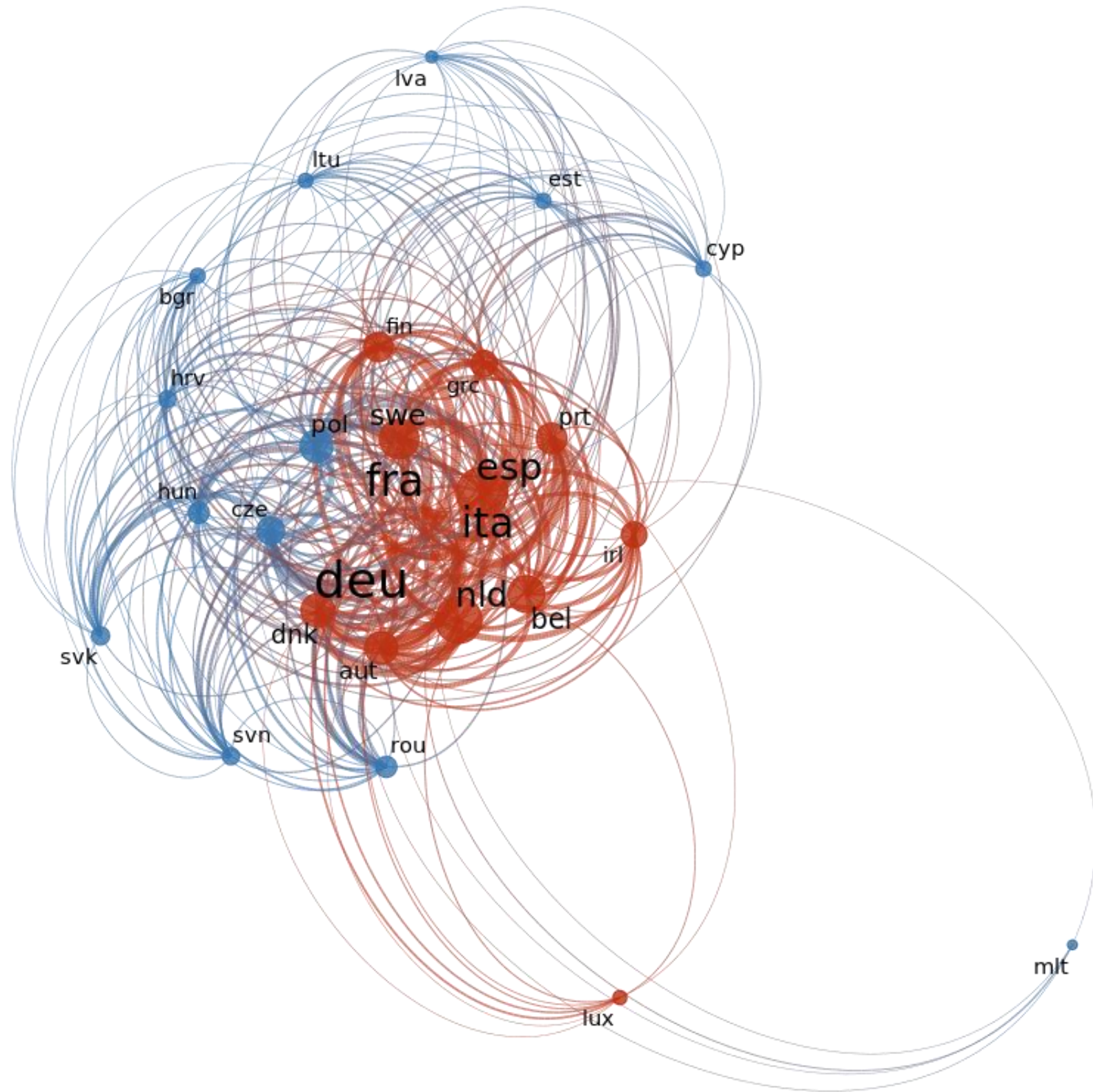
Research is a highly international pursuit



Probabilistic Affinity Index

| Row Labels | EU13 | | | | | | | | | | | | | Rest-EU | | | | | | | | | | | | | |
|----------------|------|------|------|------|------|------|------|------|------|-----|------|------|------|---------|-----|-----|-----|-----|------|-----|------|-----|-----|-----|-----|-----|-----|
| | bgr | cyp | cze | est | hrv | hun | ltu | lva | mlt | pol | rou | svk | svn | aut | bel | deu | dnk | esp | fin | fra | grc | irl | ita | lux | nld | prt | swe |
| EU13 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| bgr | | 14.1 | 7.4 | 18.1 | 19.3 | 12.5 | 20.8 | 33.6 | 12.2 | 7.1 | 11.1 | 10.9 | 11.5 | 4.8 | 3.6 | 2.0 | 2.3 | 2.6 | 4.6 | 1.9 | 8.8 | 5.4 | 2.8 | 3.0 | 1.6 | 5.2 | 1.9 |
| cyp | 14.1 | | 3.7 | 15.0 | 11.6 | 6.6 | 16.3 | 23.0 | 13.9 | 3.2 | 3.3 | 2.3 | 4.5 | 2.8 | 2.4 | 1.3 | 1.3 | 1.9 | 3.6 | 1.3 | 21.9 | 4.5 | 2.1 | 2.7 | 1.2 | 3.8 | 1.4 |
| cze | 7.4 | 3.7 | | 5.9 | 6.2 | 6.1 | 6.8 | 8.8 | 3.6 | 5.5 | 4.0 | 21.9 | 6.4 | 3.9 | 2.1 | 1.7 | 1.7 | 1.7 | 2.5 | 1.5 | 3.2 | 2.0 | 1.8 | 1.5 | 1.5 | 2.3 | 1.8 |
| est | 18.1 | 15.0 | 5.9 | | 14.1 | 9.3 | 27.6 | 57.7 | 13.6 | 5.1 | 4.8 | 4.5 | 6.8 | 4.2 | 3.7 | 1.8 | 3.2 | 2.4 | 11.5 | 1.7 | 5.9 | 5.1 | 2.1 | 3.6 | 1.9 | 4.4 | 4.2 |
| hrv | 19.3 | 11.6 | 6.2 | 14.1 | | 10.9 | 16.5 | 21.7 | 14.6 | 5.5 | 7.3 | 7.9 | 26.9 | 5.2 | 3.0 | 1.8 | 2.4 | 2.4 | 4.4 | 1.8 | 7.0 | 4.4 | 3.0 | 3.6 | 1.8 | 4.4 | 2.3 |
| hun | 12.5 | 6.6 | 6.1 | 9.3 | 10.9 | | 11.0 | 14.4 | 6.7 | 4.8 | 10.3 | 10.6 | 8.1 | 5.0 | 2.8 | 2.1 | 2.4 | 2.0 | 3.4 | 1.7 | 4.7 | 3.0 | 2.1 | 2.0 | 2.0 | 3.1 | 2.5 |
| ltu | 20.8 | 16.3 | 6.8 | 27.6 | 16.5 | 11.0 | | 68.7 | 15.0 | 8.5 | 6.5 | 7.6 | 8.9 | 4.3 | 3.5 | 1.7 | 2.6 | 2.6 | 6.4 | 1.7 | 6.9 | 5.3 | 2.2 | 3.1 | 1.7 | 5.4 | 2.9 |
| lva | 33.6 | 23.0 | 8.8 | 57.7 | 21.7 | 14.4 | 68.7 | | 25.0 | 8.4 | 8.0 | 10.2 | 11.2 | 5.6 | 4.4 | 2.0 | 2.9 | 2.6 | 8.6 | 2.0 | 8.7 | 7.6 | 2.5 | 4.7 | 1.7 | 6.4 | 3.3 |
| mlt | 12.2 | 13.9 | 3.6 | 13.6 | 14.6 | 6.7 | 15.0 | 25.0 | | 3.5 | 7.1 | 7.2 | 11.6 | 2.7 | 3.1 | 1.5 | 3.2 | 2.4 | 3.1 | 1.6 | 8.9 | 6.0 | 4.5 | 8.7 | 2.7 | 5.1 | 2.8 |
| pol | 7.1 | 3.2 | 5.5 | 5.1 | 5.5 | 4.8 | 8.5 | 8.4 | 3.5 | | 4.7 | 7.2 | 4.7 | 2.4 | 1.9 | 1.7 | 1.7 | 1.8 | 2.2 | 1.5 | 3.1 | 2.1 | 1.9 | 1.5 | 1.5 | 2.4 | 1.8 |
| rou | 11.1 | 3.3 | 4.0 | 4.8 | 7.3 | 10.3 | 6.5 | 8.0 | 7.1 | 4.7 | | 8.1 | 8.6 | 2.9 | 2.5 | 1.5 | 1.9 | 2.0 | 2.1 | 2.0 | 5.2 | 2.3 | 2.4 | 2.2 | 1.8 | 3.5 | 1.8 |
| svk | 10.9 | 2.3 | 21.9 | 4.5 | 7.9 | 10.6 | 7.6 | 10.2 | 7.2 | 7.2 | 8.1 | | 10.0 | 4.1 | 1.4 | 1.2 | 2.0 | 1.4 | 2.0 | 1.1 | 3.9 | 1.4 | 1.4 | 2.2 | 1.3 | 2.5 | 1.7 |
| svn | 11.5 | 4.5 | 6.4 | 6.8 | 26.9 | 8.1 | 8.9 | 11.2 | 11.6 | 4.7 | 8.6 | 10.0 | | 5.8 | 2.8 | 1.8 | 3.0 | 2.5 | 2.7 | 1.8 | 5.8 | 2.6 | 3.0 | 3.8 | 2.3 | 4.3 | 2.7 |
| Rest-EU | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| aut | 4.8 | 2.8 | 3.9 | 4.2 | 5.2 | 5.0 | 4.3 | 5.6 | 2.7 | 2.4 | 2.9 | 4.1 | 5.8 | | 2.1 | 3.0 | 1.9 | 1.5 | 2.1 | 1.4 | 2.8 | 1.9 | 1.9 | 1.9 | 1.9 | 1.8 | 1.9 |
| bel | 3.6 | 2.4 | 2.1 | 3.7 | 3.0 | 2.8 | 3.5 | 4.4 | 3.1 | 1.9 | 2.5 | 1.4 | 2.8 | 2.1 | | 1.6 | 1.9 | 1.8 | 1.9 | 2.3 | 2.6 | 2.2 | 2.0 | 4.3 | 3.6 | 2.0 | 1.8 |
| deu | 2.0 | 1.3 | 1.7 | 1.8 | 1.8 | 2.1 | 1.7 | 2.0 | 1.5 | 1.7 | 1.5 | 1.2 | 1.8 | 3.0 | 1.6 | | 1.6 | 1.3 | 1.4 | 1.3 | 1.6 | 1.3 | 1.4 | 2.0 | 1.9 | 1.1 | 1.5 |
| dnk | 2.3 | 1.3 | 1.7 | 3.2 | 2.4 | 2.4 | 2.6 | 2.9 | 3.2 | 1.7 | 1.9 | 2.0 | 3.0 | 1.9 | 1.9 | 1.6 | | 1.5 | 3.0 | 1.3 | 2.2 | 1.9 | 1.5 | 1.8 | 2.3 | 1.7 | 3.8 |
| esp | 2.6 | 1.9 | 1.7 | 2.4 | 2.4 | 2.0 | 2.6 | 2.6 | 2.4 | 1.8 | 2.0 | 1.4 | 2.5 | 1.5 | 1.8 | 1.3 | 1.5 | | 1.5 | 1.6 | 2.3 | 1.8 | 2.1 | 1.4 | 1.5 | 3.7 | 1.4 |
| fin | 4.6 | 3.6 | 2.5 | 11.5 | 4.4 | 3.4 | 6.4 | 8.6 | 3.1 | 2.2 | 2.1 | 2.0 | 2.7 | 2.1 | 1.9 | 1.4 | 3.0 | 1.5 | | 1.3 | 2.8 | 2.4 | 1.5 | 1.6 | 1.8 | 2.1 | 4.6 |
| fra | 1.9 | 1.3 | 1.5 | 1.7 | 1.8 | 1.7 | 1.7 | 2.0 | 1.6 | 1.5 | 2.0 | 1.1 | 1.8 | 1.4 | 2.3 | 1.3 | 1.3 | 1.6 | 1.3 | | 1.8 | 1.4 | 1.8 | 2.3 | 1.5 | 1.4 | 1.2 |
| grc | 8.8 | 21.9 | 3.2 | 5.9 | 7.0 | 4.7 | 6.9 | 8.7 | 8.9 | 3.1 | 5.2 | 3.9 | 5.8 | 2.8 | 2.6 | 1.6 | 2.2 | 2.3 | 2.8 | 1.8 | | 2.7 | 2.6 | 2.3 | 2.0 | 3.1 | 1.9 |
| irl | 5.4 | 4.5 | 2.0 | 5.1 | 4.4 | 3.0 | 5.3 | 7.6 | 6.0 | 2.1 | 2.3 | 1.4 | 2.6 | 1.9 | 2.2 | 1.3 | 1.9 | 1.8 | 2.4 | 1.4 | 2.7 | | 1.6 | 2.0 | 1.9 | 2.2 | 1.7 |
| ita | 2.8 | 2.1 | 1.8 | 2.1 | 3.0 | 2.1 | 2.2 | 2.5 | 4.5 | 1.9 | 2.4 | 1.4 | 3.0 | 1.9 | 2.0 | 1.4 | 1.5 | 2.1 | 1.5 | 1.8 | 2.6 | 1.6 | | 1.7 | 1.7 | 1.8 | 1.5 |
| lux | 3.0 | 2.7 | 1.5 | 3.6 | 3.6 | 2.0 | 3.1 | 4.7 | 8.7 | 1.5 | 2.2 | 2.2 | 3.8 | 1.9 | 4.3 | 2.0 | 1.8 | 1.4 | 1.6 | 2.3 | 2.3 | 2.0 | 1.7 | | 2.0 | 1.8 | 1.4 |
| nld | 1.6 | 1.2 | 1.5 | 1.9 | 1.8 | 2.0 | 1.7 | 1.7 | 2.7 | 1.5 | 1.8 | 1.3 | 2.3 | 1.9 | 3.6 | 1.9 | 2.3 | 1.5 | 1.8 | 1.5 | 2.0 | 1.9 | 1.7 | 2.0 | | 1.6 | 2.0 |
| prt | 5.2 | 3.8 | 2.3 | 4.4 | 4.4 | 3.1 | 5.4 | 6.4 | 5.1 | 2.4 | 3.5 | 2.5 | 4.3 | 1.8 | 2.0 | 1.1 | 1.7 | 3.7 | 2.1 | 1.4 | 3.1 | 2.2 | 1.8 | 1.8 | 1.6 | | 1.4 |
| swe | 1.9 | 1.4 | 1.8 | 4.2 | 2.3 | 2.5 | 2.9 | 3.3 | 2.8 | 1.8 | 1.8 | 1.7 | 2.7 | 1.9 | 1.8 | 1.5 | 3.8 | 1.4 | 4.6 | 1.2 | 1.9 | 1.7 | 1.5 | 1.4 | 2.0 | 1.4 | |

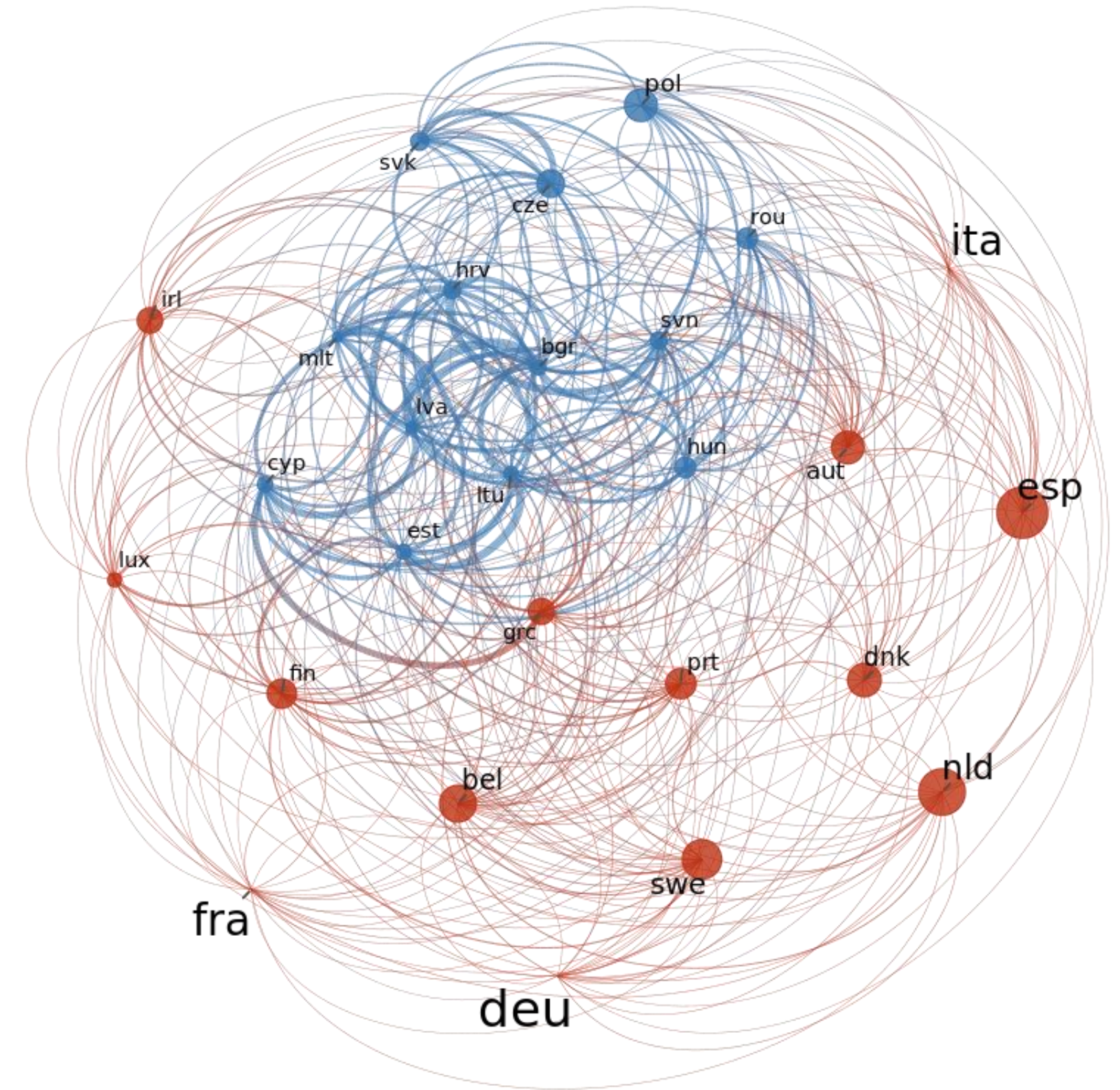
Collaboration: Volume and PAI



Number of Scopus documents • 0 ● 100,000 ● 200,000 ● 300,000

Number of co-written documents — 0 — 5,000 — 10,000 — 15,000

Region ● EU13 ● Rest-EU

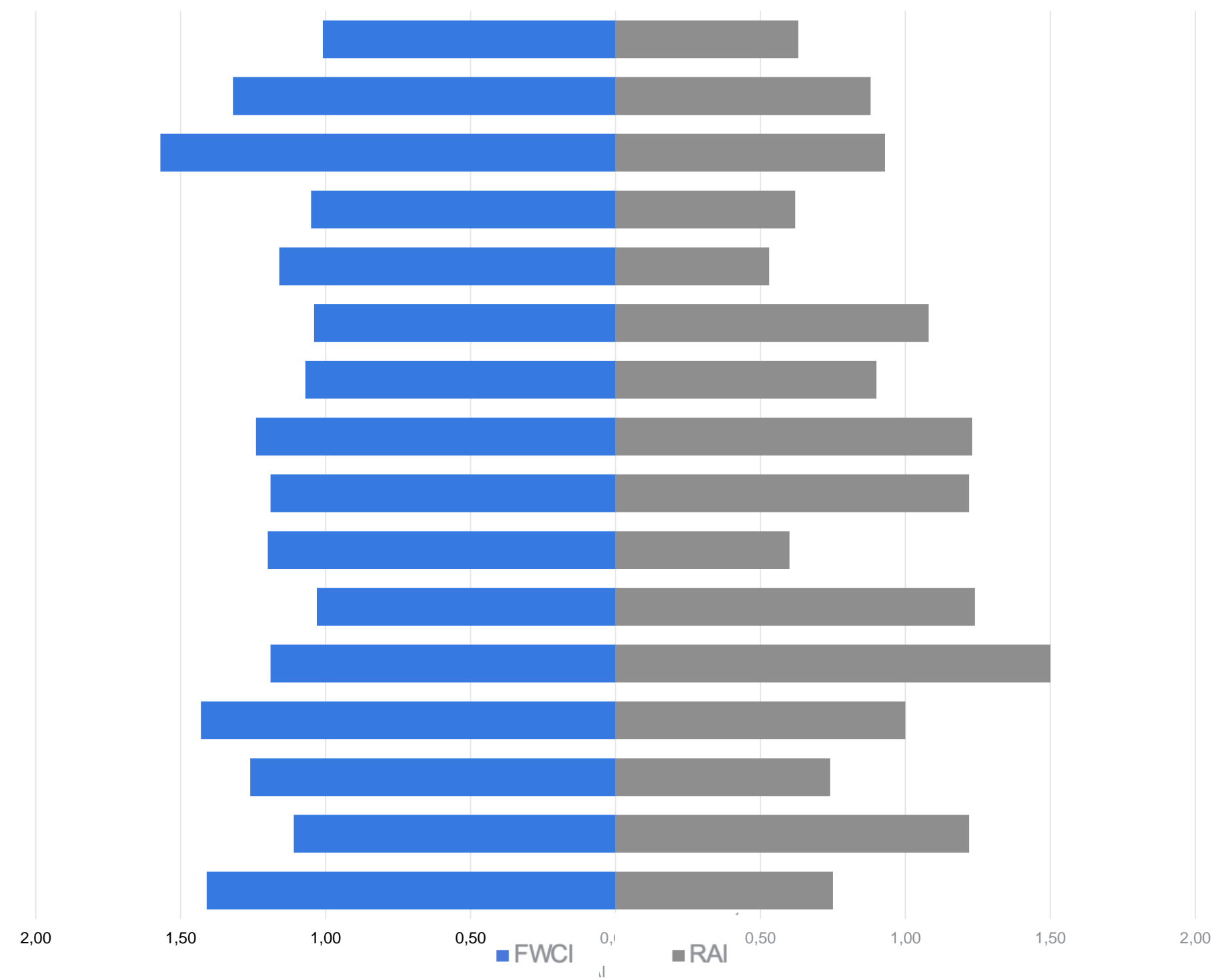
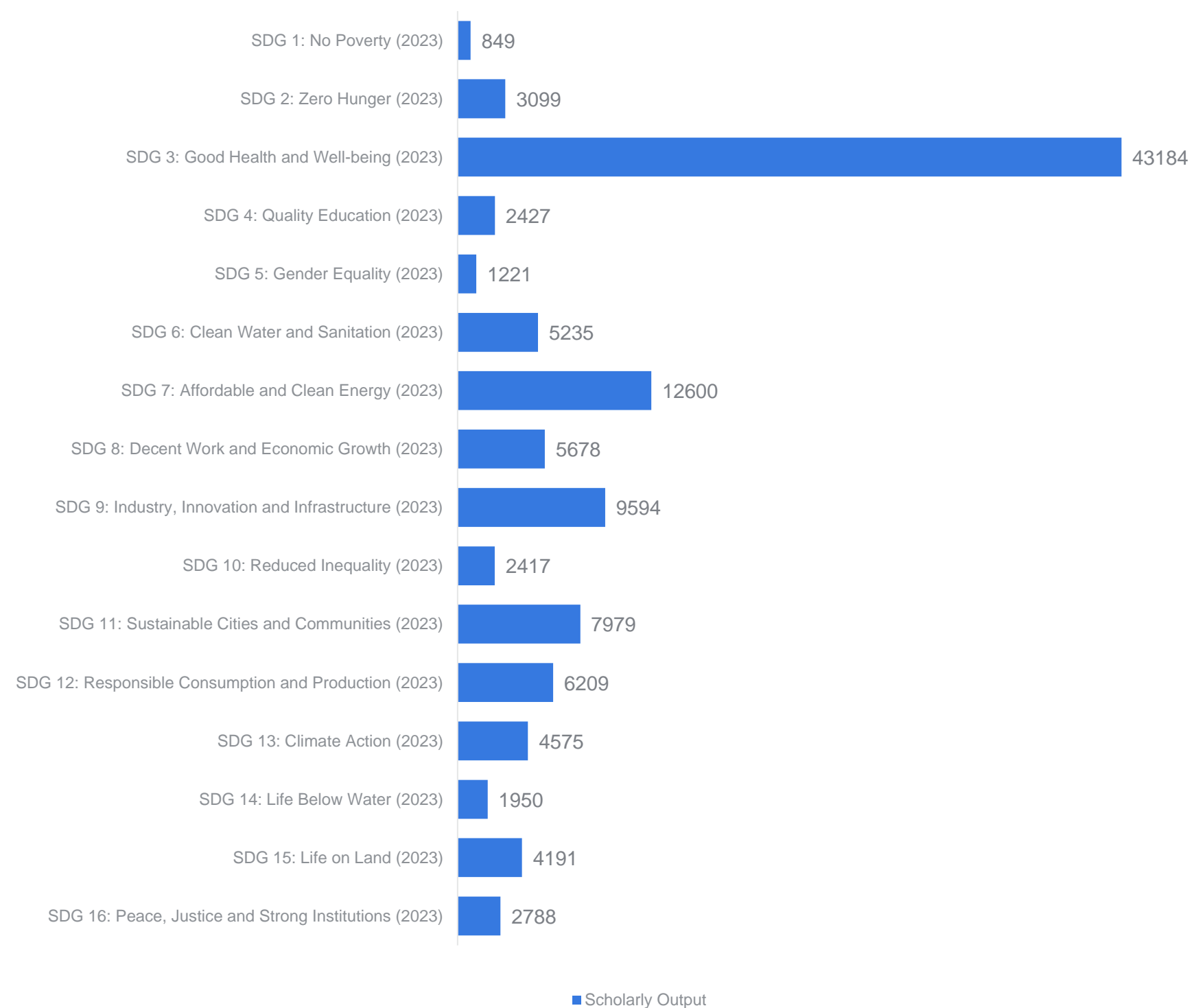


Number of Scopus documents • 0 ● 100,000 ● 200,000 ● 300,000

Probabilistic affinity index — 10 — 20 — 30

Region ● EU13 ● Rest-EU

Sustainable Development Goals in Poland (2018-2022)





Thank you





JAGIELLONIAN UNIVERSITY
IN KRAKOW



JAGIELLONIAN UNIVERSITY
IN KRAKOW

On cooperation business-academia

LUMEN 2023

Jarosław Górniak
Jagiellonian University in Krakow

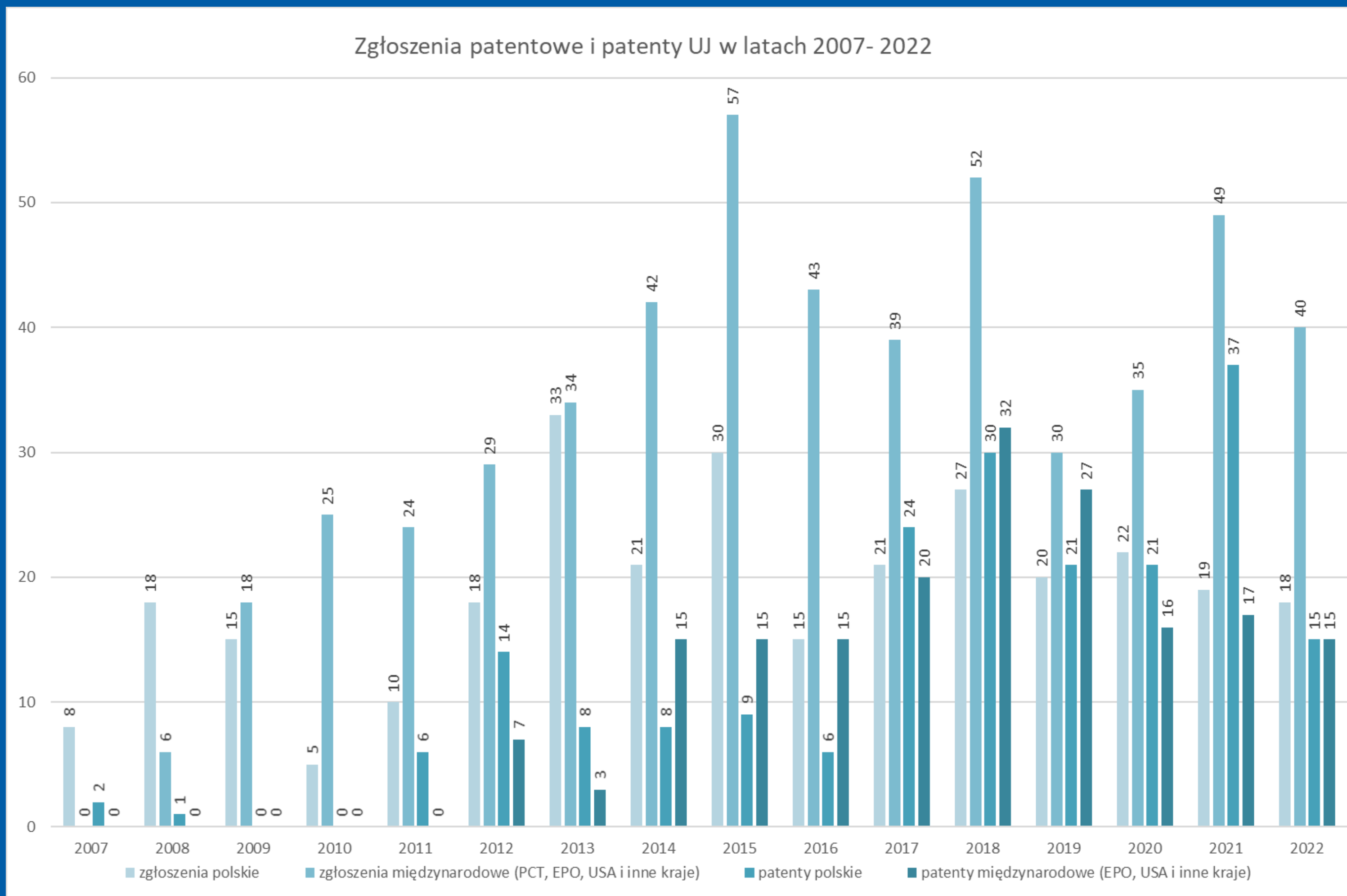
- University research is concentrated at the early technology readiness level (TRL) and there are permanent problems with financing of proof of concepts
- Firms, especially Polish ones, are not ready to take risks of further development of inventions and prefer investments in proved technologies
- Lack of trust between business and academia

- Still existing institutional barriers in academic system:
 - There is no well-defined path of academic career based on research and development cooperation with business (with possible restrictions in publications)
 - Wrong model of state support for research and development concentrated in donating commercial activities of firms instead of academic research and university-business cooperation – visible a.o. in budget allocation in NCBR for R+D in firms versus academic institutions
- Academic culture strongly oriented towards prestige of fundamental research “free of practical application” and separated from business
- Quality of research staff and its inability to work in business project regimes

- What models of academic entrepreneurship should be developed by universities?
- What types of industry-academic partnerships are most effective in today's academic landscape?



Patent applications and patents of the JU 2007-2022



Three modes of sourcing University innovation

| | IP transfer | Research services | → Research partnerships |
|----------------------------|--|---|---|
| Approach | Acquire existing ideas needed for product or process innovation | Contract to develop new ideas in well-defined areas | Collaborate to discover new ideas |
| Firm goals | Rapidly obtain technology developed by public science | Outsource R&D projects instead of developing internal capabilities | Leverage the respective strengths of internal and external researchers, and access public science |
| University goals | Income from academic inventions; economic impact; service to faculty | Income from leveraging existing expertise; access to ideas, materials, and data | Shared scientific advance; income from public and private sources |
| Required firm capabilities | Search and external monitoring | Purchasing, contract management | Relationship management, learning |
| Application areas | Sectors with high relevance of intellectual property | Mature sectors with predictable innovation trajectories | Newly emerging technology areas and industrial sectors, science-intensive sectors |

Examples of successful cooperation

- Cooperation of the JU with CHDE in commercialization and on-going development of nanocapsules resulting in 4 patents, publications, related inventions, and commissioned research services plus income for the university.
- Startup intoDNA created by doctoral student (Dr. now) and 3 researchers from the Faculty of Biotechnology. Initial research and the team development was financed by the university, then the partnership bought out the patent from the university and commercialized it successfully. University has annual incomes from partnership, and the Faculty – from utilization of the research infrastructure.
- Licensing of the intellectual property rights for 4 pharmaceutical inventions to the small US firm iQurePharma at the early stage of development. The firm was able to find investors for further development. There is an ongoing cooperation with the JU research team based on the consulting agreement with the University. It induced related inventions and multiple research publications.

Conclusions

- More state funds for research but wisely allocated
- Legal framework facilitating business commitment in financing academic research
- Long-term investment in talent recruitment and employment in universities
- National Research Centre: protect the mode of its functioning but include into the mission non-commercial projects up to 4th/5th technology readiness level
- State financial motivation for business-academia cooperation (like “shekel for shekel” mechanism in Israel)