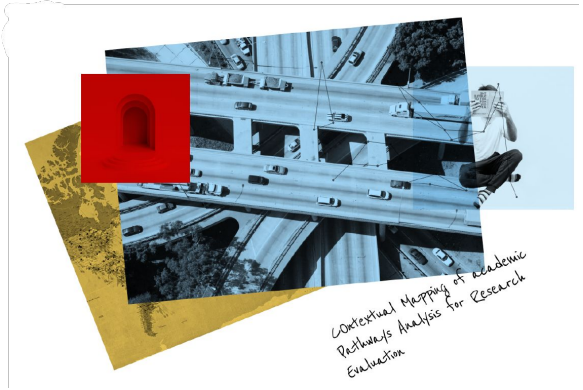
Diversity and recognition in research teams



COMPARE
UGR PROJECT

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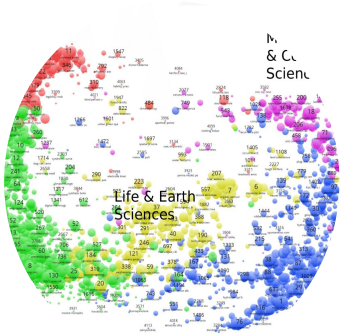
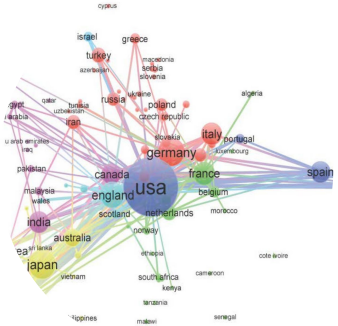




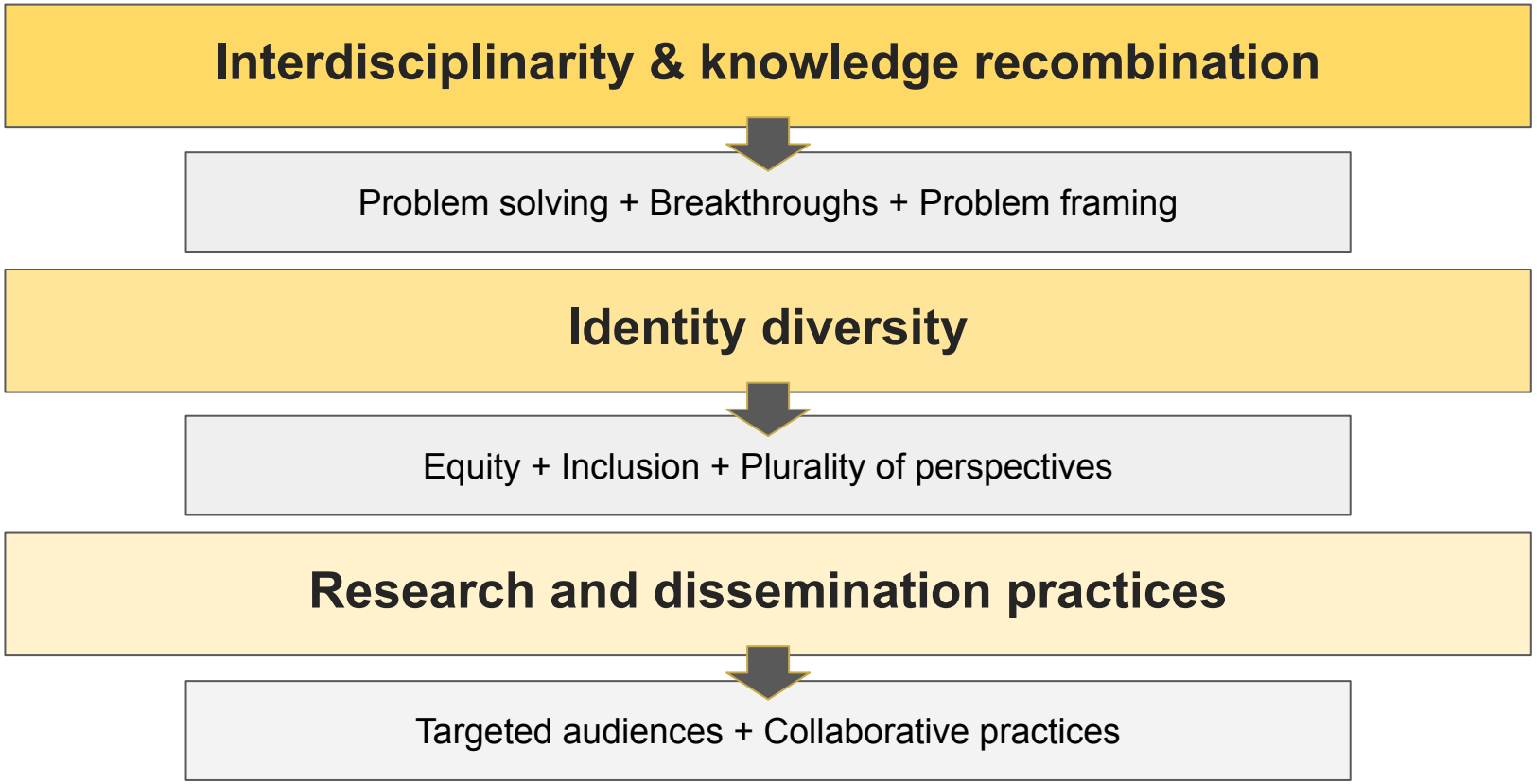
Knowledge

Scientists

Society

The generation of **knowledge** as the result of co-existing **social**, **cognitive** and **cultural** **processes and actors**.

Diversity has many surnames



The challenge in research evaluation is to…

- ➔ Research quality
- ➔ Societally relevant
- ➔ Diversity
- ➔ Global and cooperative

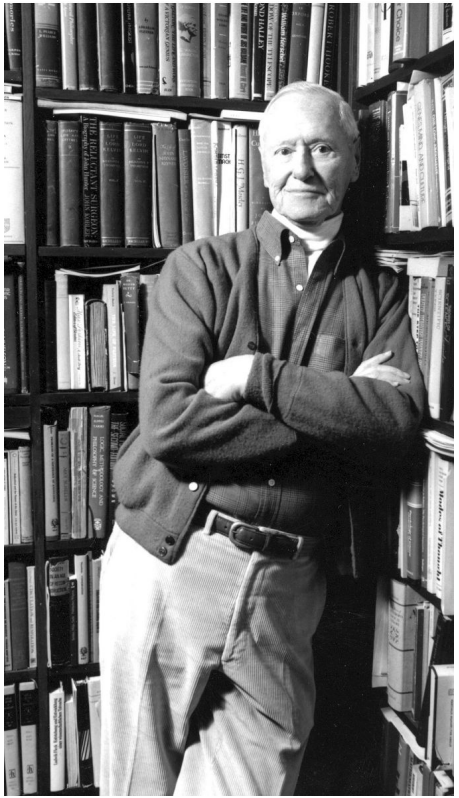
Non-exhaustive list!

… foster and promote a **successful**, **sustainable**, **balanced** and **socially responsible** **scientific ecosystem**

So far the approach was… excellence and impact

Based on a far-fetched normative view of the scientific reward system, **universities, funders and countries** have relied heavily on **the use of publication and citation counts** to **allocate funds, recruit and promote** researchers.

It is fair to say that, in many occasions there has been a misuse and abuse of metrics.



This approach is not only shortsighted, but biased

interpretation of bibliometric results. However, most of these problems can be overcome. When used properly, bibliometric indicators can provide a "monitoring device" for university research-management and science policy. They enable research policy-makers to ask relevant questions of researchers on their

CORRESPONDENCE

Impact factors can mislead

SIR — Impact factors (IFs) for scientific journals, developed by the Institute for Scientific Information (ISI) and published in the section "Journals per category, ranked by Impact Factor" of the *Journal Citation Reports* (*JCR*), are frequently used to evaluate the status of scientific journals or even the publication output of scientists. The IF of a journal in year *T* is defined as

purchased from ISI. In each category we compared the ranking of journals by IF as printed in the *JCR* to the one based on our correct IF, by calculating the number of journals moving at least 1, 3, 5 or 10 positions. The table shows the five categories affected most severely, measured through the percentage of journals moving at least one position in the ranking. The categories

Individual-level evaluative bibliometrics – the politics of its use and abuse

Wolfgang Glänzel wolfgang.glanzel@kuleuven.be / ECOOM, KU Leuven
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Jointly published by Kluwer Academic Publishers, Dordrecht and Akadémiai Kiadó, Budapest

Scientometrics, Vol. 51, No. 1 (2001) 335–346

Language biases in the coverage of the *Science Citation Index* and its consequences for international comparisons of national research performance

THED N. VAN LEEUWEN, HENK F. MOED, ROBERT J. W. TIJSSEN, MARTIJN S. VISSER, ANTHONY F. J. VAN RAAN

The Leiden Manifesto for research metrics

CWTS

THE DOS AND DON'TS IN INDIVIDUAL-LEVEL BIBLIOMETRICS

WOLFGANG GLÄNZEL[1], PAUL WOUTERS[2]

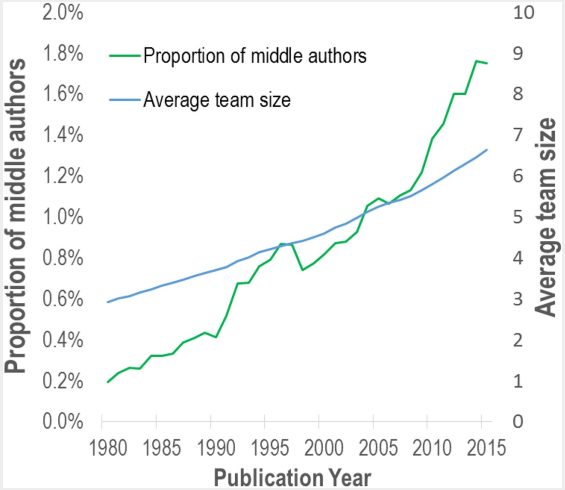
[1]Centre for R&D Monitoring and Dept MSI, KU Leuven, Belgium
[2]Centre for Science and Technology Studies, Leiden University, The Netherlands

ECOOM Centre for R&D Monitoring

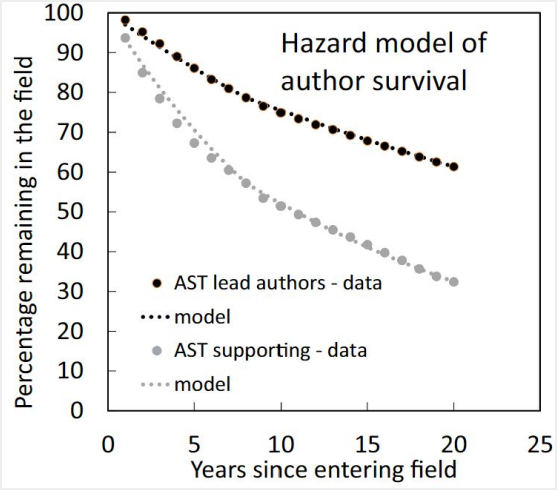
KU LEUVEN

This can have consequences for the science ecosystem

Increase of team size



Shortening of their career length



Milojević, S., Radicchi, F., & Walsh, J. P. (2018). Changing demographics of scientific careers: The rise of the temporary workforce. *Proceedings of the National Academy of Sciences*, *115*(50), 12616–12623. https://doi.org/10.1073/pnas.1800478115

Mongeon, P., Smith, E., Joyal, B., & Larivière, V. (2017). The rise of the middle author: Investigating collaboration and division of labor in biomedical research using partial alphabetical authorship. *PLOS ONE*, *12*(9), e0184601. https://doi.org/10.1371/journal.pone.0184601

COMPARE aims to develop technical solutions and methodologies using scientometric data to better understanding **different forms of diversity** within the **scientific workforce**

The scientometric toolbox

Research Evaluation, 2023, 00, 1–11
https://doi.org/10.1093/reseval/rvad024
Special Issue Paper

OXFORD

Scientometrics 101

The conflict of impact for early career researchers planning for a future in the academy

Marta Natalia Wróblewska[1], Corina Balaban[2], Gemma Derrick[3,*], Paul Benneworth[4]

[1]Institute of Humanities, SWPS University of Social Sciences and Humanities, Warszawa 03-815, Poland
[2]Manchester Institute of Innovation Research, The University of Manchester, Manchester M15 6PB, UK
[3]Centre for Higher Education Research Transformations, School of Education (SoE), University of Bristol, Bristol BS8 1JA, UK
[4]Department of Business Administration, Western Norway University of Applied Sciences, Bergen 5063, Norway
*Corresponding author. Email: gemma.derrick@bristol.ac.uk.

Abstract

It has been argued that due to the growing importance attributed to research impact and forms of its evaluation, an academic 'culture of impact' is emerging. It would include certain concepts, values, and skills related to the area of generating and documenting impact. We use thematic and discourse analysis to analyse open answers from 100 questionnaires on research impact submitted by ECRs working in the social sciences and humanities (SSH) in Europe. We explore ECR's early-career stage positions relative to societal impact and the trade-offs necessary to assure an academic career. The results show how, as the first generation of scholars to be socialized towards value of academic research beyond academia, ECRs are confronted with policy signals that encourage a drive for impact, which are at the same time often in line with respondents' personal values around impact beyond academia. However, ECRs face a number of competing signals about research value within the evaluation spaces necessary to navigate an academic career. Current evaluative structures often dismiss the achievement of societal impact favouring instead narrower definitions of research excellence. Career structures and organizational realities are often unfavourable to impact-related activity, which has implications for an ECRs' ability to develop coherent professional positionings.

Keywords: early career researchers; impact; research culture; evaluative behaviour.

Introduction

Academia is a complex space to navigate, particularly for Early Career Researchers (ECRs). Growing numbers of PhD graduates must compete for a small number of jobs (Wellcome 2020; Commonfund Institute 2021), while expectations as to the candidates' profiles become exorbitant: a recent study showed that the entry-level threshold for academic positions is considerably higher than 10 years earlier (Warren 2019). The nature of academic employment is becoming increasingly precarious (particularly at the early stages of one's career, often characterized by several *post doc* jobs) (Armano and Murgia 2012; Murgia and Poggio 2018) while workloads become more and more punishing, leading to burnout and poor mental health (Gill 2009; Pereira 2017). These factors put pressure on young scholars who need to negotiate organizational, governmental, and public demands from academics' (e.g., Horizon 2020 & European Research Council), as well as in many nationally based funding organizations (UK Research and Innovation, National Science Foundation (NSF), National Institute for Health (NIH), Research Council of Norway, etc.). It is also used in ex-post form in formalized research audit frameworks in UK (HEFCE 2014; UKRI 2019), Italy, Poland (Wróblewska 2017), and Norway (Wróblewska 2019) (for an overview of approaches to impact evaluation in different countries see Grant et al. 2009; Donovan 2011; European Science Foundation 2012). While scholars have always engaged in such extra-impact work informally (Hamann and Gengnagel 2014; Pearce and Evans 2018), it was not, until quite recently, explicitly valued as a component of research 'excellence' or 'quality' (Hessels, Van Lente and Smits 2009). Examples of 'impactful' activities which would fall under extra-academic impact include collaboration with industry, social outreach, appearances in me-

By extracting different pieces of information from publications we can quantitatively study researchers' activity

Citations is one aspect of it, but **it is not the only one**.

We can also link information across publications to study topics, people, institutions

Scientometrics 101

The Bibliometric Bandwagon: Characteristics of Bibliometric Articles Outside the Field Literature

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The controversial use of bibliometrics in scientific decision making has necessitated the need for researchers to remain informed and engaged about bibliometrics. Glänzel and Schoepflin (1994) first raised the issue of bibliometric standards in bibliometric research and this concern has been echoed by several additional bibliometric researchers over time (Braun, 2010; Glänzel, 1996; Abbott, Cyranoski, Jones, Maher, Schiermeier, & Van Noorden, 2010; Lane, 2010; Nature, 2010; van Noorden, 2010; Wallin, 2005). We compare the characteristics of articles published within and outside the Library and Information Science (LIS) field, including the relative impact and the affiliation of the contributing authors. We find that although the visibility of bibliometric articles within LIS is higher, it is not significant. However, a statistically significant growth in the number of articles

Research Evaluation, 31(1), 2022, 93–103
doi: 10.1093/reseval/rvab033
Advance Access Publication Date: 17 September 2021
Article

The Corona-Eye: Exploring the risks of COVID-19 on fair assessments of impact for REF2021

Gemma E. Derrick[1,*] and Julie Bayley[2]

[1]Department of Educational Research, Centre for Higher Education Research & Evaluation, Lancaster University, Lancaster LA1 4YD, UK and [2]Lincoln Impact Literacy Institute, Vice Chancellor's Office, University of Lincoln, Brayford Pool, Lincoln, LN6 7TS, UK

*Corresponding author. Email: g.derrick@lancaster.ac.uk.

Abstract

This article assesses the risk of two COVID-19-related changes necessary for the expert review of REF2021's Impact criterion: the move from face to face (F2F) to virtual deliberation; and the research landscape caused by the COVID-19 crisis requiring an extension of deadlines, dation of COVID-19-related mitigation. Peer review in its basic form requires expert re dissenting opinions and non-verbal cues are absorbed into a group deliberative and therefore inform outcomes. With a move to deliberations in virtual settings, the most likely current outcome for REF2021 evaluations, the extent that negotiation dynamics necessary in F2F evaluations are diminished and how this limits panellists' ability to sensitively assess COVID-19 mitigation statements is questioned. This article explores the nature of, and associated capabilities to undertake, complex decision-making in virtual settings around the Impact criterion as well the consequences of COVID-19 on normal Impact trajectories. It examines the risks these changes present for evaluation of the Impact criterion and provides recommendations to offset these risks to enhance discussion and safeguard the legitimacy of evaluation outcomes. This article is also relevant for evaluation processes of academic criteria that require both a shift to virtual, and/or guidance of how to sensitively assess the effect of COVID-19 on narratives of individual, group or organizational performance.

Key words: research evaluation; impact assessment; Research Excellence Framework 2021; COVID-19; peer review

1. Introduction

As the global academic community works to recover and reorganize its research practice during and in anticipation of a 'post' COVID-

necessary for a post-COVID-19-normal assessment processes may have on the evaluation of the non-academic, ex-post societal impact (the Impact criterion), as distinct from the two other REF compo-

Research Evaluation, 2023, **00**, 1–11
https://doi.org/10.1093/reseval/rvad024
Special Issue Paper

OXFORD

The conflict of impact for early career researchers planning for a future in the academy

Marta Natalia Wróblewska[1], Corina Balaban[2], Gemma Derrick[3,*], Paul Benneworth[4]

[1]Institute of Humanities, SWPS University of Social Sciences and Humanities, Warszawa 03-815, Poland
[2]Manchester Institute of Innovation Research, The University of Manchester, Manchester M15 6PB, UK
[3]Centre for Higher Education Research Transformations, School of Education (SoE), University of Bristol, Bristol BS8 1JA, UK
[4]Department of Business Administration, Western Norway University of Applied Sciences, Bergen 5063, Norway
*Corresponding author. Email: gemma.derrick@bristol.ac.uk.

Abstract

It has been argued that due to the growing importance attributed to research impact and forms of its evaluation, an academic 'culture of impact' is emerging. It would include certain concepts, values, and skills related to the area of generating and documenting impact. We use thematic and discourse analysis to analyse open answers from 100 questionnaires on research impact submitted by ECRs working in the social sciences and humanities (SSH) in Europe. We explore ECR's early-career stage positions relative to societal impact and the trade-offs necessary to assure an academic career. The results show how, as the first generation of scholars to be socialized towards value of academic research beyond academia, ECRs are confronted with policy signals that encourage a drive for impact, which are at the same time often in line with respondents' personal values around impact beyond academia. However, ECRs face a number of competing signals about research value within the evaluation spaces necessary to navigate an academic career. Current evaluative structures often dismiss the achievement of societal impact favouring instead narrower definitions of research excellence. Career structures and organizational realities are often unfavourable to impact-related activity, which has implications for an ECRs' ability to [illegible] coherent professional positionings.

[illegible]er researchers; impact; research culture; evaluative behaviour.

[illegible]n

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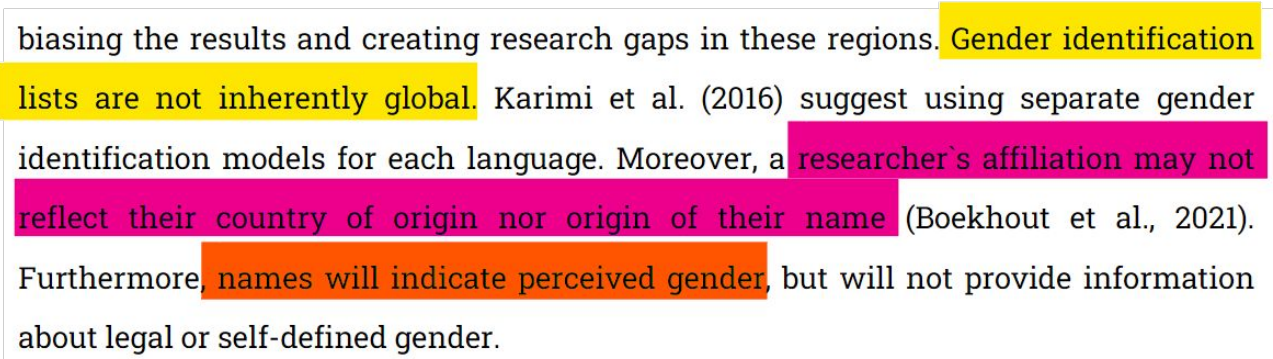
Scientometric Analytics Beyond H-Indices and Impact Factors

- The introduction of advance computational methodologies and the development of algorithms is a key element
- The caveats and limitations of these algorithms do not invalidate their use, but must be understood to interpret any findings derived from them

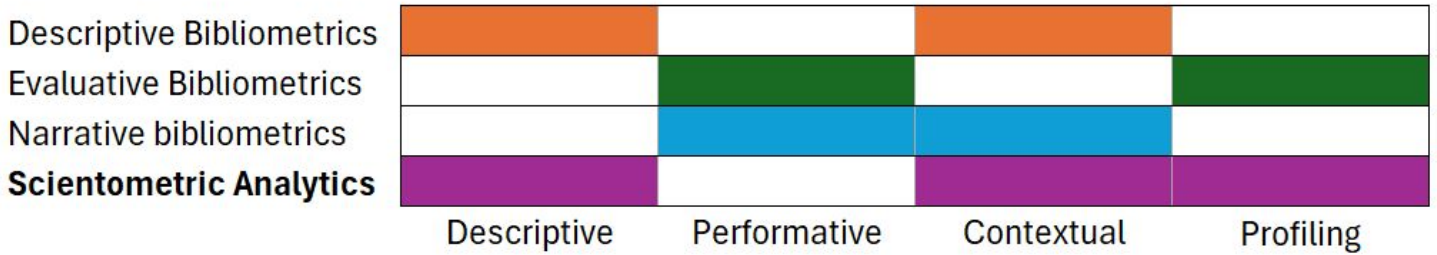


biasing the results and creating research gaps in these regions. Gender identification lists are not inherently global. Karimi et al. (2016) suggest using separate gender identification models for each language. Moreover, a researcher`s affiliation may not reflect their country of origin nor origin of their name (Boekhout et al., 2021). Furthermore, names will indicate perceived gender, but will not provide information about legal or self-defined gender.

González-Salmón, E. et al. (2024). The woman's researcher tale: A Review of Bibliometric Methods and Results for Studying Gender in Science. https://doi.org/10.5281/zenodo.10590300

Scientometric Analytics

It is defined as the use of bibliographic data to quantitatively analyze the context and conditions under which scientific knowledge is produced and disseminated.



The goal is understand the underlying the interrelation between the people conducting research, their contextual setting and the knowledge produced.

Looking at the Scientific Workforce

Looking at diversity at the individual level

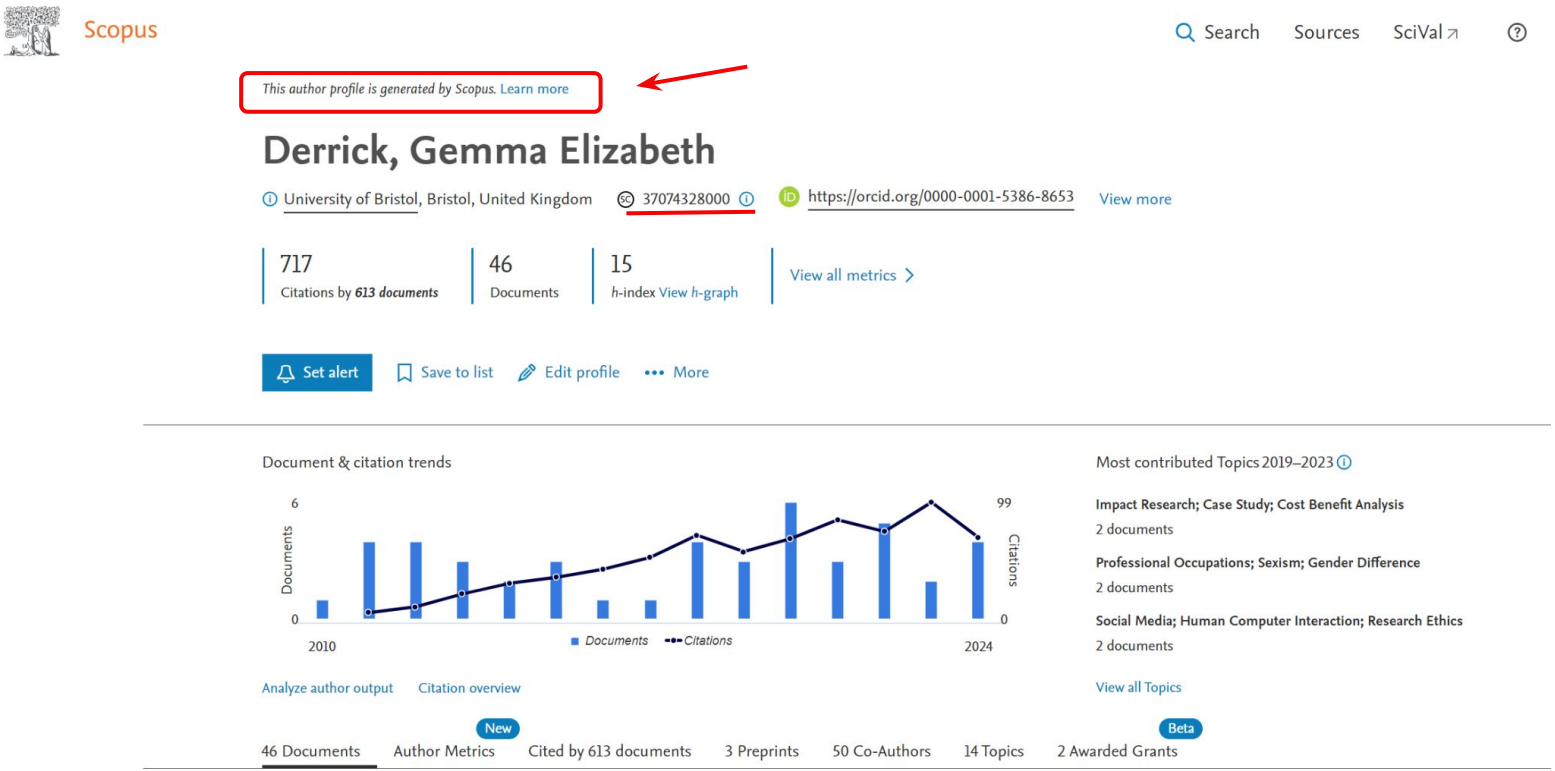
1. Identify an author and their work
   - Name disambiguation algorithm vs. Researcher registry
2. Assign individual characteristics
   - Gender, career length, nationality/ethnicity
3. Characterize context
   - Mobility experience, funding, social outreach, publication patterns
4. Look into team dynamics
   - Author order, contribution statements, collaboration patterns

Author identification - Name disambiguation algorithms

AUTHOR GROUPING METHODS	
Rule Scoring algorithm	Groups author records by evaluating the similarity of various attributes using scoring rules.
Graph-based algorithm	Uses a network of interconnected entities to disambiguate authors by analyzing relationships within the graph.

AUTHOR ASSIGNMENT METHODS	
Collaborative algorithm	Integrates data from multiple authority files to standardize and disambiguate author names.
Heuristic-based algorithm	Applies predefined rules and heuristics to match and differentiate authors. E.g., PubMed ID

Author identification - Name disambiguation algorithms



Author identification - Author registries

Prof Julian Higgins

SEGUIR

University of Bristol

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evidence synthesis meta-analysis systematic review health technology assessm… biostatistics

TÍTULO	CITADO POR	AÑO
Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement D Moher, A Liberati, J Tetzlaff, DG Altman, t PRISMA Group* Annals of internal medicine 151 (4), 264-269	140204	2009
Cochrane Handbook for systematic reviews of intervention. Version 5.1. 0 JPT Higgins, S Green The Cochrane Collaboration	89034 *	2011
Measuring inconsistency in meta-analyses JPT Higgins, SG Thompson, JJ Deeks, DG Altman BMJ 327 (7414), 557-560	54353	2003
Quantifying heterogeneity in a meta-analysis JPT Higgins, SG Thompson Statistics in Medicine 21 (11), 1539-1558	30893	2002
The Cochrane Collaboration's tool for assessing risk of bias in randomised trials JPT Higgins, DG Altman, PC Gøtzsche, P Jüni, D Moher, AD Oxman, … Bmj 343	29257	2011
S. Cochrane handbook for systematic reviews of interventions version 5.0. 2 [updated September 2009] JPT Higgins The Cochrane Collaboration	26380 *	2008
Cochrane Handbook for Systematic Reviews of Interventions Version 5.0.0 [updated February 2008] JPT Higgins, S Green The Cochrane Collaboration	26274 *	2008
Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011] JPT Higgins, S Green The Cochrane Collaboration	24816 *	2011
Cochrane Handbook for Systematic Reviews of Interventions Version 4.2.5 [updated May 2005] JPT Higgins, S Green The Cochrane Collaboration	24646 *	2005
Glossary, Cochrane Handbook for Systematic Reviews of Interventions Version 5.0. 2 JPT Higgins, S Green The Cochrane Collaboration	23454 *	2009
Introduction to meta-analysis M Borenstein, LV Hedges, JPT Higgins, HR Rothstein John Wiley & Sons	23150	2021
Cochrane Handbook for Systematic Reviews Version 5.0.(updated February 2008) JPT Higgins, S Green The Cochrane Collaboration	19810 *	2008

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	Total	Desde 2019
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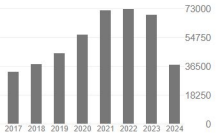
Índice h	187	149
Índice i10	487	435



Acceso público VER TODO

17 artículos 200 artículos

no disponibles disponibles

Basado en requisitos de financiación

Coautores

- Douglas G Altman, Centre for Statistics in Medicine, …
- Jon Deeks, Professor of Biostatistics
- Jelena Savovic, University of Bristol; NIHR ARC …
- David Moher, Ottawa Hospital Research Institute
- Georgia Salanti, Associate Professor in Biostatisti…
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Julian PT Higgins

Julian Piers Thomas Higgins

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Show record summary

Personal information

Websites & social links

University of Bristol profile

Other IDs

ResearcherID: H-4008-2011

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Scopus Author ID: 57307017300

Scopus Author ID: 57307017300

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Biography

Julian is Professor of Evidence Synthesis in the Population Health Sciences department of Bristol Medical School. He is co-director of the NIHR Bristol Evidence Synthesis Group, leads the Bristol Appraisal and Review of Research (BARR) group and is Deputy Director of Research at Bristol Medical School. He was previously Chair in Evidence Synthesis at the University of York, and Programme Leader at the MRC Biostatistics Unit in Cambridge, where he was also head of the UK Human Genome Epidemiology Network Coordinating Centre. Before these roles he worked at the medical schools of Imperial College London and of University College London.

Activities Collapse all

Employment (9) Sort

The University of Bristol: Bristol, GB

2017-02-01 to present | Member (Bristol Population Health Science Institute) Employment — Show more detail

Source: University of Bristol - PURE

The University of Bristol: Bristol, GB

2015-01-01 to present | Academic , Professor of Evidence Synthesis (Bristol Medical School (PHS)) Employment — Show more detail

Source: University of Bristol - PURE

University of Bristol Medical School: Bristol, GB

2013-01-01 to present | Professor of Evidence Synthesis (Population Health Sciences) Employment — Show more detail

Source: Julian PT Higgins

The University of Bristol: Bristol, GB

2014-01-01 to 2024-09-30 | Member (NIHR Applied Research Collaboration West (NIHR ARC West)) — Show more detail

Author identification

BEWARE

- Author identification approaches and sources are often linked
- Each approach will have its own pros and cons
- The choice will depend on the type of study we wish to conduct

AUTHOR GROUPING METHODS	
Rule Scoring algorithm	Groups author records by evaluating the similarity of various attributes using scoring rules.
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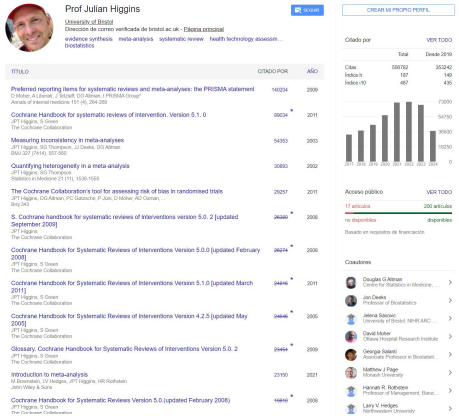
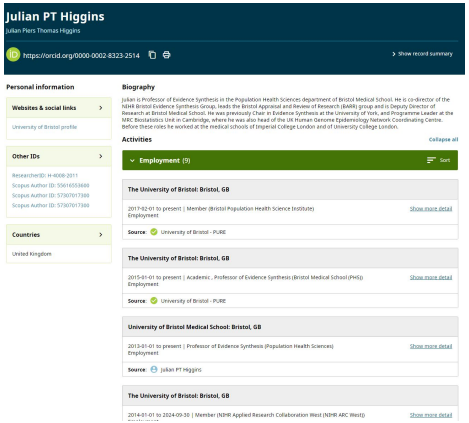


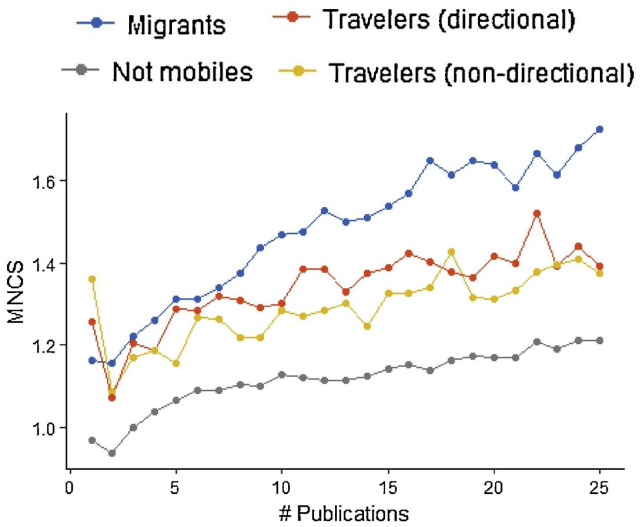


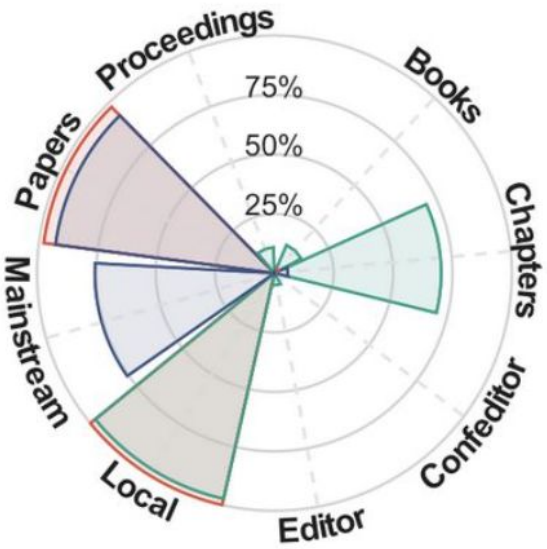
Individual characteristics

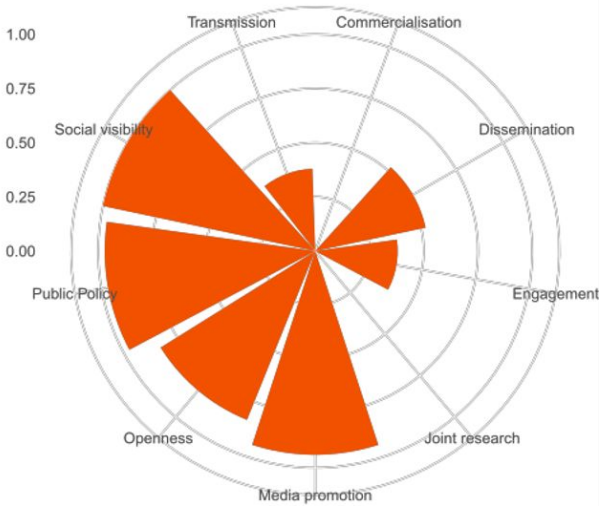
Here is where things start to get fuzzy, concepts and proxies we all in principle agree on, have subtle differences in their computation which affect findings

- **Career length**
  There are up to 5 different ways to compute career length scientometrically, all of them ignore career breaks
- **Gender**
  Up to 27% of gender studies published in Scientometrics *did not specify how was gender assigned* *(González-Salmón & Robinson-Garcia, 2024)*
- **Nationality/Ethnicity**
  Nationality and ethnicity are inferred based on affiliation and surname data

Context







Trajectories

Publication patterns

Social outreach

Team dynamics

Author contributions

Cristina Sáenz de Miera, Methodology, Writing – review and editing, Conceptualization, Data curation, Formal analysis, Validation, Investigation, Visualization, Writing - original draft, Project administration; Nicole Bellefontaine, Conceptualization, Formal analysis; Susan J Allen, Writing - original draft, Project administration; Martin G Myers, Investigation, Project administration; Carol F Elias,

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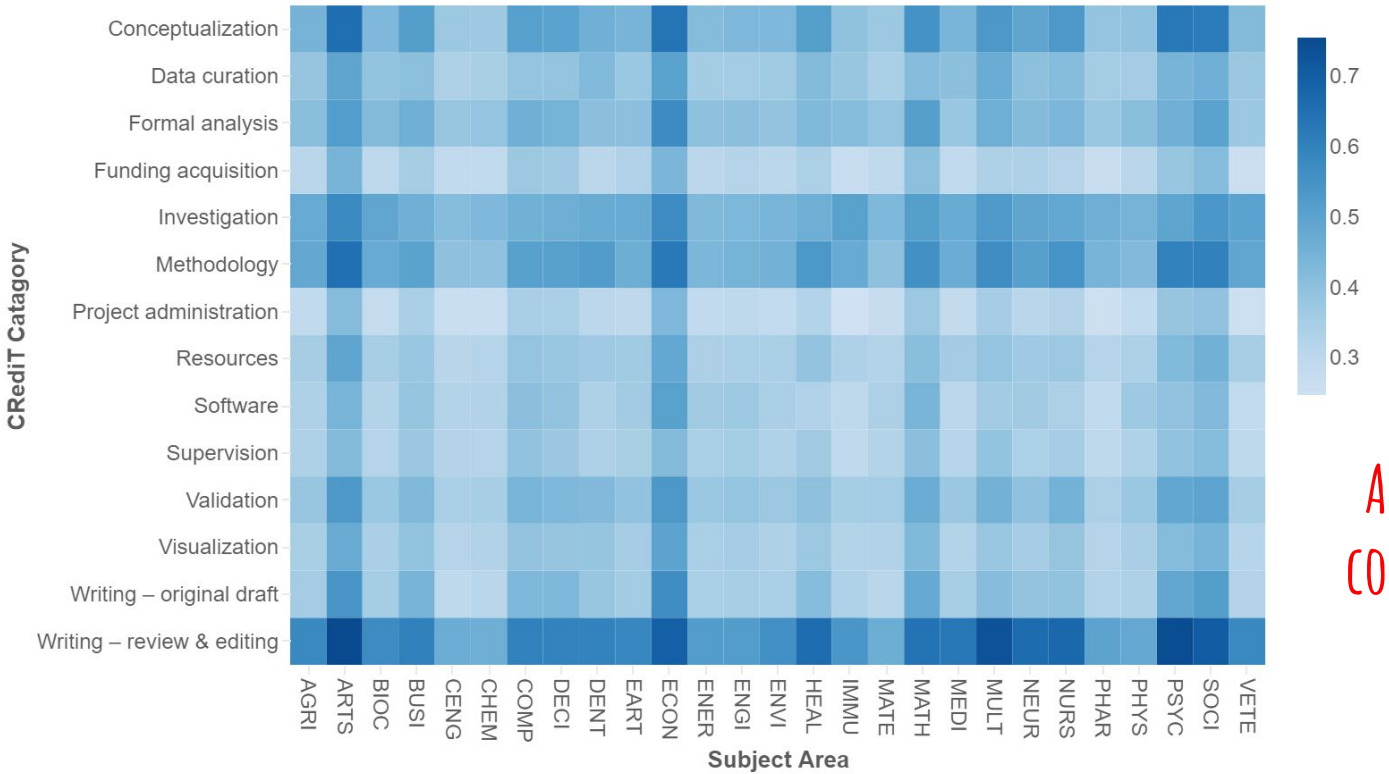
Author order and collaboration have long been studied in Scientometrics.

But the real game changer is the integration of **contribution statements**.

This data is still rarely accessible and there is much to learn on self-reporting, disciplinary differences and relation with **author order** and **author credit**.

Team dynamics

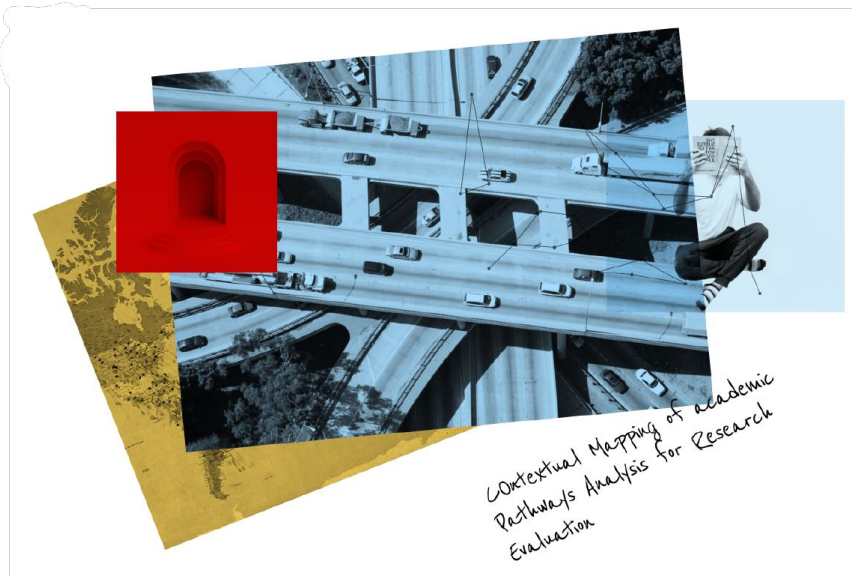


Avg. number of times contributions appear in papers

Diversity under scientometric lenses

Understanding team dynamics

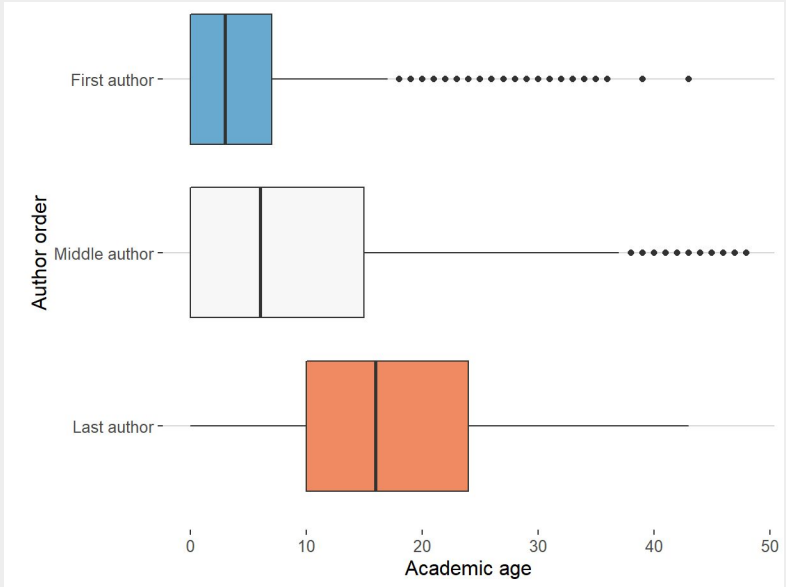
1



Author order and its underlying assumptions

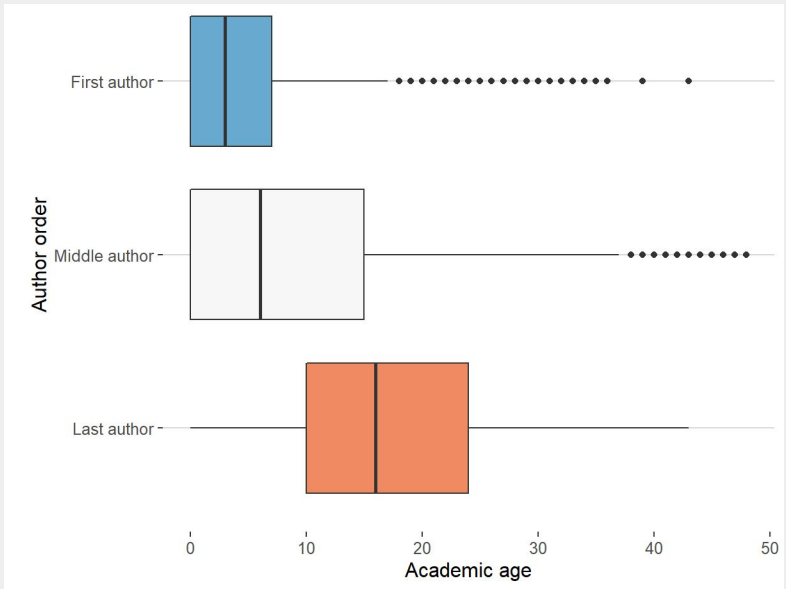
★ Authorship is the currency in science

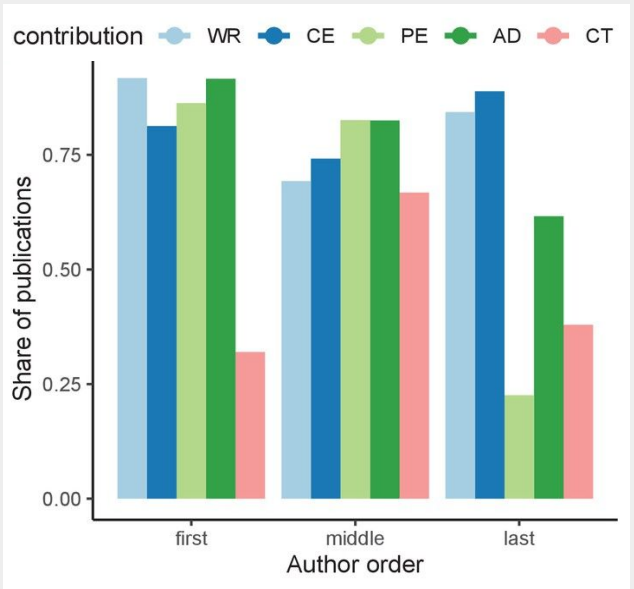
★ First and last authors are considered key positions



Author order and its underlying assumptions

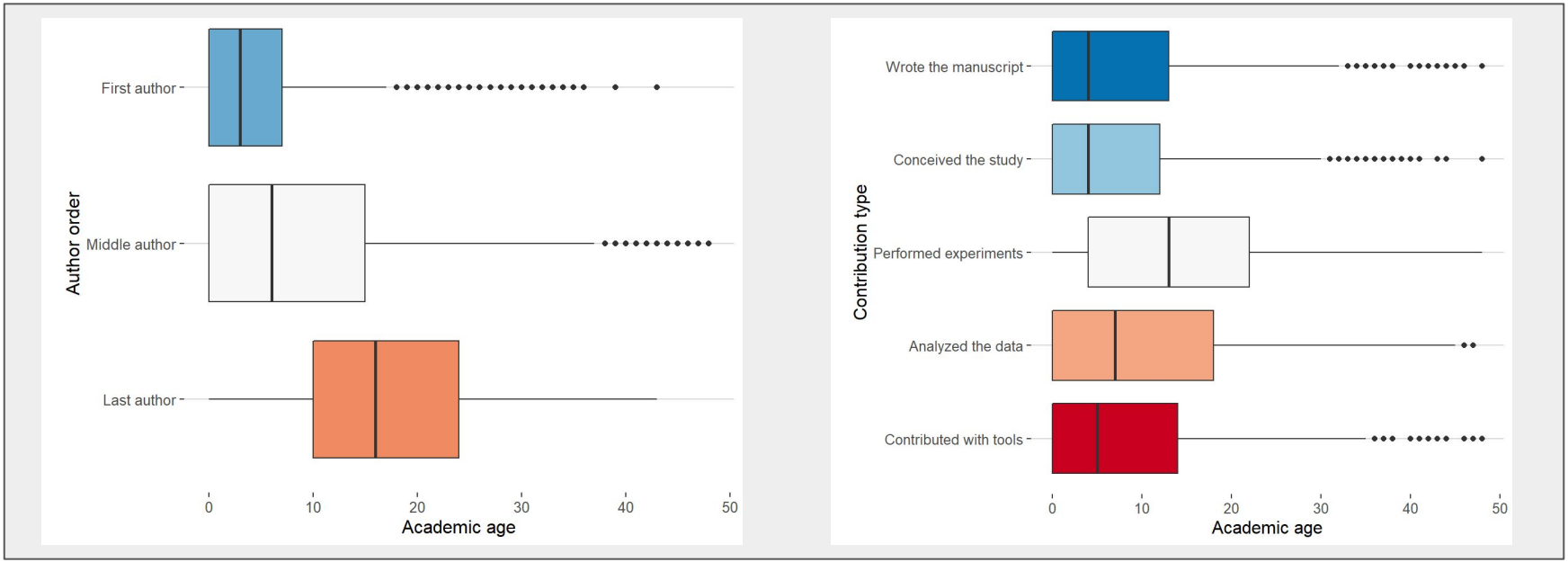
★ If these assumptions are true, author order should relate to contribution statements



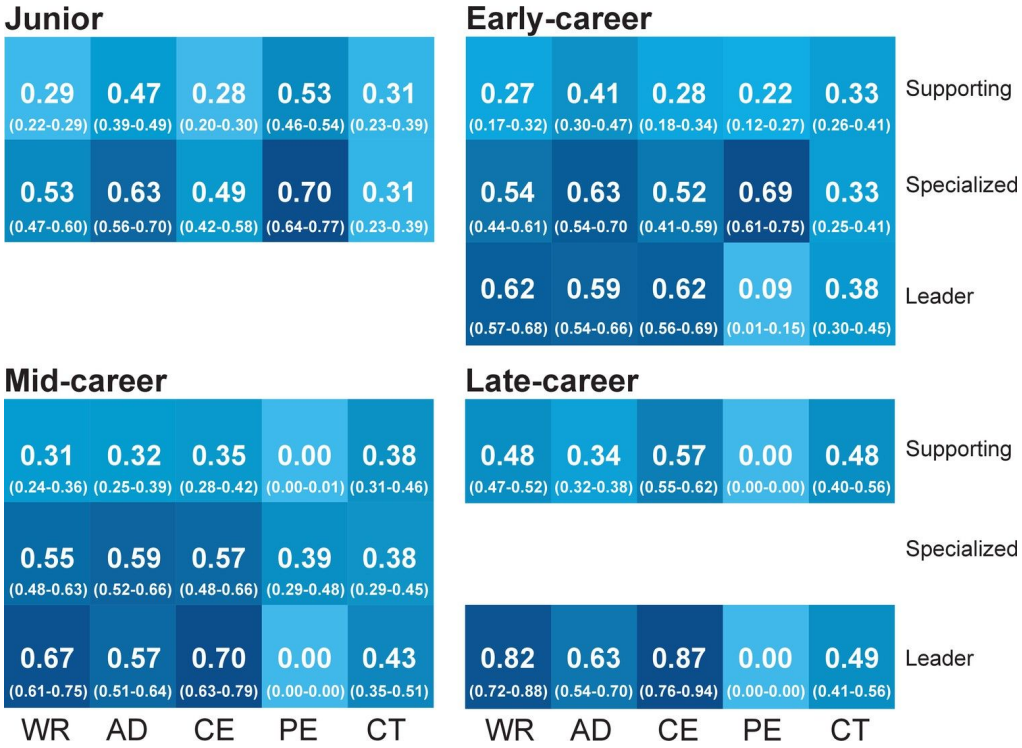


Author order and its underlying assumptions

★ But some age-related power dynamics seem to also be in place



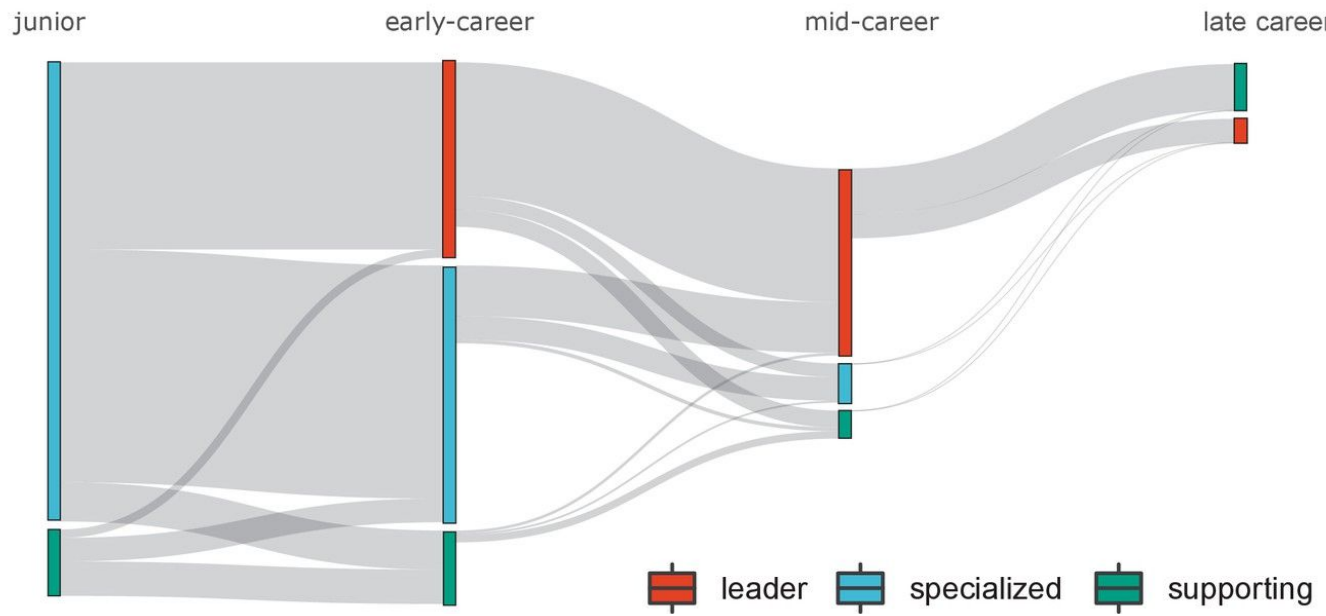
Research careers and task specialization



Using machine learning, we trained a model combining publication, author and contribution data and analyzed the career trajectories of > 220,000 researchers based on their predicted contributions.

We then created archetypes of researchers at four different career stages.

Research careers and task specialization



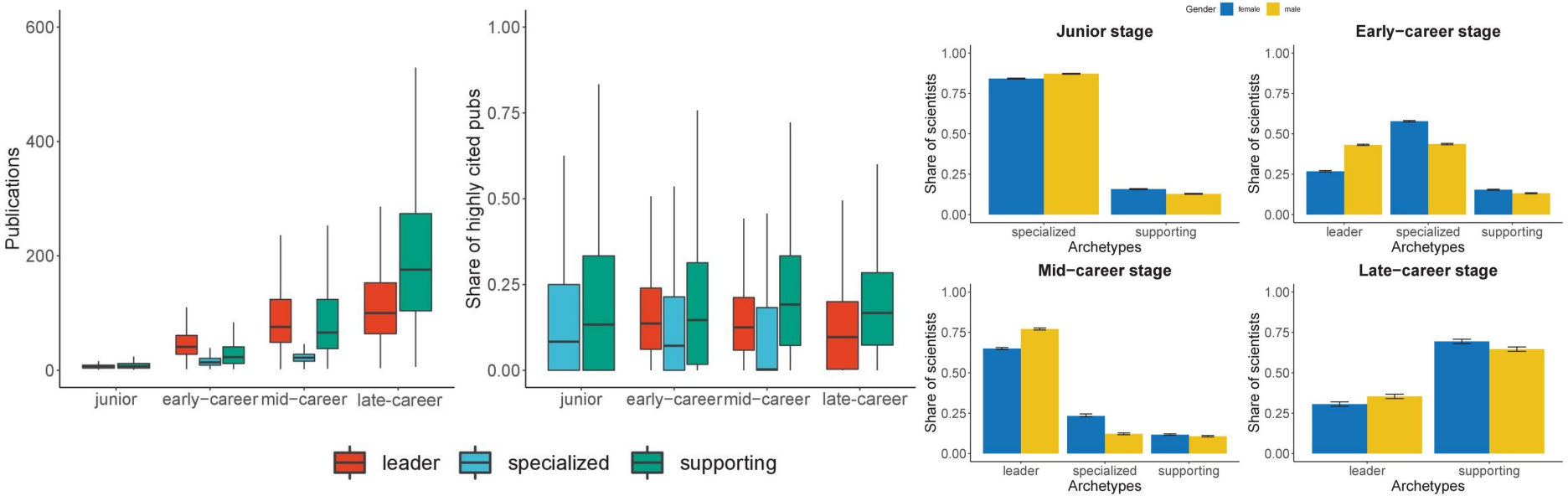
SOME REMARKS

- Author order only used in predictive model but not archetypes
- Different generations of researchers included
- Researchers are *forced* into an archetype

More information here:
Robinson-Garcia et al. (2020). ELife, 9, e60586.
https://doi.org/10.7554/eLife.60586

Researchers exhibiting a leader profile have a greater chance of having a longer academic career

Research careers and task specialization



Specialized profiles tend to be less productive and have slightly lower citation impact than leaders and supporting roles.

A higher proportion of women have a specialized profile at their early-career stage, potentially undercutting their career prospects in academia.

But how do teams operate as a whole?

- Most research on teams focuses on the relation between size, team composition and impacts
- Is there a rationale as to how tasks are distributed and teams organized?
- What are the differences in terms of disciplines and team size?

But how do teams operate as a whole?

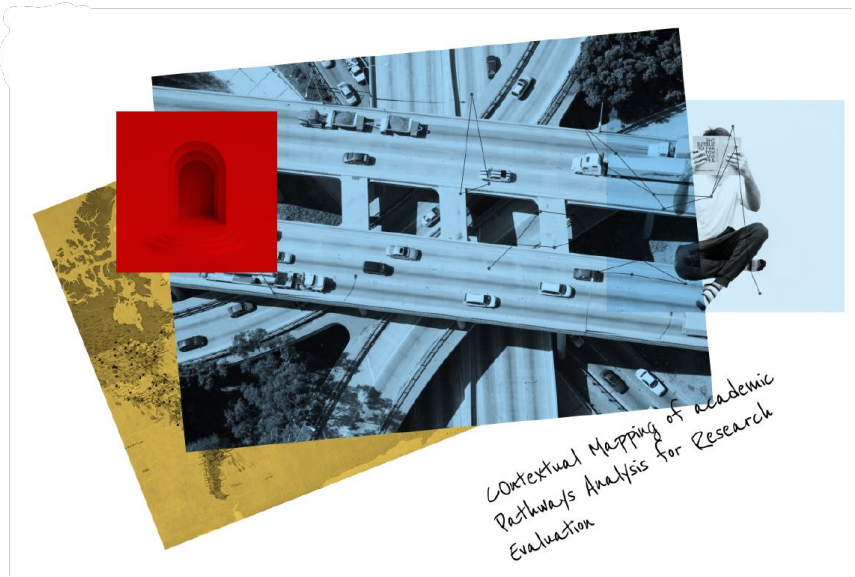
The **CRediT Taxonomy** of contributions is a list of 14 types of contributions. The taxonomy is refined by NISO and adopted by many publishers such as PLOS, Elsevier, etc.

Groupings	CRediT Contributions
Conceptual	Conceptualization, Formal Analysis, Writing - Original Draft
Methods	Investigation, Methodology, Validation, Software, Visualization
Tools & Materials	Data curation, Project administration, Resources
Leadership	Funding acquisition, Supervision, Writing - Review & Editing


Engaged.hierarchy
Siloed.hierarchy
No.specialization
Stratified.specialization
Writing - Review & Editing
Writing - Original draft
Visualization
Validation
Supervision
Software
Resources
Project administration
Methodology
Investigation
Funding acquisition
Formal analysis
Data curation
Conceptualization
Contribution
0.00
0.25
0.50
0.75
1.00
Value
Grouping
Conceptual
Leadership
Methods
Tools & Materials

Mobility experience and capacity building

2



How does **mobility** benefit **researchers**?

SPENCER PLATT/GETTY IMAGES

Measuring the global movements of researchers will help to assess the effects of political actions on science.

Scientists have most impact when they're free to move

An analysis of researchers' global mobility reveals that limiting the circulation of scholars will damage the scientific system, say **Cassidy R. Sugimoto** and colleagues.

- Increasing number of papers using scientometric data to study mobility
- Some attempts to look into the the relation between geographic mobility and knowledge mobilization
- The grand challenge is to link mobility with capacity building
- Beware of mobility studies looking at productivity with scientometric data!

How does **mobility** benefit **researchers**?

- How African authors contribute to core-periphery collaborations?
- Hypothesis:

  International mobility as a capacity building mechanism within international collaborations.

- ~ 14k publications internationally co-authored | >60k authors | ~22.5k African authors

PLOS MEDICINE

EDITORIAL

Time to end parachute science

Beryne Odeny*, Raffaella Bosurgi

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Colonial science, also known as parachute or parasitic science, is an extractive practice whereby researchers—typically from highly resourced countries—do research and extract data and samples from non-native regions or populations, typically low resource settings or countries, [1] without appropriately acknowledging the importance of the local infrastructure and expertise. In so doing, foreign researchers fail to establish long term, equitable collaborations with local partners [2].

The era in which we are living is profoundly impacted by the effects of globalization, inequity, poverty, conflicts, climate change, biodiversity loss, and pandemics. Many of the solutions to these global health challenges come from sustainable and socially responsible behavior from societies; often, robust scientific evidence comes from collaborations among key opinion leaders, scientists, funders, policy makers, and local and international stakeholders across different countries [3]. For research to be sustainable and equitable, it should be founded on inclusive scientific liaison between varied collaborators—for example, between high income countries (HICs) and low- and middle-income countries (LMICs), and early-career researchers and established scientists. Unfortunately, inclusivity and equity are not the reality in most global research [2].

An indicator of this imbalance is the striking disparity in the quantity of publications by researchers in HICs compared to other regions [4]. This disparity has been reported as far back as 2 decades ago—one study illustrated that only 6.5% of research articles in general medical journals had a coauthor from the country where the study population lived [5]. A 2016 publication showed that less than 50% of infectious disease publications from Africa had an African first or last author [6]. More recently, a bibliometric study demonstrated increasing numbers in first and last authorship among sub-Saharan African (SSA)-affiliated authors in publications about SSA [4]. In geoscience, only 30% of articles from Africa had an African author [7]. In the field of coral reef biology, 40% of publications that contained fieldwork conducted in Indonesia or in the Philippines did not specify which nation the field research had been conducted in; the respective figure for Australia was just 22% [1]. While the engagement of local researchers is steadily increasing in fields like global health, scholarly inequities continue to be sustained through authorship hierarchies in which local authors are by default assigned middle-author positions, i.e., neither first nor last author positions [6,8]. Further, collaborative authorship models commonly involve assignment of robust primary outcomes

Check for updates

OPEN ACCESS

Citation: Odeny B, Bosurgi R (2022) Time to end parachute science. PLoS Med 19(9): e1004099. https://doi.org/10.1371/journal.pmed.1004099

Published: September 6, 2022

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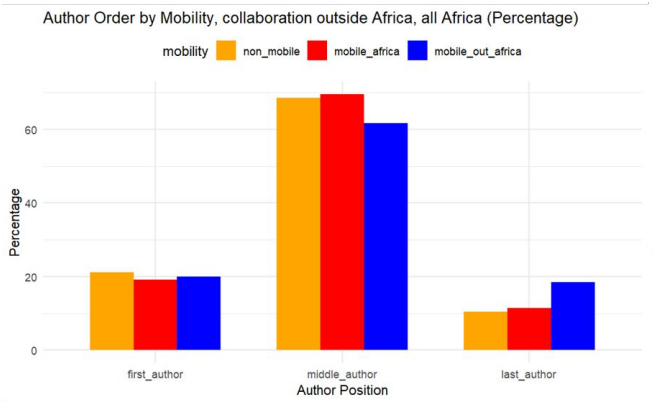
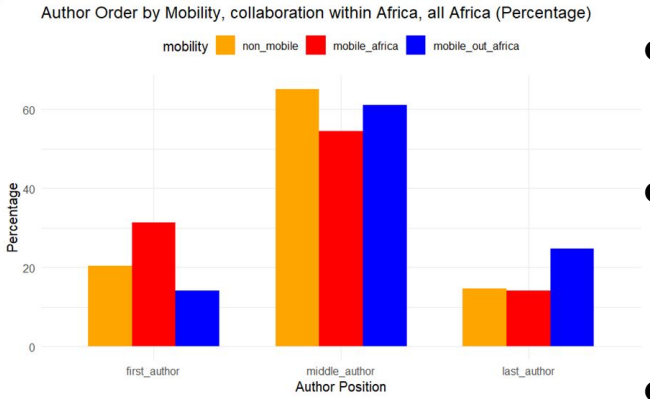
How does **mobility** benefit **researchers**?

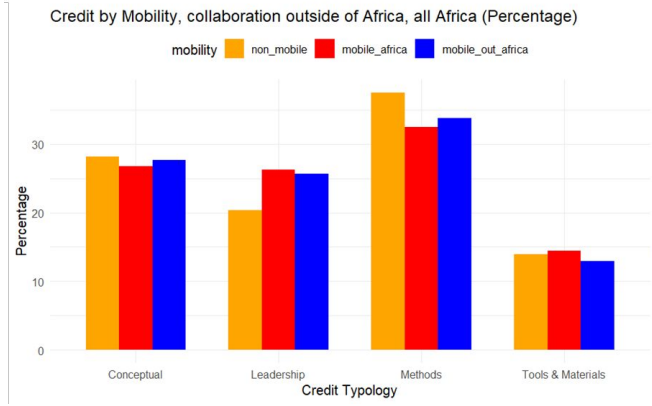
Type of collaboration	Mobility type	Total authors	Total pubs	Average no. papers per researcher
Collaboration outside Africa	Mobile outside of Africa	8,228	10,281	1,25
	Non mobile	11,656	7,166	0,61
	Mobile within Africa	790	879	1,11
Collaboration within African countries	Mobile outside of Africa	894	867	0,97
	Non mobile	1,273	573	0,45
	Mobile within Africa	501	439	0,88

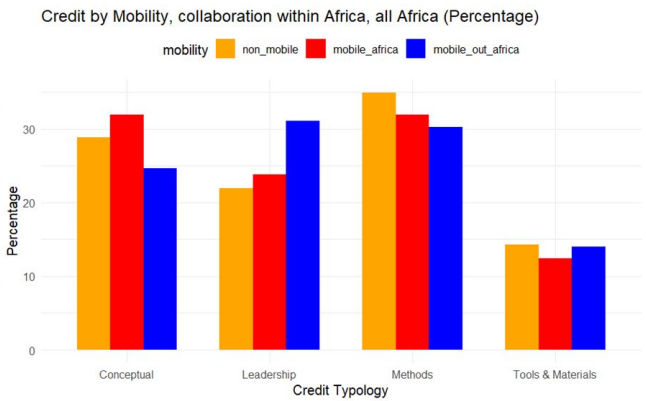
- We focus on the 2017-2019 period and publications with contributions statements from ScienceDirect
- We define mobility experience based on the number of affiliations a researcher had during their complete publication history
- Researchers with mobility experience beyond Africa collaborate internationally more than their counterparts

How does **mobility** benefit **researchers**?





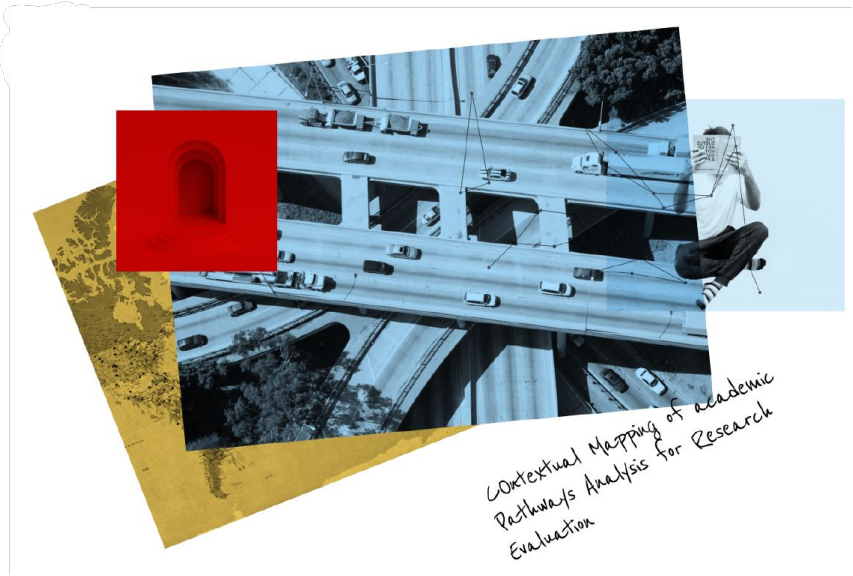




- African scholars are mainly middle authors
- There are differences based on mobility experience
- Mobile scholars adopt higher leadership contributions than non-mobile African scholars

Navigating the local in research

3



The starting point →

Local research is essential for scientific policy as it highlights the **importance of context in problem-solving** and the **need to prioritize issues to ensure better distribution of limited resources**.

But what is local research and how can we measure it?

Presence of toponyms	**(Non-English) Language**	**Journal location**	**Database indexing**

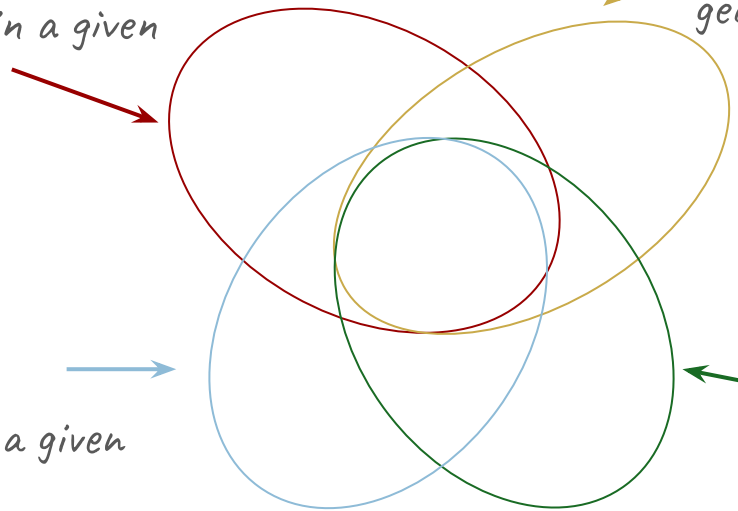
But let's look at it from a different angle

Locally relevant research

Impact is concentrated in a given geographical area

Locally situated research

Research is designed around a specific geographical area



Locally rooted research

Knowledge is produced in a given geographical area

Locally shaped research

Research designed is biased due local oversampling

But let's look at it from a different angle

Locally relevant research

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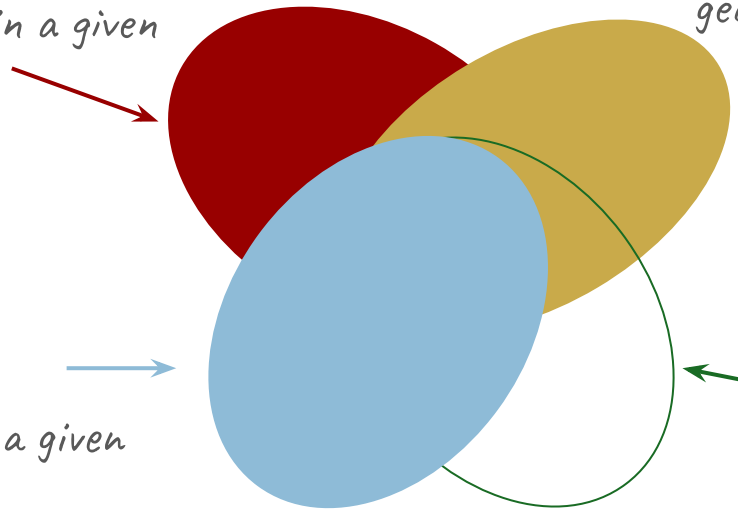


Locally rooted research

Knowledge is produced in a given geographical area

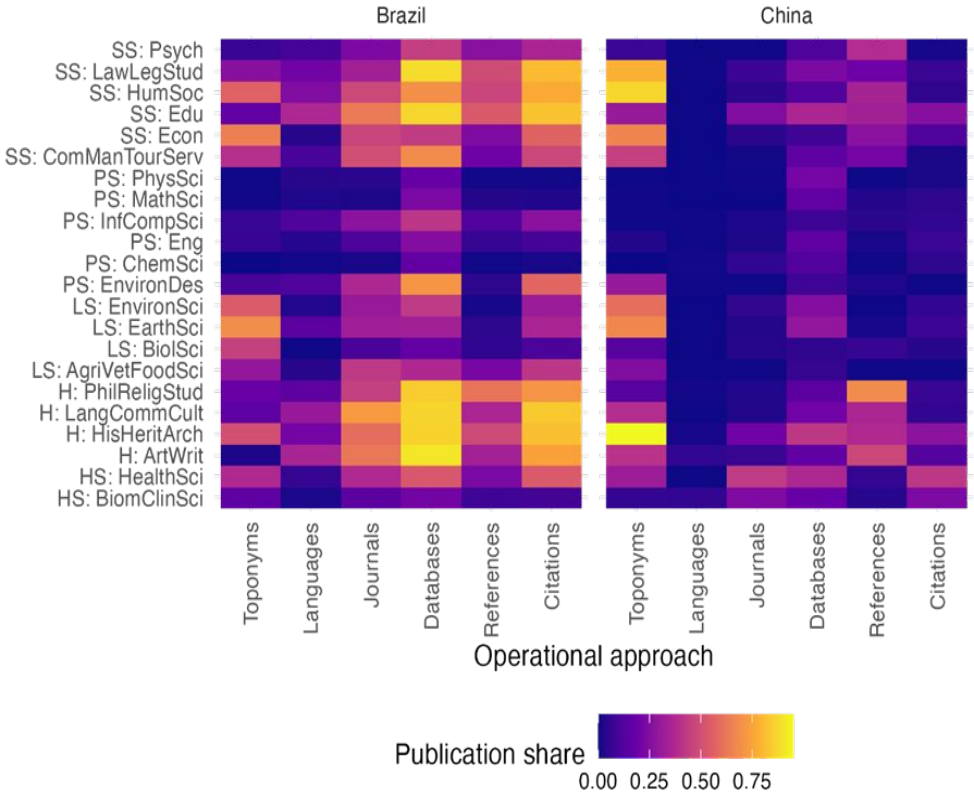
Locally shaped research

Research designed is biased due local oversampling

Comparing different ways to operationalize local

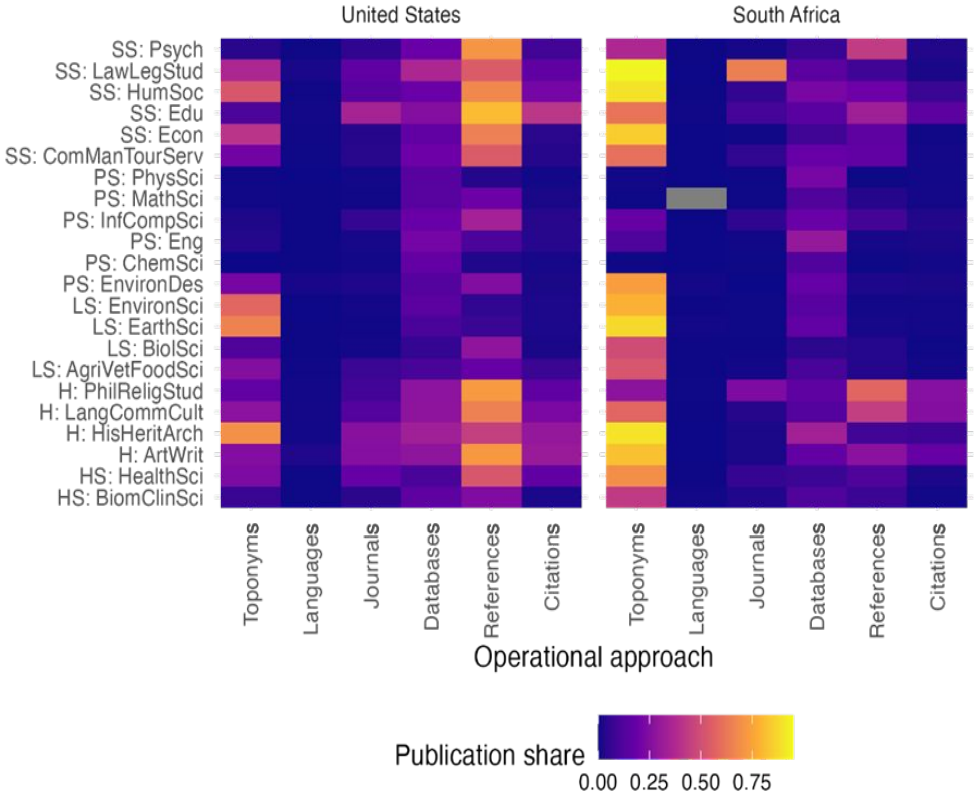
- Local research is non-indexed literature in mainstream databases
- Local research is literature in non-English languages
- Local research is that published in local journals
- Local research is literature with **geographically concentrated impact**
- Local research is that using a **unit of analysis geographically located**
- Local research is that **based on geographically located knowledge**

Comparing different ways to operationalize local



- Disciplines in Social Sci & Humanities tend to publish a higher share of local research
- Methods work differently by country
- In many cases there is no correlation between methods to measure local research

Comparing different ways to operationalize local



- Disciplines in Social Sci & Humanities tend to publish a higher share of local research
- Methods work differently by country
- In many cases there is no correlation between methods to measure local research

Moving forwards

How metrics can and cannot help look into diversity

- Scientometric Analytics shifts the perspective from performativity to the conditions under which science takes place
- Many of the metrics and algorithms used integrate some assumptions which are dubious, hence **transparency in methods is essential to interpret findings**
- The combination of scientometric data with other methods and data could potentially help inform understand how science is produced, shaped and spread.

Implications for evaluation with metrics

- Confounding variables may be influencing bibliometric indicators in hidden and harmful ways.

> “What I see now is that it is a selection process, a very strict selection process, and some people are good enough, they are just good enough and they reach it. But then there is a majority that is basically just competing, and they are roughly the same, I am probably also in this group, and then other components come into, things like who is more aggressive, who is more capable of playing the game. (Biomedicine A)”

Robinson-Garcia, N., Costas, R., Nane, G.F., & van Leeuwen, T.N. (2023) Valuation regimes in academia: Researchers’ attitudes towards their diversity of activities and academic performance. Research Evaluation. https://doi.org/10.1093/reseval/rvac049

Implications for evaluation with metrics

- Confounding variables may be influencing bibliometric indicators in hidden and harmful ways.
- Metrics can ***help*** understand team dynamics and their relation with knowledge production
- For this a change of perspective on the way in which they are currently used is needed

Implications for team science

- We still need more understanding on what is a team (**or types of teams**) in science, how they work and what how it relates to collaboration
- Disciplinary differences and team size relation with task distribution and organization
- The role of diversity within the scientific workforce
- How do these typologies affect the conditions under which knowledge is produced

Connecting diversities

- It is imperative to revisit our assumptions and methods to embrace the complexity of science (e.g., local research, gender)
- Looking into impact as a global homogeneous phenomenon is no longer enough
- New methodologies now allow us looking into research contents and typologies of content
- Mixed-methods approaches are key here to respond to the ***how*** questions

How does research impact in society? How research choices affect career prospects? How team organization affect research quality?

For more information on the COMPARE project please visit:
https://compare-project.eu

Thank you for your attention

Questions?

Nicolas Robinson-Garcia

EC3 Research Group, University of Granada

U^CHASS
Computational Humanities and Social Sciences

EC3
Quantitative Studies of Science Communication