

Questionable Authorship Practices or Questionable Methodology? A Critique of “Using Bibliometrics to Detect Questionable Authorship and Affiliation Practices and Their Impact on Global Research Metrics: A Case Study of 14 Universities”

Samer S. Saab

School of Engineering, Lebanese American University, Byblos, Lebanon

Keywords: Questionable authorship, bibliometrics, research integrity, sampling bias, control group, causality, multi-affiliation

ABSTRACT

This letter critically examines the methodology and conclusions of “Using Bibliometrics to Detect Questionable Authorship and Affiliation Practices and Their Impact on Global Research Metrics: A Case Study of 14 Universities”. We argue that the paper's methodology is fundamentally flawed. While the study highlights significant concerns regarding research integrity, its methodological shortcomings undermine the reliability of its findings. Key issues include sampling biases introduced by arbitrary thresholds, the questionable selection of a crucial control group, and the lack of causal analysis linking bibliometric trends to unethical practices. The study's reliance on out-of-context definitions of questionable authorship practices and failure to consider legitimate alternative explanations further limit its validity. This letter argues for more rigorous methodological approaches when examining research metrics and their impacts on university rankings, emphasizing the need for representative sampling, appropriate control groups, nuanced disciplinary analysis, and robust causal investigations. By adopting this approach, future studies can enhance understanding of authorship and affiliation practices, thereby upholding academic integrity.

1. INTRODUCTION

The paper “Using Bibliometrics to Detect Questionable Authorship and Affiliation Practices and Their Impact on Global Research Metrics: A Case Study of 14 Universities” (Meho & Akl, 2025) attempts to identify questionable authorship practices in 14 universities by analyzing bibliometric data. While this work raises important questions about research integrity, we argue in this letter that its methodology suffers from several limitations that undermine the validity of its conclusions. Specifically, we identify three primary flaws:

- (a) **Sampling Bias:** Arbitrary thresholds and restrictive criteria exclude relevant data and skew findings.
- (b) **Inappropriate Control Group:** The study compares institutions with vastly different academic contexts, introducing confounding variables.
- (c) **Correlation Without Causation:** The authors rely on descriptive statistics to imply unethical behavior without substantiating causal links.

Additionally, the study oversimplifies nuanced authorship conventions and disregards legitimate reasons for observed bibliometric trends, such as multi-affiliation.

While the authors define various questionable authorship practices in the introduction—including gift authorship, guest authorship, ghost authorship, honorary authorship, paid affiliation, and sold authorship—they fail to provide concrete empirical evidence supporting the prevalence of these practices in context. This omission is concerning because it may lead readers to unfairly associate widespread unethical behavior to the institutions under study. By asserting the presence of these practices without substantiation, the paper engages in a form of circular reasoning, where the conclusion (questionable authorship practices are prevalent) is assumed within the premise (the observed bibliometric trends indicate questionable authorship practices). This preemptive negative labeling of the concerned institutions strongly undermines the paper’s main argument and raises serious questions about its purpose and legitimacy.

This letter provides a detailed critique of these methodological and analytical shortcomings in (Meho & Akl, 2025) and calls for more rigorous research in this area without unjustly stigmatizing the institutions under study. Section 2 addresses methodological flaws, Section 3 analyzes the misinterpretation of bibliometric data, and Section 4 concludes with recommendations for future research.

2. METHODOLOGICAL FLAWS

2.1 Arbitrary Thresholds and Sampling Biases:

- (a) Meho & Akl employ several restrictive criteria that introduce significant sampling biases into their analysis. First, their focus on institutions with over 2,000 publications between 2019 and 2023, identified through SciVal, excludes institutions with lower research output. This exclusion lacks justification and may limit the study's ability to detect questionable practices that could be present in institutions with lower research output. This is concerning, as evidence suggests that research misconduct may be more common in settings with less oversight and fewer resources (Fanelli, 2009). Established university ranking methodologies, such as those used by Times Higher Education (*THE*, 2024) and U.S. News & World Report (*U.S. News*, 2024), demonstrate that effective evaluation is possible with considerably lower publication thresholds. This discrepancy highlights the restrictive nature of the 2,000-publication criterion.
- (b) The authors further compound this bias by selecting "eligible" universities based on a publication growth exceeding 100% or five times the global average. However, they fail to provide a clear rationale for these specific thresholds, raising questions about whether these benchmarks are grounded in prior research, statistical analysis, or empirical evidence. The use of arbitrary thresholds in bibliometric analysis has been criticized for its potential to skew results and lead to misleading conclusions (Hicks *et al.*, 2005, De Bellis, 2009).
- (c) The arbitrary choice of the 2019-2023 time window overlaps significantly with the COVID-19 pandemic, which spanned approximately three of these years (2020–2022), thus introducing another significant layer of bias. The unusual nature of the publication landscape during this period, with shifts in research priorities and publication practices (Arora *et al.*, 2021), makes inferences more challenging. For example, did the pandemic result in an increase in collaborative research, leading to more authors per paper or a higher volume of published papers? Did it affect certain disciplines or regions more than others?

Indeed, observed bibliometric trends may reasonably reflect temporary shifts or anomalies caused by the crisis rather than standard or questionable authorship practices. Furthermore, the authors' inconsistent use of time windows, such as the 2019-2024 window used for one metric in Table 4 (*Meho & Akl, 2025*), adds another layer of inconsistency and raises questions about the rigor of their analysis. A longer and more balanced time frame would enhance the robustness of the analysis, as longitudinal studies provide a more comprehensive understanding of trends and potential anomalies (*van Eck & Waltman, 2010*). Also, incorporating multiple time frames of varying lengths would further strengthen the analysis by allowing for a more nuanced examination of trends and anomalies across different time scales.

- (d) The authors employ multiple exclusion criteria, reducing a large initial sample to a small, non-representative sample of 14 universities. This approach lacks scientific rigor, deviates from best statistical practices, and is akin to targeted rather than random sampling. Such non-random sampling can significantly limit the generalizability and validity of research findings (*Acharya et al., 2013*). Moreover, the lack of theoretical justification for the exclusion criteria raises concerns about the general validity of the findings.
- (e) The selection of universities based on "declines in first authorship rates exceeding 15 percentage points or over five times the world average" seems arbitrary. Again, there is no clear justification provided for why these specific thresholds were chosen. This raises questions about whether these cut-offs are grounded in any prior research, statistical analysis, or theoretical framework.
- (f) The criteria for excluding 68 universities with "lower declines in first authorship rates" are not clearly defined. This lack of transparency makes it difficult to assess the validity of the exclusion criteria and raises concerns about potential biases in the selection process. It is unclear why universities with lower declines were excluded, as they might still be engaging in questionable practices, according to the logic of the authors, albeit at a lower rate.

Using arbitrary thresholds can introduce bias and lead to misleading conclusions, as it may not accurately capture the universities where questionable authorship practices are actually prevalent. The selection criteria, as presented, could lead to misinterpretation of the findings. Readers might assume that the 14 included universities are the only ones allegedly engaging in questionable authorship practices according to the arguments of the authors, while the excluded universities are free from such practices. This could unfairly stigmatize the included institutions and create a false sense of security about the excluded ones.

Without a transparent explanation, these a priori criteria appear arbitrary and potentially skew the sample toward institutions simply experiencing rapid growth, which could be driven by legitimate factors unrelated to questionable authorship practices, such as increased faculty hiring, research funding, or specialization in rapidly advancing fields.

2.2 Questionable Control Group: The selection of Caltech, MIT, Princeton, and UC Berkeley as a control group is highly problematic. These elite institutions differ significantly from the Middle Eastern and South Asian universities under study in terms of funding, resources, disciplinary focus, and academic culture. In addition, these institutions may not even be representative of general US

trends and practices; for example, MIT has an uncharacteristically small percentage of adjunct faculty (2%) (*Massachusetts Institute of Technology, 2021, p. 12*), which falls significantly below the US national average of 48.7% (*American Association of University Professors, 2023*), and similar findings could apply to other members of the control group. These substantial differences make it impossible to isolate the impact of the variables the authors are trying to study (i.e., potential questionable authorship practices). A control group should ideally be similar to the experimental group in all aspects except for the variable being investigated (*Campbell & Stanley, 2015, Bornmann & Marx, 2011*). In this case, the vast differences between the control and study groups introduce confounding factors that could lead to erroneous conclusions (Rosenbaum, 2002). For example, higher publication rates might be attributed to greater research funding rather than the presence of questionable authorship practices. Therefore, this particular choice of control group undermines the validity of the comparisons and fatally undermines this paper's conclusions.

2.3 Pitfalls of Comparing Universities to National or Global Averages: Comparing a university's research output to national or global averages can be misleading, especially in contexts where research investment varies significantly (*Hendrix, 2008*). In countries where most universities emphasize teaching over research, a single institution's shift toward prioritizing research can result in significant deviation from the national average. For instance, if a university adopts policies that incentivize publication, its bibliometric indicators will naturally improve. However, juxtaposing this growth against a national average dominated by teaching-focused institutions may create a false impression of potential questionable practices behind the rapid increase. Similarly, global comparisons are uninformative without controlling for critical factors such as regional disparities in research funding, disciplinary variations in publication norms, economic development and research infrastructure, and the historical trajectory of research efforts (*May, 1997*). Additionally, the composition of the faculty by field of research is another critical variable that must be considered. In order to answer such important questions, an appropriate regression analysis is often needed to control for confounding factors and isolate the pure effect of the practice in question (*Angrist & Pischke, 2009*). Such an analysis is unfortunately lacking in the paper under discussion.

2.4 Neglect of Authorship Nuances: Meho & Akl primarily focus on first authorship as a key indicator of questionable practices. However, this approach overlooks the significant variations in authorship conventions across academic disciplines. Namely, last and/or corresponding authorship often holds greater prestige, representing seniority or principal responsibility for the research (*Tscharntke et al., 2007*). Additionally, co-authorship in alphabetical order is prevalent in many fields such as in social sciences and mathematics. By exclusively emphasizing first authorship, the study oversimplifies the complexities of academic collaboration and risks misrepresenting legitimate, context dependent authorship practices. A more comprehensive analysis would consider the diverse and nuanced roles authorship plays across different disciplines.

These oversights lead to a narrow and potentially misleading interpretation of academic collaboration.

3. MISINTERPRETATION OF BIBLIOMETRIC DATA

3.1 The Influence of Faculty Hiring on Bibliometric Trends: Meho & Akl overlook a crucial factor that can significantly influence bibliometric trends at a university: faculty hiring practices. For instance, if a university strategically recruits a large number of active researchers on joint appointments in fields like business, economics, and mathematics, where alphabetical authorship is common, this would naturally lead to several observable effects, including a significant increase in publication output, a rise in the number of highly prolific authors, a decrease in first-authored papers and an increase in multi-affiliated authorship. Therefore, such changes could naturally result from innovative hiring strategies and need not imply questionable authorship or affiliation practices. By failing to account for such plausible alternative explanations, the paper risks misinterpreting bibliometric trends and drawing inaccurate and damaging conclusions about research integrity.

3.2 Lack of Causal Analysis: The paper heavily relies on correlations between bibliometric data and assumed unethical practices without establishing causality. For example, Meho & Akl imply that a decrease in first authorship among researchers at certain institutions implicitly indicates unethical behavior such as "sold authorship." This is an invalid logic leap, as the supporting methodology is not clearly defined and rudimentary descriptive statistics are employed to prematurely draw causal inference.

3.3 Alternative Explanations: The paper fails to consider plausible alternative explanations for the observed trends. For example, an increase in research funding could directly contribute to a rise in publication output. Factors such as an influx of actively publishing researchers, increased research funding itself, and the documented trend toward larger, more collaborative research teams can naturally drive an increase in publication output and influence authorship patterns. As demonstrated in (*Wuchty et al., 2007*), collaborative teams often generate more publications and achieve higher citation rates compared to solo authors. To gain further insights into the dynamics of authorship at a university, the study could also benefit from examining the relationship between the average number of authors per paper and the total number of publications. This analysis could reveal whether larger authorship teams are associated with higher publication productivity, shedding light on the potential influence of collaboration on research output. Furthermore, investigating the trend of research funding at a university over a given period could indicate whether increased funding, rather than questionable practices, is driving the observed changes in publication output. Additionally, the implementation of targeted university policies, such as instated requirements for graduate student to publish or a "raised bar" on faculty promotion, could significantly contribute to increased publication activity. Indeed, such requirements might incentivize researchers to prioritize research and productivity. Therefore, and rather than indicating unethical practices, the observed trends could reasonably reflect evolving academic norms and the expansion of research ecosystems—an important and legitimate context the paper completely overlooks.

3.4 Legitimate Reasons for Multi-Affiliation: The increasing prevalence of multi-affiliation in academia, particularly in high-impact journals, is a poorly-researched trend that requires careful consideration. A landmark 2021 study (*Hottenrott et al., 2011*), looking at more than 15 million

authors and 22 million articles from 40 countries, showed a significant rise in in number of multi-affiliated authors from 10% in 1996 to 32% in 2019, and presented various legitimate reasons for this phenomenon. Therefore, multi-affiliation should not be automatically equated with questionable practices. In fact, researchers are increasingly using multiple affiliations for a variety of valid reasons, driven by both individual goals like accessing resources and networks at prestigious institutions, and institutional aims like boosting reputation and attracting funding. Multi-affiliation can also facilitate international collaborations, reflect the growing emphasis on performance and competition in research funding structures, and enable participation in collaborative research projects across institutions (*Hottenrott et al., 2011*). Ultimately, the rise of multiple affiliations is a complex phenomenon that reflects the evolving landscape of research, with its increasing complexity, globalization, and focus on performance metrics. Therefore, while it is crucial to maintain vigilance about potential ethical concerns related to authorship's affiliation, it is equally important to acknowledge legitimate reasons behind the growing trend of multi-affiliation in academia.

4. CONCLUSION

While we consider the authors' attempt to highlight questionable authorship practices as an important endeavor, the methodological and interpretive biases identified in our critique of (Meho & Akl, 2025) strongly undermine the reliability of their conclusions. Specifically, the non-representative control group, the biased selection of studied universities, the use of superlatives and unsupported claims, the confusion of correlation with causality, the use of strawman arguments and the premature conclusions drawn without sufficiently rigorous evidence all contribute to the paper's serious shortcomings.

To advance the understanding of questionable authorship and affiliation practices, future research should adopt more robust methodologies. This includes:

- (a) **Employing Representative Sampling:** Avoiding arbitrary thresholds and including diverse institutions to capture a fuller spectrum of practices.
- (b) **Using Proper Control Groups:** Ensuring comparability by selecting controls that align with study group characteristics.
- (c) **Analyzing Authorship Nuances:** Incorporating a multidisciplinary perspective to reflect the complexities of authorship conventions.
- (d) **Highlighting legitimate reasons behind the observed trends:** In the spirit of academic fairness, research on questionable practices must include a discussion of alternative, legitimate reasons at the source of identified trends. We cannot help but feel that arbitrarily highlighting a number of respected institutions by name is indeed too narrow an approach for what is in fact an emerging, largely valid global evolution of the research landscape.
- (e) **Establishing Causality:** Adopting robust statistical methods that leverage both quantitative and qualitative approaches; moving beyond reliance on correlational analysis to substantiate claims of unethical behavior.

By addressing these methodological and interpretive shortcomings, future studies can provide more reliable insights into this important issue and contribute to the preservation of academic integrity in the rapidly evolving landscape of research. More importantly, the described phenomena are universal.

ACKNOWLEDGMENTS

We thank our colleagues in the Office of Graduate Studies and Research at the Lebanese American University for their constructive feedback on this letter. We also acknowledge the assistance of Gemini in the editing process. Any remaining errors are our sole responsibility.

COMPETING INTERESTS

The author is affiliated with the Lebanese American University, which has a collaborative relationship and shares a student ecosystem with the institution where Meho and Akl are employed (Meho as Chief University Librarian and Akl as Vice Provost for Research). While this affiliation may be perceived as a potential conflict of interest, the author maintains that it has not influenced the objective analysis and critique presented in this letter.

FUNDING INFORMATION

No funding was received for this research.

DATA AVAILABILITY

This study is a critical analysis of a published work and does not involve the collection or analysis of new data. Therefore, no data availability statement is applicable.

REFERENCES

- Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it. *Indian Journal of Medical Specialties*, 20(2), 330. <https://doi.org/10.7713/ijms.2013.0032>
- American Association of University Professors. (2023). *Annual Report on the Economic Status of the Profession*, 2023-24. <https://www.aaup.org/ARES>
- Angrist, J. D., & Pischke, J. S. (2009). *Mostly harmless econometrics: An empiricist's companion*. Princeton University Press. ISBN: 978-0-691-12034-8
- Arora, V. M., Wray, C. M., O'Glasser, A. Y., Shapiro, M., & Jain, S. (2021). Leveling the playing field: accounting for academic productivity during the COVID-19 pandemic. *Journal of Hospital Medicine*, 16(2), 120. <https://doi.org/10.12788/jhm.3558>
- Bornmann, L., & Marx, W. (2011). *The Anna Karenina principle: A concept for the explanation of success in science*. arXiv preprint arXiv:1104.0807.
- Campbell, D. T., & Stanley, J. C. (2015). *Experimental and quasi-experimental designs for research*. Ravenio books. ISBN-13: 978-0395307878
- De Bellis, N. (2009). *Bibliometrics and citation analysis: From the Science Citation Index to Cybermetrics*. Scarecrow Press. ISBN: 978-0-8108-6713-0

- Fanelli, D. (2009). How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data. *PloS One*, 4(5). <https://doi.org/10.1371/journal.pone.0005738>
- Hendrix, D. (2008). An analysis of bibliometric indicators, National Institutes of Health funding, and faculty size at Association of American Medical Colleges medical schools, 1997–2007. *Journal of the Medical Library Association: JMLA*, 96(4), <https://doi.org/324.10.3163/1536-5050.96.4.007>
- Hicks, D., Wouters, P., Waltman, L., de Rijcke, S., & Rafols, I. (2015). Bibliometrics: The Leiden Manifesto for research metrics. *Nature*, 520(7548), 429-431. <https://doi.org/10.1038/520429a>
- Hottenrott, H., Rose, M. E., & Lawson, C. (2021). The rise of multiple institutional affiliations in academia. *Journal of the Association for Information Science and Technology*, 72(8), 1039-1058. <https://doi.org/10.1002/asi.24472>
- May, R. M. (1997). The scientific wealth of nations. *Science*, 275(5301), 793-796. <https://www.science.org/doi/10.1126/science.275.5301.793>
- Massachusetts Institute of Technology. (2021). *MIT facts 2021*. Retrieved from <https://facts.mit.edu/wp-content/uploads/2022/03/MIT-Facts-2021-Accessible-with-Cover.pdf>
- Meho, L. I., & Akl, E. A. (2025). Using bibliometrics to detect questionable authorship and affiliation practices and their impact on global research metrics: A case study of 14 universities. *Quantitative Science Studies*. Forthcoming. https://doi.org/10.1162/qss_a_00339
- Rosenbaum, P. R., (2002). *Overt bias in observational studies* (pp. 71-104). Springer New York. ISBN-10: 0387989676
- THE (2024). World University Rankings 2024: Methodology. *Times Higher Education*. <https://www.timeshighereducation.com/world-university-rankings/world-university-rankings-2024-methodology>
- Tscharntke, T., Hochberg, M. E., Rand, T. A., Resh, V. H., & Krauss, J. (2007). Author sequence and credit for contributions in multiauthored publications. *Plos Biology*, 5(1), e18. <https://doi.org/10.1371/journal.pbio.0050018>
- U.S. News (2024). Best Global Universities Rankings: Methodology. *U.S. News & World Report*. <https://www.usnews.com/education/best-global-universities/articles/methodology>
- van Eck, N., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84, 523-538. <https://doi.org/10.1007/s11192-009-0146-3>
- Wuchty, S., Jones, B. F., & Uzzi, B. (2007). The increasing dominance of teams in production of knowledge. *Science*, 316(5827), <https://www.science.org/doi/10.1126/science.1136099>