**Response to Reviewers’ Comments**

**Date**: March 28, 2023

**Manuscript Number**: SCIM-D-22-00945R3

**Title of Article**: Temporal trends in academic performance and career duration of principal investigators in ecology and evolutionary biology in Taiwan

**Corresponding Author**: Syuan-Jyun Sun (sjs243@ntu.edu.tw)

---------------------------------------------------------------------------------------------------------------------

Dear Dr. Lin Zhang,

Thank you for inviting us to submit a revised version of the manuscript. We greatly appreciate the valuable comments and feedback from the reviewers and have incorporated the suggestions in the revision. In particular, we have made the following major changes:

* Re-ran the entire analyses with book/book chapters excluded from the calculation of h-index and updated the methods, results, table, and figures accordingly.
* Added a paragraph in the methods section discussing the representativeness of the PIs in our analyses.

Please see the following section for our detailed point-by-point responses. All line numbers pertaining to the changes refer to the revised manuscript.

Sincerely,

Syuan-Jyun Sun (corresponding author) on behalf of Gen-Chang Hsu and Wei-Jiun Lin

---------------------------------------------------------------------------------------------------------------------

**Reviewer 2's Comments to the Author(s):**

The authors have responded to most of my concerns. However, there are still two issues that i believe the authors should address before I can recommend accept. **Comment 1 >** Regarding the authors response to Comment 6: The authors answer: "Regarding the citation practices of journal articles and books/book chapters, we agree that these two publication types may have different citation patterns, but our main point is that both of them are critical research performance and contribute substantially to the evaluation of PIs' job application and promotion. In this regard, we included both journal articles and books/book chapters in the calculation of h-index." Yes, but different publication types are generally not comparable and the evidence for this is very strong in the scientometric literature. This is problematic since it means that the authors might compare authors that mostly publish in articles with authors that mostly publish in books/shapters which is like comparing apples with oranges. My recommendation is that the authors construct a proper performance measure in accordance with best practice in the scientometric literature. For example, constructing an indicator that takes this issue into consideration. Or, Exclude books/chapters and see if the results differ from the results when both document types are included. Or some other solution that show either that their indicator is not biased as the scientometric literature would suggest, or make adjustment for the potential bias with good arguments for why their solution works.

**Response >** Thanks for the suggestions. To address the issue regarding the differences in citation patterns among different types of publications, we have decided to exclude the book/book chapters from the calculation of h-index as there were not many such publications in our original data (see the attachment “*Number\_of\_books\_excluded.xlsx*” for the number of book/book chapters excluded for each PI) and re-run all the analyses (Line XXX):

“*After the search was completed, we checked individually each publication item in the results pane and included only peer-reviewed journal articles; PhD theses, conference presentations, and book/book chapters were excluded from the calculation of citation metrics as their citation patterns may differ from that of journal articles.*”

The statistical results, table, and figures were updated accordingly. The new data set has also been uploaded to the manuscript submission system as a supplementary file.

We also compared the model outputs from previous vs. new analyses to check whether excluding book/book chapters altered the results. Despite some minor changes in the actual numbers, the overall conclusions from both analyses were the same.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Model | Predictor | Book/book chapters included  (original) | | | Book/book chapters excluded  (new) | | |
| *β* | SE | *P* | *β* | SE | *P* |
| Model 1.  Academic performance (recruitment) | Year of recruitment | 0.0429 | 0.0004 | < 0.001 | 0.0431 | 0.0004 | < 0.001 |
|  | PhD university origin (Taiwan) | -0.0606 | 0.1097 | 0.855 | -0.0696 | 0.1094 | 0.855 |
|  | PhD university ranking | 0.0001 | 0.0002 | 0.722 | 0.0001 | 0.0002 | 0.721 |
|  | Gender (Male) | 0.4510 | 0.1326 | < 0.001 | 0.4590 | 0.1314 | < 0.001 |
| Model 2.  Academic performance (promotion) | Year of promotion | 0.0048 | 0.0007 | < 0.001 | 0.0105 | 0.0007 | < 0.001 |
|  | PhD university origin (Taiwan) | -0.1594 | 0.1138 | 0.161 | -0.1721 | 0.1119 | 0.124 |
|  | PhD university ranking | 0.0001 | 0.0002 | 0.979 | -0.0001 | 0.0002 | 0.977 |
|  | Gender (Male) | -0.0584 | 0.1365 | 0.669 | -0.1559 | 0.1318 | 0.237 |
| Model 3.  Career duration  (recruitment) | “Before” h-index (recruitment) | 0.0193 | 0.0134 | 0.149 | 0.0176 | 0.0135 | 0.191 |
|  | Year of recruitment | 0.0377 | 0.0064 | < 0.001 | 0.0369 | 0.0063 | < 0.001 |
|  | PhD university origin (Taiwan) | 0.1759 | 0.1009 | 0.081 | 0.1914 | 0.1004 | 0.057 |
|  | PhD university ranking | -0.0003 | 0.0002 | 0.137 | -0.0002 | 0.0002 | 0.190 |
|  | Gender (Male) | -0.0744 | 0.1198 | 0.535 | -0.0997 | 0.1179 | 0.398 |
| Model 4.  Career duration  (promotion) | “Before” h-index (promotion) | -0.0105 | 0.0109 | 0.338 | -0.0176 | 0.0106 | 0.096 |
|  | Year of promotion | 0.0145 | 0.0064 | 0.024 | 0.0124 | 0.0064 | 0.053 |
|  | PhD university origin (Taiwan) | 0.1248 | 0.0945 | 0.187 | 0.0844 | 0.0957 | 0.378 |
|  | PhD university ranking | -0.0002 | 0.0001 | 0.256 | -0.0002 | 0.0002 | 0.249 |
|  | Gender (Male) | -0.1617 | 0.1064 | 0.129 | -0.1052 | 0.1054 | 0.318 |
| Model 5.  Difference in performance (recruitment) | Year of recruitment | -0.1866 | 0.0476 | < 0.001 | -0.1807 | 0.0492 | < 0.001 |
|  | PhD university origin (Taiwan) | -0.5712 | 0.8809 | 0.517 | -0.1784 | 0.9059 | 0.844 |
|  | PhD university ranking | 0.0009 | 0.0015 | 0.537 | 0.0011 | 0.0015 | 0.456 |
|  | Gender (Male) | 0.2487 | 0.9837 | 0.800 | -0.1047 | 0.9949 | 0.916 |
| Model 6.  Difference in performance (promotion) | Year of promotion | -0.1671 | 0.0972 | 0.086 | -0.1614 | 0.0985 | 0.101 |
|  | PhD university origin (Taiwan) | -2.1577 | 1.1561 | 0.062 | -2.0458 | 1.2024 | 0.089 |
|  | PhD university ranking | 0.0013 | 0.0018 | 0.474 | 0.0017 | 0.0019 | 0.362 |
|  | Gender (Male) | 1.1835 | 1.3168 | 0.369 | 0.7120 | 1.3545 | 0.599 |

**Comment 2 >** Regarding the authors’ response to Comment 6: My recommendation is that the authors include the assessment of representativity (i.e., descriptive statistics, the population, and the chi2 test) in the manuscript so that this information is available for the readers.

**Response >** We have now included this information in the methods section (Line XXX):

***“****We focused on PIs at the eight top-ranked universities/institution rather than PIs at all universities in Taiwan because the research environment and funding resources can differ substantially among universities, and such differences could potentially affect the research outputs of PIs and thus bias the results. However, to ensure that the 145 PIs in our analyses are representative of the entire PI pool, we conducted a further survey following the same criteria and identified additional 81 PIs in the field of ecology and evolutionary biology (yielding a total of 226 PIs as the “population” underlying our study), and compared the academic rank (assistant professor, associate professor, and full professor) and gender composition (male and female) of our PI samples against those of the entire PI population. The results of goodness of fit test showed that the academic rank and gender composition of our PI samples did not deviate from those of the entire PI population (academic rank: χ2 = 1.26, df = 2, P = 0.53; gender: χ2 = 0.64, df = 1, P = 0.42), confirming the representativeness of the PIs in our study.****”***