The Impact of Becoming An Editor

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ABSTRACT

Editorial boards and editors are central to the distribution of scientific knowledge via academic journals. An invitation to serve as an editor is often regarded as a recognition of an academic's work and contribution to their field. However, although editors are held in high regard, they are rarely compensated for their editorial labor. This research project will investigate the impact of becoming an editor on an academic's career. Our hypotheses are that editors tend to publish more in journals for which they serve as editorial board members, be cited more frequently in these journals, collaborate more with others who have published in these journals, and stay research-active longer relative to non-editors. Building on the Microsoft Academic Graph dataset, this project will use coarsened exact matching to compare academics who become editors to those who do not. These comparisons will be adjusted for each academic's gender, discipline, affiliation, and academic age, as well as other confounding factors. This work will demonstrate the benefits of becoming an editor to the career of an academic, with findings specific to nineteen fields such as Computer Science, Biology, Mathematics, and more.

KEYWORDS

computational social science, academic journal editor

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1 INTRODUCTION

An invitation to serve as an editor for an academic journal is typically seen as a measure of the recognition that an academic's work has garnered among their peers and in their field. Editors take on a range of responsibilities; these include making decisions about which papers to accept or reject, offering feedback to reviewers and authors when necessary, and more generally promoting scholarship in their field. Despite the time and effort commitment required to complete these tasks, editors are rarely compensated for their work if at all. However, invitations to become an editor carry a certain degree of prestige and may be viewed as external validation of an academic's work. This may in turn carry into more publications or citations for that academic, thereby advancing their career in the field. To ascertain whether becoming an editor is worth it for an academic, more research is needed to determine the impact of editorship on an academic career. Thus, this research project will investigate the impact of becoming an editor of an academic journal. It will do this by applying data science techniques such as synthetic control and coarsened exact matching to analyse the Microsoft Academic Graph, a dataset containing information about over number papers and number academic authors. Within this project, we intend to compare the careers of editors and academics who did not become editors. This comparison will be based on several metrics, including:

(1) Citation count, both within and outside the journal
(2) Publication count
(3) Collaborator count and collaborator affiliation
(4) Career length

This project will experiment with several different methods to investigate what controls are best selected in order to minimize bias. We intend to match academics based on time-invariant and time-variant covariates, as well as pre-period levels and pre-period trends. Through this matching process, we plan to identify the impact that becoming an editor has on an academic's career and thus evaluate whether it is worth the labor provided by that academic.

2 RELATED WORK

Though work has been done with respect to studying author-editor connections and editor citation numbers, no study has examined the impact of becoming an editor on an academic's career in as great detail as proposed by this study.

Herteliu et. al examine a dataset of four editors and one journal for potentially unethical behavior in the form of coercive citations [2]. The target group of this study was two editors who appear to have benefited from their editorial positions through an increased citation number within the journal; the other two editors studied formed a control group. The study identified an "explosive" increase in citations for both authors in the target group following their appointments as editors. This increase was mainly observed in citations within the journal in question. In contrast, the patterns of citations for authors in the control group either showed no dependence on the journal, or smaller scale increases that could be attributed to collaborations with authors in the target group. Thus, the study concludes that coercive citations are a method that may be employed by editors in order to increase their own prestige as well as that of the journal. However, this study acknowledges that confounding variables such as field, gender, affiliation and more, all of which can influence an author's citation count, were not able to be studied due to the small sample size. The degree to which "explosive" increases in citations can be attributed to coercive or unethical behavior is also not studied further; the authors acknowledge that encouraging pertinent citations is part of the role of an editor. Our proposed research will engage with a much larger dataset of authors and editors, examining the prestige associated with an editorial role without presuming coercive behavior.

Smith and Dombrowski study a dataset of 138 papers across seven journals in the field of accounting [4]. Their research finds that papers for which an author-editor connection exists are more likely to be cited subsequently. Furthermore, they find that papers by editors of the publishing journal are cited more often. Using ordinary least squares regression analysis, this study finds that the relationship between author-editor connection status and citations is positive and highly significant. However, in contrast to Herteliu et. al, Smith and Dombrowski do not suggest that this is a consequence of unethical behavior on the part of editors. Based on an analysis of subsequent citations, they suggest that the greater citation counts that editors' papers experience may be connected instead to editors' abilities to identify and capture influential areas of research. Nevertheless, this study remains limited to only the field of accounting; our research proposes a much wider examination of up to nineteen fields with numerous subfields. Rosenkrantz et. al do not examine the role of editors specifically, but instead look at how collaborators may influence citation counts of journal articles [3]. This study used a dataset of 876 scientific papers across a number of radiology journals. With multivariate regression analysis, Rosenkrantz et. al determine that the strongest predictors of citation count are authors from multiple countries, inclusion of non-university collaborators, and having at least seven authors. Although the impact of journal editorship and the editorial roles of the authors considered were not studied, this paper demonstrates the viability of using regression analysis as a method by which researchers may highlight correlations within data. Hence, it presents a potential area for exploration and study in this project as well.

Thus, this project will present novel contributions by analysing editorial roles in particular, by looking at a far greater number of academics than previous studies and by examining a wider range of metrics beyond citation count. Broadly, it also seems that the impact of becoming an editor itself has not been extensively studied, thereby presenting a valuable opportunity for research.

3 METHODOLOGY

3.1 Methods

The main method of statistical analysis we aim to employ in this study is coarsened exact matching. In computational social science, studies typically aim to compare groups that receive treatment (in this case, academics who become editors) to a control group that does not receive the same treatment. This allows for us to identify and isolate the effects of the treatment while accounting for the natural trajectory of the group's development. To achieve this goal, statistical matching is required in order to identify comparable members of the treatment and control groups.

Coarsened exact matching (CEM) performs statistical matching by "coarsening" the criteria by which individuals may be matched. For example, groups may be matched based on rough age groups as opposed to precise birth dates. The most common alternative method of matching is known as propensity score matching; relative to CEM, it is slower to run and produces fewer matches due to the nature of exact matching [1]. This effect is particularly pronounced in cases where continuous variables are introduced, given that it is highly unlikely for individuals to have the exact same values for most continuous variables.

This research study will use coarsened exact matching to match academics who become editors and those who do not based on several criteria, including:

(1) Academic age
(2) Affiliation
(3) Gender
(4) Field/Discipline

This matching process will help to identify the impact of becoming an editor on an academic's career while accounting for the confounding factors mentioned above and a "typical" growth trajectory.

4 EVALUATION

The main method of evaluation in this project will be based on the hypotheses we propose initially. Since this project revolves around the analysis of data to either support or refute several hypotheses and does not contain any models that can be graded on performance scores, an alternative metric of evaluation could be the robustness and completeness of the analysis performed. Ultimately, though, the principal contribution of this research project is its evaluation of the Information within the Microsoft Academic Graph (MAG) dataset, and the comparisons that it will thereby be able to draw between academics who become editors and those who do not.

5 PROJECT TIMELINE

5.1 Capstone Project 1

Within this time period, the project team aims to complete the majority of the statistical analysis and obtain most of the results that will be presented in the final project report. This will entail data cleaning and consolidation as necessary, as well as experimenting with statistical methods such as coarsened exact matching and synthetic control.

5.1.1 ***Data Processing and Classification (4 weeks)****.* Several of the confounding factors which we aim to control for (such as discipline and gender) are not included as labels in the Microsoft Academic Graph dataset and will need to be identified as part of this project. This stage will involve data processing in order to classify academics as necessary and prepare the dataset for the following stages.

5.1.2 ***Data Point Matching (6 weeks)****.* Coarsened exact matching will be applied in order to match editors and academics. In this stage, the appropriate conditions used in the matching process will be determined. This will require experimentation, as conditions that are too exact may not generate matches while conditions that are too relaxed may result in irrelevant or incomparable matches.

5.1.3 ***Preliminary Analysis of Results (2 weeks)****.* Based on the results of the matching stage, preliminary analysis will be performed in order to assess whether the timeline of the project should be altered going into the final semester and identify areas for further investigation. This analysis will also form the basis of the project's results.

5.1.4 ***Midterm Report Preparation (2 weeks)****.* The final two weeks of this semester will be dedicated to the preparation of a report summarizing the progress of the project and laying down the foundations for work to be done in the coming semester.

5.2 Capstone Project 2

In this semester, the project team aims to complete any remaining aspects of the data analysis and produce final results. The team will also work towards generating a final project report, which will present all significant results from the research conducted throughout this project. Based on the results obtained, the team may also consider preparing a manuscript for submission to journals and/or conferences.

5.2.1 ***Data Visualization and Interpretation (4 weeks)****.* Figures illustrative of the research findings will be used to aid explanation and discussion. The project team will experiment to determine the most effective visualization and interpretation methods. Any further investigation needed (as determined during Capstone Project 1) will also be carried out during this time.

5.2.2 ***Analysis of Findings (6 weeks)****.* Following the completion of the matching process and relevant statistical analysis, the project team will work to analyse the results produced in all preceding stages.

5.2.3 ***Final Report Preparation (4 weeks)****.* This research project will culminate in a final report and poster, presenting all the findings from our analysis and providing extensive discussion of these findings.

6 BUDGET

The project team does not anticipate any need for additional budgetary funding.

7 CONCLUSION

This paper will investigate the impact of becoming an editor on an academic's career. Given that the majority of editorial work is performed as community service in addition to an academic's existing responsibilities, it is important that academics are able to assess whether becoming the editor of an academic journal is worth it for their career growth. There is little existing literature in this area; most papers relating to this topic are either outdated or use small sample sizes. As a novel contribution, we propose analyses based on coarsened exact matching that will be applied a dataset of 220 million publications and 240 million scientists, thereby covering knowledge generation in 19 fields.

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