A PhD is a PhD is a PhD - or?
On potential differences in publication patterns among industrial and conventional PhD students
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Introduction

The Danish PhD program is divided into two different programs: a conventional PhD where the student is employed solely at the university, and an industrial PhD where the student divides his or her time between the university and a company where the thesis is written in cooperation with.

The purpose of this paper is to search for systematic differences in publication behavior between conventional and industrial PhD students regarding the quantity of publications.

Methods

Two samples of PhD students were obtained. The first consisted of all industrial PhD students who finished within a specific year-span (12) at Social Sciences SDU. For the composition of the second sample, we tried to match the composition of the first in terms of time span and departmental affiliation (an industrial PhD student from political science should be matched with a conventional PhD student from the same field). Data was gathered via searches in Web of Science, Scopus, Sociological Abstract and the University of Southern Denmark PURE research repository. The searches were limited primarily by first name initial and last name. The process of searching led to 24 individual publication lists for each former PhD student. To improve the validity of the data, the PhD students were asked to validate their own list. 58% (14 out of 24) returned validated publication lists. The data is analyzed with simple, bivariate tests comparing the mean of the two groups on different variables.

Results

Conventional PhD students publish more during the PhD, even when removing an extreme outlier. The p-value of the one-sided t-test is 0.037, i.e. statistically significant at a 95% level. When the outlier is removed, the p-value is 0.077, i.e. statistically significant at a 90% level. However, the remaining tests (number of publication after the PhD is finished and the total number of publications during and after the PhD) do not show statistically significant differences.

Conclusion

On the basis of our findings for these 24 PhD students, we cannot reject our H0 and instead must conclude that our evidence points in the direction that our initial assumption was wrong. Considering the whole career during and after the PhD, conventional PhDs do not seem to produce more publications than industrial PhDs. However, some difference does exist since after all there is a statistically significant difference in output during the PhD period, if not after.

H0: There is no difference in the quantity of publications produced by industrial PhD students and conventional PhD students

Hypothesis

Our assumption is that conventional PhD students produce a higher quantity of publications than industrial PhD students, because conventional PhD students to a higher degree than industrial PhD students aim at careers in research, and that the latter, conversely, are assumed to aim for jobs in business more frequently. Thus:

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