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1) Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

This study aims to answer several related questions about the progression of individuals through academic careers in mathematics in the UK. Very little data has previously been collected and summarised on this topic. For that reason, the study aims to answer many demographic questions.

1. What proportion of individuals who have held a lectureship/PDRA/Professorship in the UK received their PhD from an institution in the UK?
2. What proportion of individuals who held a lectureship/PDRA/Professorship in mathematical sciences had their PhD in mathematical sciences?
3. What proportion of promotions at all levels are associated to a change of country?
4. What proportion of promotions are associated to a change of institution?
5. What proportion of promotions are associated to a change in discipline?

In addition, the study will investigate the following comparisons:

6. Does gender influence length of time to obtain each rank, i.e. getting a lectureship.
7. Does having childcare responsibility before a given rank influence the time to attain that rank?
8. Does having a period of part time working before previous/during previous/no to a given rank influence the time to attain that rank?
9. Does having a period of leave before previous/during previous/no to a given rank influence the time to attain that rank?
10. How does length of time from PhD to lectureship depend on gender, country of PhD, childcare responsibilities?
11. Are promotions to professor more likely to be associated to a change in institution than promotions to senior lecturer/associate professor?

3) Describe the key dependent variable(s) specifying how they will be measured.

The key dependent variables correspond to the lengths of time between PhD and attainment of each academic rank post PhD. Where ranks are skipped (eg, promotion from lecturer to professor), the intermediate ranks will be taken as achieved on the same date as the highest rank. This data is measured as the difference in reported years in which PhD and each subsequent rank were obtained from the survey, thus it has a measurement error of up to one year.

4) How many and which conditions will participants be assigned to?

All participants will be assigned to the same condition as is a survey and everyone gets the same survey.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Questions 1-5: Simultaneous 95% confidence intervals will be constructed around the proportions.

Question 11: A Chi-Squared test will be used to analyse the comparison and a 95% confidence interval constructed around the difference in proportions.

Questions 6-10: Methods of survival analysis will be used to answer these questions, including Kaplan-Meier curves and Cox proportional hazards regression.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

Outliers will be defined as responses in which recorded dates are outside the plausible range of 1950-2019. These responses will be deleted from the dataset, though the observation may be retained if other data is recorded. Partially complete surveys will only be used for the portion of the analysis related to data that was collected in the surveys. Responses from individuals not currently working in UKHE will be excluded.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

The survey will be open between 1 Jan 2020 to 29 Feb 2020, and the study population will consist of all non-excluded surveys from this period.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

We will also investigate in an exploratory way the evidence regarding optimal time for start of childcare responsibilities in terms of overall career progression.