

Post-Pandemic Shifts in the Career Transitions of Doctorate Holders

Neda Bebiroglu¹, Juliane Farthouat², Baptiste Dethier¹, Audrey Ségerie², Raphaël Beck²

Organisation(s): 1: Observatory of Research and Scientific Careers-FNRS; 2: Fonds de la Recherche Scientifique-FNRS

Submitted by: Dr. Neda Bebiroglu (Observatory of Research and Scientific Careers-FNRS)

Presenting Author: Bebiroglu, Neda (neda.bebiroglu@frs-fnrs.be)

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Academia faced a sudden shift with the outbreak of the COVID-19 pandemic. The unprecedented measures in universities imposed online teaching and remote work, which implied major adjustments for academics. Evidence started mounting quickly that COVID-19's impacts have fallen unevenly. Hiring freezes or slowdowns put those with fixed-term contracts in a situation of "next-level precarity" (Flaherty, 2020). Female journal submissions and authorship declined across research fields (Myers et al., 2020; Squazzoni, et al., 2021).

Even before the pandemic, the precarity of research careers was a major concern. As a report by OECD (2021) has pointed out, post-doctoral researchers have been facing high levels of competition, restricted funding, limited permanent positions, and worsening working conditions. Given the mass exodus of workers in search of better working conditions following the pandemic (Hirsh, 2021), there is a growing concern that additional barriers raised by COVID-19 will negatively impact the scientific talent supply.

Using data from a survey of Belgian doctorate holders, this paper investigates whether the career preferences of doctorate holders are impacted by COVID-19. Literature related to the career transitions of researchers point to multiple factors that may impact their career choice: individual factors (e.g., career aspirations and perceptions of their own research ability; Roach & Sauermann, 2017), the supervisor (e.g., career support received; Hayter & Parker, 2019), and the organization and policy environment (e.g., career preparation programs; Scaffidi, & Berman, 2011).

The theoretical framework guiding this paper is based on the "nested contexts" perspective (McAlpine & Norton, 2006). This framework considers learning embedded in multiple contexts: micro (the researcher), meso (the organization), and macro (larger society). The macro context demonstrates how a particular historical event like the pandemic can impact an individual's career trajectory (McAlpine, Skakni & Inouye, 2021). Accordingly, considering multiple nested contexts in which the researcher is embedded, we ask:

- Are doctorate holders less likely to (a) pursue an academic career and (b) have a research-related job post-COVID compared to pre-COVID?
- What are the factors related to the probability of (a) pursuing an academic career and (b) having a research-related job after doctoral completion for pre-COVID and post-COVID cohorts?

The pre-COVID data is based on the “Future of PhD holders” online survey (Bebiroglu, Dethier, & Ameryckx, 2019), which includes 2055 (42.8% female) doctorate holders from all research fields who defended their dissertation between 2012 and 2018. The post-COVID cohort will include doctorate holders who defended their dissertation between March 2020, the first Covid-related measures in Belgium, and May 2021. The data collection will be done between February and April 2022, through an online survey.

Our empirical analysis will involve three parts. We will first compare the proportion of doctorate holders pursuing an academic career and having a research-related job between the pre- and post-pandemic cohorts. We will then examine significant differences by gender, nationality, having children, and research field. Finally, we will run logistic regression models to assess (1) the probability of pursuing an academic career and (2) having a research-related job, taking into account micro factors (e.g., career aspiration at dissertation defence), meso factors (e.g., support received from supervisor), and macro factors related to the impact of COVID.

Faltering economy following COVID has given rise to concerns that researchers will be forced to leave academia (Woolston, 2020). However, it remains unknown whether there are declining numbers of doctorate holders pursuing an academic career or having research-related jobs. Based on data coming from doctorate holders who obtained their degrees before and during the pandemic, our findings will provide valuable information on the impact of the pandemic and identify factors that are related to the career transitions of doctorate holders.

Methodology or Methods/ Research Instruments or Sources Used

Participants

The pre-COVID cohort in our study is based on the “Future of PhD holders” online survey (Bebiroglu, et al., 2019), which includes 2055 doctorate holders (42.8% female) from all French-speaking university in Belgium and all research fields: Exact and Natural Sciences (45.8%), Social Sciences and Humanities (31.0%) and Life and Health Sciences (29.9%). Respondents had received their doctoral degree in the 3.1 years (SD = 1.9) prior to the survey. They were recruited through doctoral supervisors who were asked to transfer an invitation to their former doctoral students. The post-COVID cohort will include PhD holders who defended their dissertation between March 2020, the first Covid-related measures in Belgium, and May 2021, coming from all research fields. The data collection will be done between February and April 2022, through an online survey.

Measures

In this study, all measures are collected through an online survey.

Pursuing an academic career: One item asking doctorate holders to indicate year by year whether they pursued an academic career since their doctoral completion.

Having a research-related job: One item asking doctorate holders who have a job (inside or outside of academia) to indicate what percentage of their time in the workplace is spent on research and or development activities, ranging from 0% to 100%.

The effect of COVID. Two five-point Likert-type questions: (1) "Has the normal course of your research been impacted by the COVID-19 pandemic?" and (2) "Have your career prospects been impacted by the COVID-19 pandemic?", with the answers ranging from high negative impact to high positive impact.

Results

In each model, in addition to age, nationality, sex, children, and research domain, we will add:

- Micro factors (career aspiration at dissertation defence, previous work experience, mobility experience, time without funding, knowledge about career, number of publications)
- Maso factors (satisfaction from supervisor, career support received from the supervisor, dissertation committee support, positive work environment, institutional support received for job transition)
- Macro factors (the effect of COVID)

Our preliminary analyses based on pre-COVID cohort indicated two trends: (1) those who completed their doctoral degree between 2016 and 2018 were less likely to pursue an academic career the first year after doctoral completion than those who completed their degree between 2012 and 2015, and (2) the proportion of PhD holders pursuing an academic career decreased over time. 59.3% of the respondents spent between 40% and 100% of their time in the workplace on R&D activities.

Conclusions, Expected Outcomes or Findings

In the aftermath of the pandemic, employees started resigning from their roles at very high rates in search of better working conditions and work-life balance. This peak of turnover called the "great resignation" was seen in many countries (Cook, 2021). In November 2021, the former president of the European Research Council, Jean-Pierre Bourguignon fearing the resignation of scientific talent "made a plea" to gather data on the impact of COVID (Naujokaitytė & Hudson, 2021). Doctorate holders as highly qualified workforce play a particularly strategic role in the promotion of innovation and knowledge ecosystems. Therefore, their resignation may have important consequences.

Even though the pandemic's negative impact on researchers' workload, mental health, relations with supervisors, and financial constraint has been documented, recent data

provide an alternative view. For some researchers the pandemic represents an opportunity since they perceive to have an increased time to learn and more digital collaborations (Sachini et al., 2021). In addition, the literature on economic recession provide evidence that doctorate holders are more likely to stay in academia at times of uncertainty (Boehm & Watzinger, 2012). Although the concerns related to the research work force are legitimate, we still do not know if the pandemic will result in declining rates of doctorate holders pursuing a career in academia or in research.

Our goal will be to provide initial data comparing pre-COVID and post-COVID cohorts of doctorate holders. Even though we may find several significant differences between cohorts in terms of satisfaction from supervisor, perceived career support from the supervisor, or positive work environment, it is still unknown if and to what extent these factors would impact the possibility of doctorate holders pursuing an academic career or having research-related jobs. The study will have important implications on the post-pandemic career support of doctorate holders.

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