Career impact on junior researchers of work experience at HHMI's Janelia Research Campus: An exploration

1. Involved parties

PIs: Paula Stephan, Georgia State University, US and Reinhilde Veugelers, KULeuven, BE
Investigated Organisation: HHMI's Janelia; Contact: Bodo Stern, Chief Development and Strategy Officer, HHMI

2. Research plan

Supporting early-career researchers on fellowships or starting research grants is a common practice, both by public funders and private funders.[1] It is also common practice to support early-career researchers as postdoctoral researchers, on funding that the PI has received. Despite their prevalence, and growing concerns regarding career development of young researchers, rarely are such early career experiences evaluated on their impact on career development. Such questions include:

- Did the experience allow the junior researcher to progress faster in his or her research career into a permanent position, transforming a postdoc or short term contract into a permanent position within the same or another organization? Did it increase mobility within academe? Into industry?
- Did the early career experience allow the junior researcher to become independent? To build his or her own team? Set out on a more risky, frontier pushing, longer time research agenda?
- Did the early career experience allow the junior researcher to increase his or her recognition, visibility, standing in the research community? Be recognized as a trend setter?
- How important is the research environment and HR policies and practices at the hosting institution for impacting the career advancement of junior, temporary researchers?

Our proposal aims to develop a research agenda on how funding structures and environments relate to career outcomes. Specifically, we are interested in the career outcomes of postdoctoral associates and Group Leaders at HHMI's Janelia (https://www.janelia.org/. Janelia is particularly interesting to study as it has as mission to support young researchers on their path to independence and to host them in a dedicated research environment at Janelia. Given that Janelia is now in its 12th year, it should be feasible to structure an analysis on career impact.

A number of major challenges need to be sorted out. A first one is the selection of proper counterfactuals to control for effects due to selection and singling out the effect of the "Janelia" treatment on career outcomes. To this end, we will examine the possibility of constructing various comparison groups for the Janelia Group Leaders and postdoctoral associates: non-successful Janelia-applicants, HHMI investigators and the postdocs who have worked with them, recipients of NIH postdoctoral support, both NRSA fellowships and support from a PI's grant.
A second challenge is the collection of data and indicators to trace "career impact" over a sufficiently long period. To this end, we will examine the possibility of collecting and combining information from personnel records of the funder with information from their publications, (eg. on networks of

[1] The NSF's Graduate Research Fellowship Program (GRFP) awards approximately 2,000 fellowships annually; NIH supports approximately 7000 predoctoral students and 1000 postdoctoral students on fellowships annually and considerably more on faculty grants. The Alfred P. Sloan Foundation awards 126 fellowships annually; HHMI supports a number of postdoctoral researchers working in the 53 group leaders' labs at Janelia; in addition, many predoctoral and postdoctoral researchers are supported on HHMI investigator grants. Examples of programs in Europe include the European Commission's Marie Curie Fellowships and ERC junior grants

(co-)authorship, affiliations, area, nature and impact of publications) and information on career progression from scraping cv-information from the web, for example from LinkedIn or from other sources for Janelia-treated as well as the various counterfactuals. This should allow us to use various econometric techniques to analyse the impact from selection and treatment on career progression, such as diff-in-diff and regression discontinuity design. We may also explore whether there are possible pseudo-experiments that can be used, such as unexpected shocks over time in the Janelia-treatment. Finally, we will also dive deeper into the "Janelia-treatment", characterizing in more detail what are the unique features of the environment that are associated with career impact effects. This should allow us to look for the most appropriate alternative research environments to compare with.

This proposed research is not only important for pushing the "science of science funding" academic research agenda. It is also of direct importance to HHMI as they move into the second decade of the Janelia research program and consider how and why outcomes may vary for young researchers employed at Janelia vs. young researchers employed by HHMI investigators.

3. Funding request

At this exploration phase of the research, we request funding to cover travel and accommodation expenses for at least 2 visits to Janelia for deep-dives-into-their-labs and meetings concerning data access and infrastructure. The request is not for funds to perform the actual research but to investigate the feasibility of so doing.

Travel RV: 3000
Travel PS: 1000
Accommodation, local travel & subsistence RV+PS: 4500
Local Catering with Janelia inhabitants: 1000
Total: $ 9500

4. Link to the PI's cvs:

Paula Stephan: http://sites.gsu.edu/pstephan/
Reinhilde Veugelers: https://en.wikipedia.org/wiki/Reinhilde_Veugelers

5. Annex:

Bodo Stern of HHMI has indicated interest in our proposal but also has questions that need to be addressed prior to our moving forward. A conference call with Dr. Stern is being scheduled for the first week of October. In that sense this proposal is preliminary and cannot be implemented if HHMI indicates that they are not able to move forward.

Email from Bodo Stern, Chief Development and Strategy Officer, HHMI, received September 21, 2018.

"Hi Paula and Reinhilde,
Thanks for getting In touch about working together on Janelia career outcomes. Exciting! For this kind of analysis I will need to get ok from Erin O'Shea (President), Gerry Rubin (Janelia) and David Clapham (CSO, in charge of the investigator program). Gerry and David are the keepers of information of Janelia and Investigators, respectively, and would need to be on board to share the necessary information.
Maybe we could have a preliminary discussion in the first week of October (I am fairly free then). I am busy next week.
Three questions come to mind:

1. What kind of information would you need from us? It would be good if I can tell Erin, Gerry, and David whether we can do this with available info or whether we need to collect new info. We definitely are interested in analyzing career outcome data and have some data.

2. Would you also plan to compare to a non-HHMI population, or national average data?
3. Erin and Gerry may have sensitivity about Janelia data being published at or around the time we launch a new research area (mid 2020). A concern could be that postdocs from HHMI Investigators may transition more frequently to academic positions than Janelia postdocs, not due to any difference in mentoring / accomplishments but due to the long-standing reputation of the Investigator program and their institutions. We know that Investigators have an outstanding record of placing candidates in faculty positions. But we also recognize that some of this success benefits from the same shortcuts in faculty hiring decisions that also drive the reliance on faulty metrics like the Journal Impact Factor. Certain academic institutions and HHMI Investigator status simply have outsized sway on those committees; and a reduced chances to land academic jobs out of Janelia may hinder recruiting efforts there. On the other hand, it could easily be the other way around, since Janelia labs are smaller and more interactive. There maybe less of a 'sink or swim' mentality.

Cheers,

Bodo