Reviewer’s report

Title: The acceptability of using a lottery to allocate research funding: A survey of applicants

Version: 0 Date: 10 Nov 2019

Reviewer: Stephanie Meirmans

Reviewer's report:

Review: RIPR-D-19-00024

This is a well-written manuscript on an important topic: introducing a lottery element to the funding evaluation system. There is currently an international debate regarding how to improve the funding system, and one important suggestion has been to introduce a lottery element to grant evaluation. Right now, external and/or panel peer review is the international standard for nearly all funding agencies and funding schemes. One New Zealand funder has introduced an element of randomness into one of their funding schemes in 2013. This manuscript describes the results of a survey done amongst the applicants to this particular funding scheme (in the years 2013-2019). It is obviously of high importance to evaluate how applicants are experiencing such funder experiments, and whether they would recommend its continuation and possible extension to other schemes. I therefore congratulate the authors to perform such a survey and to make the outcomes of the survey public. As such, the manuscript is thus of high importance and will likely receive broad interest. The manuscript also fits well into the journal's scope. Overall, I am therefore looking forward to see the manuscript being published in due time. That said, I also have some extensive criticism with the manuscript, and I would recommend that the authors first revise their manuscript accordingly.

Major criticisms:

1. The paper lacks some crucial information as to how this specific grant scheme had been evaluated previously, before 2013. This is important information because from what I can guess, the randomisation element seems to not have been the only change introduced in this particular funding scheme in 2013: Alongside, (1) the length of the application may have been changed (towards shorter and/or more simplified applications), (2) there might perhaps have been a switch at the evaluation step one, from external peer-review to panel peer review (but this is not clear), and (3) the assessment might have changed from being applicant-explicit grant proposals to being anonymous grant proposals. If this all had indeed been the case, please state so explicitly.
2. Make some important figures more explicit. From table 1, I extracted that - after removing the cohort of 2019 (for which funded/non-funded data were not available yet) - a mere 15% of the applicants had received funding between 2013 and 2018. Really interesting was to calculate that a total of 79% (!) of the applications had been declined at step 1, meaning via panel review. In contrast, at step 2 (the lottery step) 73% had received funding - which is a near-reversed situation. Indeed, one really wonders then about the overall actual impact of the lottery element, as only 14 out of the in total 251 proposals (5.6%) had been removed by chance. Please be more explicit in the manuscript that this was in fact mostly a panel review with subsequently only a very minor lottery element, and provide these numbers clearly in the text. One wonders also about the criteria for declining at step 1 - were really 79% of applications completely unfundable? That seems to be a quite high rate to me, and my guess is that it may have been connected to how the two criteria were interpreted by the panel (that consisted only of three persons). Alternatively, perhaps panel members were even instructed to sieve out as much as ¾ of applications at this stage? One wonders. Indeed, once the importance of step 1 becomes obvious, some of the responses are not so surprising any more - e.g. that researchers prepare their applications equally carefully and spend a near-equal amount of time on them.

3. Abstract and page 8: I find it confusing to consider a 63% agreement to be a "general agreement" - this seems to be more like a slight majority to me. Perhaps say so, and then also mention in the abstract that only ¼ were really against the idea of a lottery element? Even then, as the authors clearly showed and discussed, there is a bias by the "lucky winners" as well, making one doubt whether the overall conclusion for support of the lottery element is actually warranted. Similarly, I doubt that 40% can be called "less support", in particular because 37% were against the idea - which seems more like a quite well-divided opinion to me. Please rephrase, also in the conclusions.

4. It would be important to put even more focus on some of the other elements that emerged from the survey (besides the lottery). For example, there was a really broad consensus (89% & 91%, with only 4% & 2% against!) that the length and the format (simplification?) of the application were appropriate and that anonymization of applicants was a good idea. I would think that both types of insights are of at least equally big interest to the readers and should be taken up much more prominently (e.g. in the abstract and conclusions as well). Thus, the authors should consider making these two insights two of the main results of the survey, besides the far more moderate enthusiasm for the lottery element (also because the lottery element was very limited in its execution). A broader discussion of the anonymization element could e.g. usefully make a connection to the "Matthew effect" that has been widely detected also at the funder level (see e.g. Bol et al., The Matthew effect in science funding, PNAS 2018).
Minor criticism:
- Page 3: Funders do not exclusively fund "rigorous experiments". Please rephrase.
- Page 3: Please add "lotteries may also minimize" (this is only a suggestion so far)
- Page 5: "big picture". I would rephrase to "focus of assessment to the project idea, while…"
- Page 9: Is it possible to specify the (approximate) numbers? ("a number", "some", "others" is a bit vague, perhaps)
- Page 9/10: "Stand-out applicants" - this idea should be discussed more, also in the discussion.
- P. 12: It might be better to mention the growth of the scheme in the introduction, not in the discussion.
- Page 13: This is not surprising, really (see Major criticism 2). Please rephrase.

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