Minutes for AAAC Proposal Pressures Teleconference: April 27, 2015
Notes by P. Cushman

Attending:
Priscilla Cushman
Hashima Hasan
Michael Cooke
James Lowenthal
Jonathan Rall
Arik Posner
Chryssa Kouveliotou
Angela Olinto
Keivan Stassun
Ted Von Hippel

Ted summarized key findings from his recent paper "To Apply or Not to Apply: A Survey Analysis of Grant Writing Costs and Benefits"

Previously published results which are not widely known

1. Large scale NIH study showed Inter-reliability of reviews is low: ranging from 0.15 to 0.2

Hashima commented that NASA procedure is probably more reliable. We agreed that more data from other agencies besides NIH would be helpful

2. 68% of NSF proposals across all fields are "meritorious", but those funded are a much lower percentage ➔ good science goes unfunded.

3. No correlation was found between the rankings given by the reviewers and scientific impact (as defined by number of papers, citations, type of journal)

Again, it would be interesting to look across different funding agencies and more specifically at NSF Astronomy

New Results

1. Size of sample = 113 astronomers (85 male, 25 female. 63 NASA applications and 50 NSF applications) and 82 psychologists (NIH).

2. Time to write proposal 116 PI + 55 CI hours. Perceived benefits from proposal writing other than getting funded are minimal.

3. 20% success rate drives half active researchers away from federal funding

Hashima asks if we can quantitatively define a point where it is not worth writing a proposal. We discussed if we could use this existing data to create such a specific metric. It would require some assumptions – discussed again later (see below) by Keivan and Ted.

4. The average support asked by PIs is 1 month summer salary, but 5-10 years ago, it averaged 2 months. People are making scientific progress by squeezing themselves.

5. Even among highly capable researchers with productive teams, 50% were unable to obtain funding in the current cycle. After three such cycles, one-eighth of all active programs are likely to be defunded.

Most people write one proposal a year with a success rate of 20%, but there is no correlated information with quality and no data on individual repeat rates. Chryssa commented that people are submitting more than one proposal a year, but the data the AAAC committee already has from NSF and NASA indicated that the increase in numbers of proposals is not driven by the number of proposals per PI but an increasing number of PIs. Ted's data confirms this as well. However, we do NOT know if individuals are putting in similar proposals to multiple agencies more than they used to. Again, it becomes apparent that a new survey will be able to do a better job across agencies.

6. The funding probability is correlated with whether you have been funded before.. The data: P(present funding | past funding) = 17 out of 35 proposers ~ 50% and P(present funding | no past funding) = 1 out of 15 proposers ~ 7%.

This is important to emphasize - for any particular success rate, the reality for new proposers is even worse, so this should be accounted for. E.g. if the average success rate is 20%, it is really only 12% for a new proposer.

Since this is an important point, but there were only 35 researchers in the data set from which conditional statements were made, a larger data set would be useful. James asked how the survey was advertised and Ted said that he contacted 24 dept heads from major research universities. Chryssa asked if we can use the NASA list of people who proposed, but Hashima reminds that only the successful proposer names are public. After a brief discussion, the plan is to put the survey on a link and contact individuals using INSPIRE lists, plus advertise through AAS and APS.

Hashima cautions against making the survey too long – 10 min per survey is the max, if you want high participation. Ted says it starts in a beta format and a set of testers need to take it and time it. We also need any such survey to be authorized (administered) by an institution and approved by its Institutional Review Board. It was unclear if that institution could be the AAS or whether a University has to take it on. James L. will look into this detail more and let us know.

The numerical models developed by Ted can be used to answer questions like "what is the success rate for a new proposer after 3 years of not getting funding. Keivan will work with Ted to expand these questions for other assumptions and timescales, but using the same data, and report back.

The paper ends with a recommendation to dept heads not to use success of obtaining federal grants as a condition for promotion, and that applying might be

more trouble than it is worth. We spent some time understanding what this means. Private money is just as hard to find, crowd-sourcing is fickle, mostly people just start doing unfunded research. Prisca commented that the DOE model keeps people funded as part of large groups, so the research can continue and there is flexibility to move the money around within the group. It constricts the influx of new people in a different way (fewer students and postdocs can be hired). Some DOE data indicates that the success rate is NOT worse for new proposers in DOE Cosmic Frontier. .

A comment was made that NSF Ast over-invested in facilities rather than people. But no matter what, there is just not enough funding. Ted commented that a better way to describe science budgets is per capita, to account for growth in astronomers as part of the general population growing.

The timing of getting the report out was discussed. The original plan was to finish by end of calendar 2015. It seemed like a white paper is sufficient, but there is also interest in a publication. In the end, perhaps we should stage the report, since something should get out in time for the mid-decadal process, which is starting now. We need to keep up the momentum. Prisca will send out a poll for the next teleconference in a couple weeks.

In summary, we would like to do the following:

A. Use the data already collected and mine it for some more specific questions and data-driven scenarios
B. Determine what information didn't make it into the original survey and incorporate it in the new one.
C. Gather a larger data set and cover more agencies for the conditional and correlated information.